

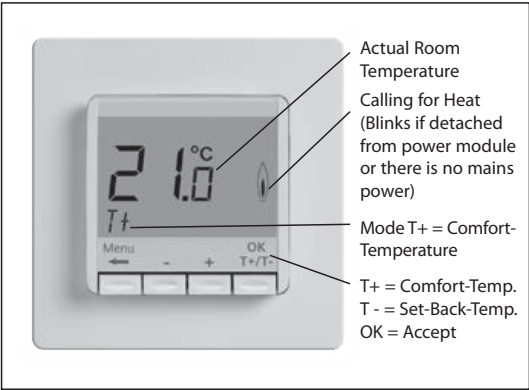
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User and installation guide

Room Temperature Controller

FITnp 3R



1 Principle of operation

The temperature controller FITnp 3R makes it very easy to change over between comfort- and set-back temperature (one key press). In addition, via an external timer the temperature can be set automatically to an ECO-Temperature (e.g. for night set-back).

After installation the room will be controlled to the comfort-temperature T+. The room temperature will be controlled according to the temperature measured by the internal or remote sensor. The Heater will be switched on when the temperature drops below the current set-point.

2 Installation

Caution!

This device must be installed by a qualified electrician, according to the wiring diagram on the device and in compliance with all applicable safety regulations. Appropriate installation measures must be taken to achieve the requirements of protection class II. This device, is used to control the temperature only in dry rooms, under normal environmental conditions. This electronic device conforms to EN 60730, It is an “independently mounted control” and

3 Use

The electronic Room Temperature Controller FITnp 3R can be used to control the room temperature in conjunction with:

- Thermal actuators for e.g. water based floor heating or convector heaters
- Oil or Gas heaters
- Circulation pumps
- Heatpumps
- Electric convector heaters, ceiling and storage heating
- Cooling equipment

4 Features

- One line text display for simplified operation
- Back light
- very easy change over between 2 temperatures e.g. Comfort and Set-Back
- ECO-Input to activate a freely adjustable temperature e.g. night set-back
- Time limit for manually changed temperature
- Arm chair programming (with display unit removed)
- OFF-Function, Key ← to be pressed for 10 sec
- Timer (Party) specific temperature for configurable duration
- Energy consumption display (heating on time * cost) for last 2 days, -week, -month, -year
- Energy cost per hour configurable
- Frost protection
- Range limits for adjusting max and min temperature
- Access protection
- Operating language can be selected
- Control mode PWM or ON/OFF
- Minimum output on/off time and hysteresis configurable for ON/OFF control
- Valve protection
- Heating or Cooling can be selected.
- Adaptation to valves normally open or normally closed
- Measures the room temperature with the internal sensor or a remote sensor

Electric connection

Caution: disconnect electric circuit from supply

Connecting according to Wiring Diagram

For flexible or solid wires 1 - 2,5mm²

5. Mounting

The controller should be mounted at a location in the room which:

- can be easily accessed
- is free of curtains, cabinets, shelves, etc.
- allows free air circulation
- is not exposed to direct sunlight
- is not draughty (when doors or windows are opened)
- is not directly influenced by the source of heat/cooling
- is not located on an outer wall
- is approx. 1.5 m above the floor.

Fitting

in a conduit box Ø 60 mm

- remove the display unit
- remove the frame
- Mount it following the reverse procedure

Caution!

Mounting in plastic wall boxes only

Connecting the remote sensor F 193 720 or F190 021 (optional)

In order to measure the room temperature, instead of the internal sensor an external one can be used.

Remote or internal sensor selection can be made via menu item H1.

Lay sensor inside a protective tube (simplifies replacement). The sensor lead can be extended up to 50 m by using a cable and connections suitable for 230 V. Avoid laying sensor cable alongside power cables, for example inside a conduit.

