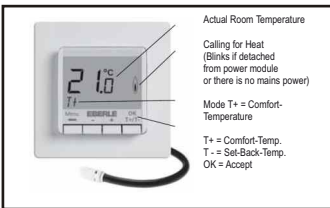


# User and installation guide

## Room Temperature Controller with Limiter FIT np 3L



### 1 Use

The Universal Temperature Controller FITnp 3U combines controllers for 3 different applications.

- The following applications can be selected
- Room Temperature Controller
  - Room Temperature Controller with Limiter
  - Floor Heating Controller

### 2 Select application

#### Select Installer settings

- Press key **MENU** then move forward with key **+**
- At 'Installer settings' press **OK**

**CODE = 7**

- Press **OK**

#### Select H1 = Application

- Press **OK**
- Select Application (ROOM, LIMITER, FLOOR)

**FLOOR** is factory pre-set

- Press **OK**

**Note:**  
In case of changing the application, the user- and Installer-settings will be set to its default values.

### 3 Manual

Depending on selected application the suitable manual has to be used:

- ROOM** = FIT np 3R for Room Temperature Controller
- FLOOR** = FIT np 3F for Floor Temperature Controller
- LIMITER** = FIT np 3L for Room Temperature Controller with Limiter

With the customer only the suitable manual should be left.

### 4 Principle of operation

#### FIT 3U

The temperature controller FIT np 3L 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 a ECO-Temperature (e.g. For night set-back). After installation the room will be controlled to the comforttemperature T+. Room temperature will be controlled, the floor temperature will be limited (measured by the remote sensor). The heater will be switched on when the temperature drops below the current set-point.  
In case of function "Min Floor Temp" (H3) it will be heated if the floor temp drops below the set min-value. This is even when the room temp. is too high.  
In case of function "Max Floor Temp" (H3) heating will be stopped if the floor temp exceeds the set max-value. This is even when the room temp. is too low.

#### FIT 3U np

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### 5 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. To maintain compliance with Protection Class II, user access to the rear of the device must be prevented... 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 works according to operating principle TC.

#### 6 Use

##### Fit 3U

The electronic Room Temperature Controller FIT np 3L can be used to control the room temperature in conjunction with:

- Electrical floor heating systems where the floor temperature has to be limited to a certain value
- Hot-water floor heating systems in conjunction with thermal actuators in order to measure the floor temperature the remote sensor has to be used

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### 7 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 V 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
- Min- and max limits for floor temperature adjustable
- Valve protection
- Adaptation to valves normally open or normally closed

### 8. Mounting

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

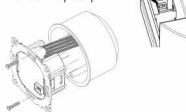
- can be easily accessed
- is free of curtains, cabinets, shelves, etc.
- allows free air circulation
- is not exposed to direct sunlight
- is not draughty (when doors or windows are opened)
- is not directly influenced by the source of heat
- is not located on an outer wall
- is approx. 1.5 m above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

#### Einbau



- 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

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.

#### Electric connection

**Caution!** disconnect electric circuit from supply

Connecting according to Wiring Diagram

For flexible or solid wires 1 - 2,5 mm<sup>2</sup>

### Connecting the remote sensor

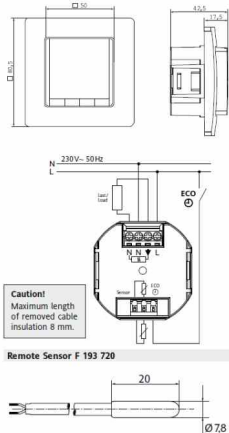
This controller needs a remote temperature sensor. This sensor should be mounted in such a way that the temperature which has to be controlled, can be measured correctly. Lay sensor inside a protective tube (simplifies replacement). The sensor lead can be extended up to 50 m by using a cable and connections suitable for 230V. Avoid laying sensor cable alongside power cables, for example inside a conduit.

**Caution!** The sensor is at mains voltage.

### 9 Technical Data

Order Type	FIT np 3L
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(A)AC; 230 V-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) ~ 12 W
Power consumption	F 193 720, length 4m, can be extended up to 50m without condensation
Remote sensor	0 °C ... 40 °C -20 °C ... 70 °C
Ambient temperature	4 kV
Operating	115 °C
Storage	
Rated impulse voltage	
Ball pressure test	
Voltage and Current for the purposes of	
Interference measurements	230 V, 0,1A
Degree of protection	IP 30
Protection class of housing	II (see Caution)
Pollution degree	2
Software class	A
Weight (with remote sensor)	~ 280 g

### 7. Wiring Diagram / Dimensions



### 10. 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+/- 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

- The controller does not accept any changes  
Is access protection switched on? See G6
- The range of temperature setting is limited.  
Are temperature limits set? See G7
- Temperature display doesn't change.  
Is display of set-temperature activated? See G11
- The room heats up too slowly  
The floor temperature may be limited from the controller's min-limiter. See H3
- The room becomes too warm  
The floor temperature may be limited from the controller's Min-limiter. See H3

## 10 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:  
(This input is only requested at first start or Reset)

ENGLISH + – to select language

2 x OK to accept -> T+ will be displayed (to change language again use menu G14)

### How the Temperature Controller can be used

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

Keys			to confirm
T+/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, V 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. Details see G4		

Main Menu			to confirm
A MENU	Use + – in order to navigate through the menu		
B CONTROL	Temperature will be controlled to: T+ = Comfort Temperature T- = Set-back Temperature ECO = via ECO-Input activated Temperature T* = with keys + – selected Temperature		
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

G USER SETTINGS		Customise the controller according to personal requirements	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 V for 10 Sec. When re-activating via key V or this menu, T+ will be activated. Pressing OK will show details for frost protection.	NO OFF (OFF, 1...23h)
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	NO
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	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.

H INSTALLER SETTINGS		Customise the controller according application needs (by installer only)	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. LIMITER see 1.	PWM/10 (/10... 30)
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. 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)	OFF (OFF, 0.1... 5.0) 10 Min (1... 30)
3	Min/max Floor Temperature	Limits the floor temperature. Selectable is: • Minimum floor temperature, the floor gets no colder as this temp. (OFF = no limit); e.g. Min-Temp. = 21°, the floor will get no colder than 21° even if the room is too warm • Maximum floor temperature, the floor gets no warmer as this temp. (OFF = no limit); e.g. Max-temp. = 35°, the floor will get no warmer than 35°, even if the room is too cold If one of these limits is not needed it should be set to OFF	OFF (OFF, 10...Tmax) 35 °C (OFF, Tmin...40)
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	Pre-set ECO temperature see 8. (Will be used if ECO-input becomes active)	18°C (5...30 °C)
8	Valves NO	If valves normally open have to be used	NO
9	Energy Counter Reset	The energy counter will be set to 0	NO
10	Display of floor temperature	The temperature measured from remote sensor will be displayed (for service purpose)	Temperature
11	Reset all	All INSTALLER and USER settings will be set to its Factory setting NO	NO

### 11. Error Indication

In case of errors, "Er" 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
COMMUNICATION	Communication between display- and power unit fails → unplug and re-plug display unit → switch off and on power supply	2. Over- or under run of valid display range

### 11. 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.

### 12. 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