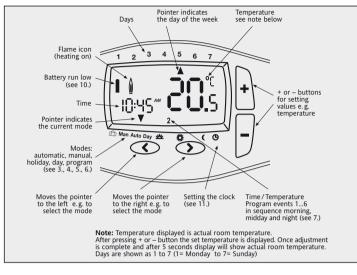
User and installation guide 468 931 00 (IN STAT⁺ 2R7, (IN STAT⁺) 3R7 (Battery and Mains) Room Temperature Controller



I. User Guide

Operation (Overview)



1. Principle of function

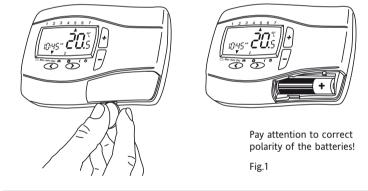
INSTAT⁺ the programmable room thermostat allows you to set time periods (up to 6 per day) and temperatures to suit your own lifestyle. Once fully installed and powered the device will automatically set the correct time and in auto mode will control your heating system according to pre-set program 1 (see 7.). The temperature is controlled by sensing air temperature, switching on the heating when the air temperature falls below the thermostat setting and switching it off once this set temperature has been reached.

INSTAT+2R7, -3R7 is a 7 day or 5:2 day Programmable RoomThermostat. Allowing different programs for weekdays and weekends and also every day of the week can be programmed differently.

NOTE:

The adjusted values (while programming) will be accepted automatically after ${\sim}5$ sec.

2. How to insert batteries (2 AA 1,5V Alkaline Battery Model only)



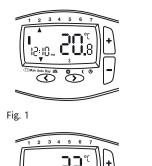
3. Automatic mode (AUTO)

In this mode, the room temperature is automatically controlled according to the preset program. The pointer indicating the mode is set to AUTO. The number at the bottom right indicates the program event during the day. (Fig. 1)

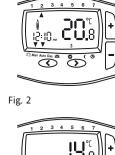
4. How to change the temperature for a short period of time (override)

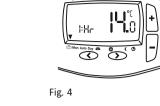
When in AUTO mode, you can override the existing temperature setting for a short period of time.

Press the + or - buttons to change the temperature setting. While in temperature override the pointer indicates both AUTO and MAN (Fig. 2).



(GB)





7. Pre-set programs

Fig. 3

There are 3 pre-set time/temperature programs which are already available in the controller. Pre-set program 1 (as shown below) is the default. Therefore, if pre-set program 1 is the best program to suit your lifestyle, you do not need to change the time/temperature settings on the device.

To select an other program see 9.3

D ()						
Program 1 (home d	uring the	e day)			
		Monday	to Friday			
Events	1	2	3	4	5	6
Time	6:00	8:30	12:00	14:00	17:00	22:00
Temperature °	C 21,0	18,0	21,0	18,0	21,0	15,0
		Saturda	y and Sun	day		
Events	1	2	3	4	5	6
Time	7:00	10:00	12:00	14:00	17:00	23:00
Temperature °C	2 21,0	18,0	21,0	21,0	21,0	15,0
20	Si Si	1on – Fri at – Sun				
6:00 h	8:00 h	10:00 h 12	:00 h 14:00	h 16:00 h	18:00 h	20:00 h 22:00 h

Program 2 (home for lunch and on weekends)

110510112 (1	ionic io	i tunten t		cencinus,		
		Monday	to Friday			
Events	1	2	3	4	5	6
Time	6:00	8:30	12:00	14:00	17:00	22:00
Temperature °C	21,0	18,0	21,0	18,0	21,0	15,0
		Saturday	and Sund	lay		
Events	1	2	3	4	5	6
Time	7:00	10:00	12:00	14:00	17:00	23:00
Temperature °C	21,0	21,0	21,0	21,0	21,0	15,0
∞C 22 20 19 18 17 17 16 16 15 15		***** **** **** Mon – Fri Sat – Sun				
6:00 h	8:00 h	10:00 h 12	2:00 h 14:00	h 16:00 h	18:00 h	20:00 h 22:00 h