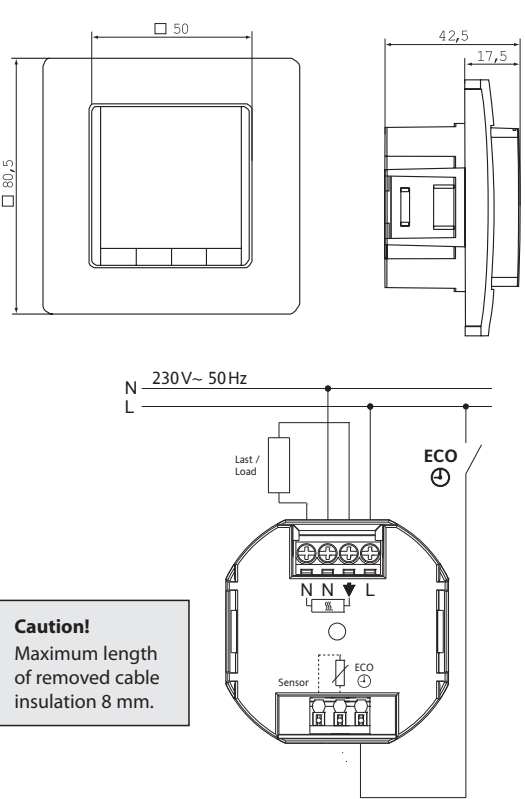
Caution!

The sensor is at mains voltage.

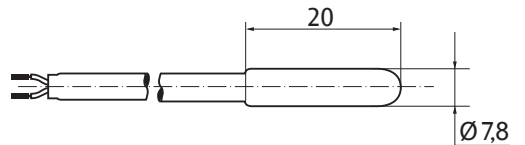
6 Technical Data

Order Type	FITnp 3R
Supply voltage	230 V AC 50 HZ (195...253 V)
Temperature setting range	5 °C ... 30 °C; in 0,5 °C steps
Temperature resolution	0,1 °C steps
Output	Relay NO contact
Switching current	10mA .10(4)A AC; 230 V~
Output signal	PWM (Pulse Width modulation) or ON/OFF
PWM cycle time	adjustable
Hysteresis	adjustable (ON/OFF only)
ECO-Input	e.g. for night set-back via external clock (230V Input), can be extended up to 50 m.
Power consumption	~ 1,2 W
Remote sensor (optional)	F 193 720, length 4 m, F 190 021.Both can be extended up to 50 m.
Ambient temperature	without condensation
Operating	0 °C ... 40 °C
Storage	-20 °C ... 70 °C
Rated impulse voltage	4 kV
Ball pressure test temperature	75 ± 2 °C
Voltage and Current for the purposes of Interference measurements	230 V, 0,1 A
Degree of protection	IP 30
Protection class of housing	II (see Caution)
Pollution degree	2
Software class	A
Weight	~ 100 g
Energy class	IV = 2 %
(acc. EU 811/2013, 812/2013, 813/2013, 814/2013)	

7 Wiring Diagram / Dimensions



Remote sensor F 193 720 (as accessory)



Remote sensor F 190 021 (as accessory)



8. ECO-Input ⓘ

Via the ECO-Input the room temperature can be controlled to an energy saving temperature (e.g. via an external timer). The temperature can be changed by using + – keys (display then T*). This mode will be indicated on the screen as „ECO“.

The used temperature can be pre-set in menu H7.

Via key T+/T- a change over between the temperatures T+, T-, ECO will be possible.

If ECO input becomes in-active, T+ will be activated.

Note: TIMER will not be cancelled, ECO will be delayed accordingly.

Notes for adjustment

- Activated settings terminate automatically 3 Min after the last key press, without saving. They return to the mode which was active before entering the settings, e.g. T+, T-, T*, ECO
- Entering a Code: change value with + – key then press OK
- When going through User- or Installer settings the item number used in the manual will be displayed, e.g. G1 for „T+ Setting“ or H2 for „Control Mode“.
- There may be gaps in the sequence of menu numbers.

Troubleshooting

1. The controller does not accept any changes
Is access protection switched on? see G6
2. The range of temperature setting is limited.
Are temperature limits set? See G7
3. Temperature display doesn't change.
Is display of set-temperature activated? See G10

To insert or remove a flexible wire press pin.

The plastic tab must be in place to provide insulation between the terminals/wires and the mounting screw.

9 Description of Functions and Operation

Selecting languages

Only for products where no language is pre-set, user has to set up his language by doing this: **ENGLISH** + – to select language
(This input is only requested at first start or Reset) **2 x OK** to accept -> T+ will be displayed (to change language again use menu G14)

How the Temperature Controller can be used

T+u H7	Control room to Comfort-Temperature, use key T+ (Menu CONTROL) Temperature can be pre-set via menu G1	Set temperature for a number of hours see Menu, TIMER
T-	Control room to Set-Back-Temperature, use key T- (Menu CONTROL) Temperature can be pre-set via menu G2	Adjust the controller to personal needs see Menu, USER-SETTINGS
T*	Control room to an other Temperature, use keys + – (Menu CONTROL) (valid until choosing T+, T-, ECO)	Adjust the controller to application needs see Menu, INSTALLER-SETTINGS
ECO	Controll room automatically to ECO-Temperature, via ECO-input (Menu CONTROL) Temperature can be pre-set via men	

	Keys		to confirm
	T+/-	Change over between Comfort- (T+) and Set-Back (T-) Temperature the controlled temperature will be displayed for a short period of time. Pre-set via menu G1, G2.	
	+ – while T+, T-, ECO	choose a different temperature other than T+, T-, ECO, displayed as T*. A single press of + or – key will show the set temperature, ← to terminate	OK
	+ – in menu	Scroll through the menu	
	OK	Accepts modification / selection	
	Menu	Enter menus. + – Key to move	
	←	Go one step back	
	← for 10 sec	Switch off connected load. Display shows OFF. Detail ls see G4	

	Main Menu		to confirm
A	MENU	Use + – in order to navigate through the menu	
B	CONTROL	Temperature will be controlled to: <div>T+ = Comfort Temperature T- = Set-back Temperature ECO = via ECO-Input activated Temperature T* = with keys + – selected Temperature</div>	
D	TIMER	The temperature will be controlled temporarily according to the hours and temperature set in this menu. When terminating TIMER mode, the previously active mode will be re-activated. To terminate timer manually select menu CONTROL.	OK
G	USER SETTINGS	Customise the controller according to personal requirements	OK
H	INSTALLER SETTINGS	Customise the controller according to application requirements (from installer only)	OK

	USER SETTINGS		default settings () = value range
1	T+ Setting	Pre-set Comfort Temperature	21 °C (5 ... 30 °C)
2	T- Setting	Pre-set Set-Back Temperature	18 °C (5 ... 30 °C)
4	Off Heating Permanent	Switch off the heater, the controller remains on power. Display reading OFF. Frost protection may happen if selected. See H6. Switching ON again by activating e.g. Mode/ Menu CONTROL or by pressing key ← for 10 Sec. When re-activating via key ← or this menu, T+ will be activated. Pressing OK will show details for frost protection.	NO
5	T* Max Duration	Sets the max. duration for T*. E.g. setting to 3h: after 3h the previous used temperature T+, T-, ECO would be used	OFF (OFF, 1 ... 23h)
6	Key Lock	Protect controller against unauthorised use. Re-activate via code = 93	NO
7	Temperature limits min/max	Limits the temperature which can be set by the user, If both values are the same, no adjustment is possible. This affects Mode/Menu CONTROL. T+, T-, ECO will not be affected automatically.	5; 30 °C
8	Cost/Hr for Energy	The assumed energy cost per hour (in cent/h) can be set. To use this feature as hour counter set the cost to 100 cent/h.	100 (1... 999)
9	Energy consumption to date	Shows the approximate energy cost of the controlled area. For the last: 2 days, week (7 days), month (30 days), year (365 days). On the actual day, calculation is up to current time. In case of overflow 9999 will be displayed. This feature mainly can be used for electric heating. Calculation: On-Time of heater x cost per hour see above. Reset see H9	
10	Set temperature to read	Show set temperature instead of room temperature	NO
11	Adjust Temperature	Adjust temperature to personal needs	0.0 (-5.0 ... +5.0)
13	Backlight	Continuously OFF or temporarily illuminates after key press. In case of using a remote sensor, the backlight can be set to continuous on.	SHORT (SHORT, OFF)
14	Language	Select preferred operating language	
15	Info	Displays Controller-type and -version.	
16	Reset user settings only	Only USER SETTINGS will be set to factory settings. The energy counter will not be re-set; to do this see H9).	NO