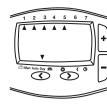
Program 3	(at work							
		Monda	y to Frid	ay				
Events	1	2	3	4	5	5	6	
Time	6:00	8:30	12:00	14:0	0 1	7:00	22:00	
Temperature	°C 21,0	18,0	18,0	18,0) 2	21,0	15,0	
		Saturda	ay and S	unday				
Events	1	2	3	4	5	5	6	
Time	7:00	10:00	12:00	14:0	0 1	7:00	23:00	
Temperature	°C 21,0	18,0	21,0	21,0) 2	21,0	15,0	
∞C .								
22								
21								
20 -	1	1	1					1 1
19 -	£	1	1					1
18	8	÷	1					1
17								1
16		Mon – Fri						1
		Sat – Sun						1 1
15	Î							
14 6:00	h 8:00 h	10:00 h	12:00 h	14:00 h	16:00 h	18:00 h	20:00 h	22:00

8. How to adjust the pre-set time/temperature program to suit

The days can be selected as blocks or individual days (Fig.5 to 7)

Selected by pressing the > button to "Day" then pressing the + or - buttons to select either blocks Fig 5 to Fig 6 or individual days Fig 7.

Note: To facilitate programming, blocks of days with the same times/temperatures can be formed before starting.



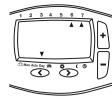


Fig. 6:

Saturday and Sunday as one block

(days off)

Fig. 5: Monday to Friday as one block (working days)



Fig. 7: Each day is individual day

9. How to change user options

The controller offers a number of options that can be changed by the user (see Table 1.). To activate the menu, in AUTO Mode press the < and > buttons simultaneously for 3 seconds

Select an option	by pressing the < or > button
Change an option	by pressing the +- button
Press < or > to accept each	change

To exit the menu, press the < and > buttons simultaneously for 3 seconds.

If no button is pressed within 2 minutes, the device will return to the auto mode.

9.1 How to change from 24h to 12h clock (option 1, table 1)

Shows the time as 24 hours or 12 hours

9.2 How to change the manual set point temperature (option 2, table 1)

Setting the temperature used when the manual mode is selected for the first time, e.g. 20°C

9.3 How to change to another pre-set program (option 3, table 1)

Selection of a pre-set program to be used for programming events (see 7.).

9.4 How to change the number of events per day (option 4, table 1)

2, 4 or 6 time/temperature events can be selected for all days (not used events will be skipped). If there is no need for e.g. 6 events, choosing 4 makes programming easier.

9.5 How to switch on/off the automatic daylight savings time/standard time change (option 5, table 1)

You can select whether or not you want the time change to be carried out automatically. If it is not carried out automatically, the time has to be adjusted manually (see 11.).

9.6 How to change the temperature display (option 6, table 1)

The temperature display can be adjusted to individual needs, e.g. $3 = +0,3^{\circ}; -15 = -1,5^{\circ}$.

9.7 How to restore the built in time temperature programs (option 7, table 1) Restores the pre-set programs to its original factory settings.

9.8 How to switch off the programmable thermostat (option 8, table 1)

When switched off, the programmable thermostat no longer controls the room temperature and the room is not heated. The display will show OFF, and the buttons will not function.

In the installer options (refer to Installation Guide) you can select whether or not frost protection is to active (heating is called for if the temperature falls below 5°C) when the programmable thermostat is switched off.

10. How to change the batteries (Battery Model only)

When the batteries start to run low, the battery icon (refer to Fig. 1) starts to blink. The controller continues to function normally.

After roughly 6 months, the device will cease to function and will permanently display the battery icon (Fig. 8).

Disposal of batteries according to legislation.



11. How to change the time, day, month and year

The controller comes with a pre-set clock, which also automatically switches from day

When the next programmed time/temperature event is reached, the device will revert to the AUTO mode.

5. How to set a constant room temperature (manual operation)

In this mode, a constant temperature can be set, and the pre-set program is ignored. The temperature last selected is chosen as the initial temperature.

How to activate this mode

Press the < button until the pointer indicates MAN (Fig. 3). Set the temperature by pressing the +- button

Exit the mode

by pressing the > button

6. How to set the room temperature for a set time (holiday/party mode)

In this mode, the temperature can be set for periods of time ranging from a few hours up to 199 days, e.g. when you are away from home for longer periods of time (holidays).

The remaining hours/days are shown. Time periods between 1 hour and 23 hours and 1 day and 199 days can be set.

How to activate this mode

Press the < button until the pointer indicates the suitcase icon (Fig. 4)

Set the temperature	
Select the time	
Set the time	

by pressing the +- button by pressing the < button by pressing the +- button

Once you have set your time period, the time will flash for 10 seconds and then start the holiday/party period.

To exit this mode, press < or >.

When hours have been set, the controller will return to AUTO mode once the set hours have passed.

When days have been set, the controller will return to AUTO mode at midnight of the last day.

Note: the current day (today) must be included in the setting.

e.g. 1 day is set; the controller returns to AUTO today at midnight.

	personal needs		light savings time to standard time.	, which also datomatically switches from day
l operation)	Select the day function Select the day	by pressing the > button up to position "Day" by pressing the +- button	There should be no need to change these settings. However, should the need arise, the settings can be changed in the following way.	
t program is ignored.	Set the times for this day		Note: Days are shown as 1 to 7 (1= Mon	iday to 7= Sunday)
e.	Select the event (16)	by pressing the > button	Activate the clock mode:	
	Set the time	by pressing the +- button	Select DAY with button > and then 7 (Su	5.
	Select the temperature	by pressing the > button	until the pointer indicates the clock icon.	e through all 6 time/temperature events (without any modifiaction) dicates the clock icon.
	Set the temperature	by pressing the +- button	The time will now flash.	
	The > button must be pressed to ac	ccept a setting.	Set the time	by pressing the +- button
	If you wish to change other events return to the auto mode, press the	or days, repeat the actions described above. To < button.	Press the > button to select the day Press the > button to select the month	Press the +- button to change the setting Press the +- button to change the setting
	Note: The last event of the current	day can be extended up to the first event of the	Press the > button to select the year	Press the +- button to change the setting
ing from a few hours	following day.		Press the > button to return to the AUTC	D mode

Table 1 Use	Table 1 User options						
User options	Description Select between		-	Default			
1	Change 12 h or 24 h clock	12	24	24			
2	Change he manual set point temperature	7	32	20			
3	Change to another pre-set program	1	3	1			
4	Change the number of program events per day	2, 4 or 6		6			
5	Switch on/off automatic daylight savings time/standard time change	ON	OFF	ON			
6	Change temperature display	-5.0	5.0	0.0			
7	Restore the built in time temperature programs	ON	OFF	OFF			
8	Switch off the thermostat	ON	OFF	OFF			

II. Installation Guide Warning! Table 2. Switch off mains supply before removing an existing room thermostat or installing this controller. Caution! The device must only be opened by a competent electrician and installed according to the wiring diagram in the housing cover or this guide. The existing safety regulations must be complied with. Appropriate installation measures must be taken to achieve protection class II. This electronic device which can be installed independently may only be used to

control the temperature in dry and enclosed rooms in a normal environment. The device is radio-interference suppressed according to VDE 0875 T.14 resp. EN 55014 and functions according to method of operation 1C (EN 60730).