Change INSTALLER SETTINGS

CAUTION!
These settings should only be set-up by a qualified person. They can influence safety and the proper functioning of the system.

	INSTALLER SETTINGS		default settings () = value range
0	Code	Enter Code (= 7) in order to access the menus. It is valid for 1 Hour	
1	Application	This controller is suitable for the heating system mentioned on right column. It can be selected if a remote sensor has to be used.	ROOM / NO see 1
2	Control Mode	PWM or ON/OFF can be selected. In case of PWM, the cycle time can be set (in Minutes). Min ON/OFF time = 10% of cycle time. Use short time for fast and longer time for slow reacting heating systems. PWM is not possible with COOLING (H4). For ON/OFF you can select: • Hysteresis (OFF = no temperature hysteresis, even at very low changes of temp. the relay will switch over according to the Min On/Off Time setting.) • Min On/Off Time (the minimum duration for the relay to be On or Off)	PWM/10 (/10 ... 30) OFF (OFF, 0.1 ... 5.0) 10 Min (1 ... 30)
4	Heating or Cooling	Heating: Controller works in Heating mode. Cooling: Controller works in cooling mode. Conditions: • Cooling is only possible if application (H1) = ROOM • Frost protection (H6) = NO (can not be activated) • In case of error = no cooling • Only for control mode ON/OFF (H2)	Heating (Heating, Cooling)
5	Valve protection	The output will be activated for the specified time. This will be repeated every 24 hours, calculated from the last power on or Reset (H11).	3 min (OFF, 1 ... 10)
6	Frost protection	Set frost protection temperature. Only if controller is switched OFF, the temperature will be controlled to that value.	5 °C (OFF, 5 ... 30)
7	ECO Temp. Setting	Setting Pre-set ECO temperature see 8. (Will be used if ECO-input becomes active)	18 °C (5 ... 30 °C)
8	Valves NO	NO If valves normally open have to be used	NO
9	Energy Counter Reset	The energy counter will be set to 0	NO
11	Reset all	All INSTALLER and USER settings will be set to its Factory setting	NO

10. Error Indication

In case of errors, „Err“ is blinking. The following errors can be displayed:


CONFIGURATION Display- and powermodule do not fit → use only suitable parts → switch off and on power supply	EXT SENSOR 1. Error of remote sensor → replace sensor 2. Over- or under run of valid display ran
COMMUNICATION Communication between display- and power unit fails → unplug and re-plug display unit → switch off and on power supply	

If H4 = Heating: On all these errors, heating will be activated with 30% of time
If H4 = Cooling: On all these errors = no cooling

11. Resistance values for remote sensor

Temperature	Resistance	Temperature	Resistance
10 °C	66,8 kΩ	30 °C	26,3 kΩ
20 °C	41,3 kΩ	40 °C	17,0 kΩ
25 °C	33 kΩ	50 °C	11,3 kΩ

Recycling

 This product should not be disposed of with household waste.
Please recycle the products where facilities for electro-nic waste exist. Check with your local authorities for recycling advice