1. Applications:

The electronic thermostat INSTAT+ 2R7 or INSTAT+ 3R7 can be used for temperature controls together with:

- · Actuators of floor heating systems or radiators • Oil and gas warm water heating
- Circulating pumps
- Heat pumps
- Electric radiators

2. Installation:

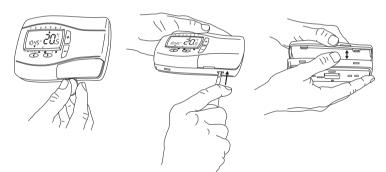
Installation location:

The device should be installed in a location in the room which:

- · is easily accessible for operation
- is free of curtains, cabinets, shelves, etc.
- allows for free air circulation
- · is not subject to direct sunlight
- is not subject to draught
- (e.g. when windows/doors are opened) is not subject to direct influence
- from the heating sources
- is not on an outside wall
- is about 1.5 m above the floor

The controller must be installed directly onto the wall or on a flush-mounting socket. 1. Remove battery cover using a coin (Battery model only).

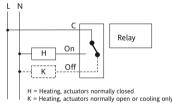
2. Remove the front cover using a flat screwdriver and separate from back plate.



3. Attach the back plate to a flush-mounting socket using suitable wall plugs and screws

4. Complete the wiring to the heating source according to the wiring diagram inside the product or below.

for INSTAT+2R7 (Battery)



for INSTAT+3R7 (Mains) Relav

Off mally closed mally open or cooling only

5. Replace the front cover by pushing it fully onto the back plate.



3. Installer options Attention: The settings should only be carried out by the installer only, as settings may affect the functions and security of the heating system. List of Installer options see To activate the menu, press the < and + buttons simultaneously for 5 seconds Select an option by pressing the < or > button by pressing the +- button Change an option Press < or > to accept each change To exit the menu, press the < and + buttons simultaneously for 5 seconds.

If no button is pressed within 2 minutes, the controller will return to the auto mode.

3.1 Access protection lock / child lock (option 1, table 2)

When this function is activated, all buttons will be locked.

To switch off the protection lock, enter the installer options and set option 1 to OFF.

3.2 Frost protection (option 2, table 2)

The frost protection of the controller can be activated via this option.

Frost protection will switch on the heating if the room temperature falls to 5° C and will then control the temperature at 7°C.

When in Off mode frost protection will still be active.

3.3 Low and high limit set points (option 3, 4, table 2)

These limits can be-used to prevent temperatures from being set too high or too low. The set point default values are 32°C (high limit) and 7°C (low limit).

3.4 Optimum start (option 5, table 2)

If this function is activated, the controller will automatically calculate the warm up time for the heating system in order to achieve the desired temperature for each event.

This function is a major energy saving factor.

Note: This function is only possible in the AUTO mode.

After commissioning, it takes a couple of days for the controller to gather enough information to correctly calculate this function.

3.5 Heating/cooling (option 6, table 2)

Use this function to select whether the controller is used exclusively for either heating or cooling applications.

HEATING: The relay will switch on when the temperature falls below the set point. COOLING: The relay will switch on when the temperature rises above the set point.

3.6 Valve protection (option 7, table 2)

If valve protection is selected, the controller's relay will be switched on once a day at 10 o'clock

This function is designed to prevent the valves and pumps from getting stuck during the summer months

If this is required, select On in the installer options.

The operating period can be chosen via option 8.

3.7 Valve protection time (option 8, table 2)

The valve protection time can be set between 1 and 5 minutes (default: 3 minutes).

3.8 Emergency heating in case of sensor failures (option 9, table 2)

The following message is shown in case of sensor failures:

E1 for an internal sensor failure

A sensor failure can have the following effects:

1. If this function is activated, the heating is switched on for 30% of the time (this prevents the room from being too cold or overheating)

2. When this function is not activated, the heating is switched off

3.9 Application type (option 10, table 2)

This function is used to select the application type of the controller.

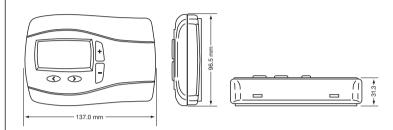
- 0 = Radiator Control or Electric Heat (= Default)
- 1 = Water floor heating control

For INSTAT+2R7	
Order Type	INSTAT+ 2R7
Supply voltage	2 x AA 1,5V alkaline batteries
Switching current	10mA 16(2)A; AC 24 250 V~
Battery life	3 years (typically)
Weight (with batteries)	~ 200 g
For INSTAT+3R7	
Order type	INSTAT+3R7
Supply voltage	230 V AC 50 Hz (195253 V)
Switching current	10mA 16(2)A; AC 230 V~
0	
Weight	$\sim 180\sigma$
Weight	~ 180g
For INSTAT+2R7 and INSTAT+3R7	~ 180g
For INSTAT+2R7 and INSTAT+3R7	~ 180g 7°C to 32°C
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range	
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution	7°C to 32°C 0,1°C
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution Output	7°C to 32°C 0,1°C Relay change over contact, voltage free
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution Output Output signal	7°C to 32°C 0,1°C
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution Output Output signal Timing resolution	7°C to 32°C 0,1°C Relay change over contact, voltage free Pulse width modulation (PWM) 1 minute
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution Output Output signal Timing resolution Accuracy of clock	7°C to 32°C 0,1°C Relay change over contact, voltage free Pulse width modulation (PWM) 1 minute < 4 Min / year
For INSTAT+2R7 and INSTAT+3R7 Temperature setting range Temperature resolution Output Output signal Timing resolution	7°C to 32°C 0,1°C Relay change over contact, voltage free Pulse width modulation (PWM) 1 minute

(without condensation) Storage 15% to 95% Rated impulse voltage 2,5 kV Ball pressure test 75 °C Voltage and Current for the for purposes of interferncemeasurements 230 V. 0.1 A Pollution degree 2 (see Caution) Degree of protection IP 30 Software class

Dimensions

4. Technical data



5. Troubleshooting:

1. It is getting warm too late a. Are clock and program events set correctly?

- b. Is the Optimum Start switched on (see 3.4)?
- c. Did the thermostat have enough time (some days) to determine the room data?

2. The thermostat does not accept any changes

Is the access protection lock switched on (see 3.1)?

3. E1 is shown in the display:

Sensor failure (see 3.8)

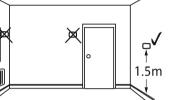
6. Battery handling

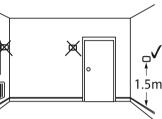


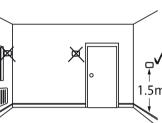
Batteries, rechargeable or not, should not to be disposed of into ordinary household waste. Instead, they must be recycled properly to protect the environment and cut down the waste of precious resources. Your local waste management authority can supply details concerning the proper disposal of batteries.

In compliance with the EU Directive 2006/66/EC, the button cell battery located on the printed circuit board inside this product, can be removed at the end of the product life, by professional personnel only.

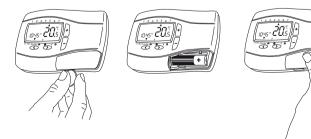








6. Install the 2 AA batteries provided (Battery model only). 7. Reattach the battery cover (Battery model only).



The controller is now installed and will automatically start to control the room temperature according to the pre-set program 1 (refer to User Guide).

All important functions are set ex-factory. If you wish to change any of the settings, please refer to the options in the User Guide.

According to the heating type, refer to item 3.9 (option 10).

Installer- Options	Descriptions Select between		Default	
1	Access protection lock (child lock)	ON	OFF	OFF
2	Frost protection	ON	OFF	ON
3	Low limit set point °C	7	High limit	7
4	High limit set point °C	Low limit	32	32
5	Optimum start	ON	OFF	ON
6	Heating /Cooling	Heat	Cool	Heat
7	Valve protection	ON	OFF	ON
8	Valve protection time		1 5	3
9	Emergency heating (sensor failure)	ON	OFF	OFF
10	Application type	Radiator (0)	Water Floor heating (1)	0