TECHNICAL FILE:

Universal digital thermostat

1.- Use of universal temperature controller

The universal temperature controller combines controllers for 3 different applications.

The following applications can be selected:

- Room Temperature Controller
- Room Temperature Controller with Limiter
- Floor Heating Controller

2.- Technical specifications

Supply voltage : 230 VAC 50Hz

Temperature setting range: 5ºC..30ºC in 0,5ºC steps (10ºC—40ºC for floor)

Temperature resolution: 0,1ºC

Output: Relay NO contact

Swtiching current: 10mA

Ouput signal: PWM (Pulse Width Modulation) or ON/OFF

PWM cycle time: adjustable

Hysteresis: adjustable (ON/OFF only)

ECO-input: via external clock (230V input)

Power consumption: ~1.2 W

Rated impulse voltage: 4 kV

Degree of protection: IP30

Protection class of housing: II

Software class: A

3. Features

One line text display for simplified operation

Back light

Easy change between confort and set-back temperatures

ECO-input to activate a freely adjustable temperature e.g. night set-back

Time limit for manually changed temperature

OFF-function Key ← to be pressed for 10 sec

Timer (party) specific temperature for configurable duration

Energy consumption display

Energy cost per hour configurable

Frost protection

FONT BARCELONA
Pol.Ind.Can Bernades-Subirà
C/Anoia 15
Sta.Perpètua de Mogoda (Barcelona)

Height dimensions (size in mm)

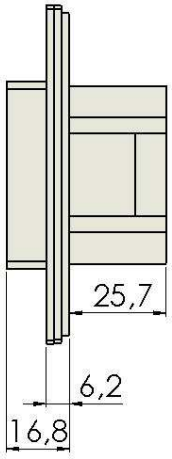
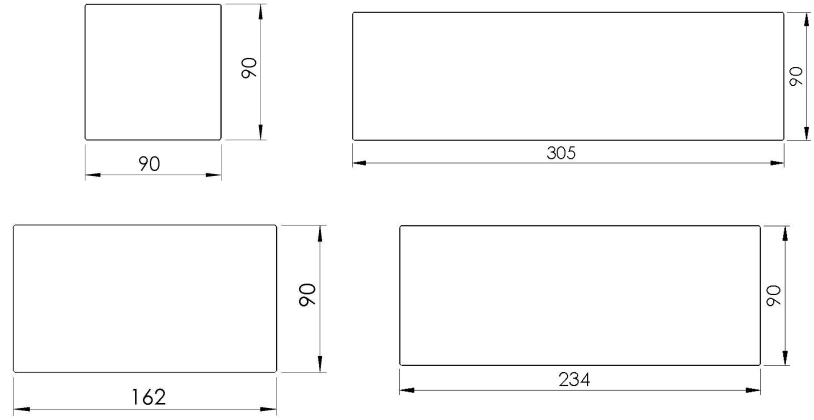


Plate dimensions (size in mm)

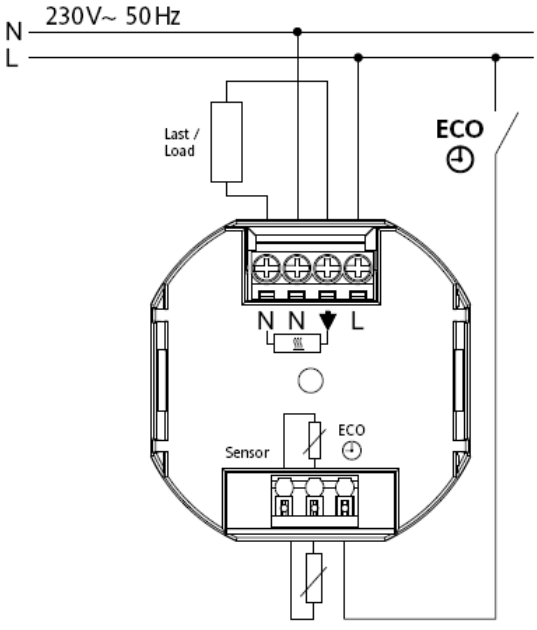


4 . Mounting

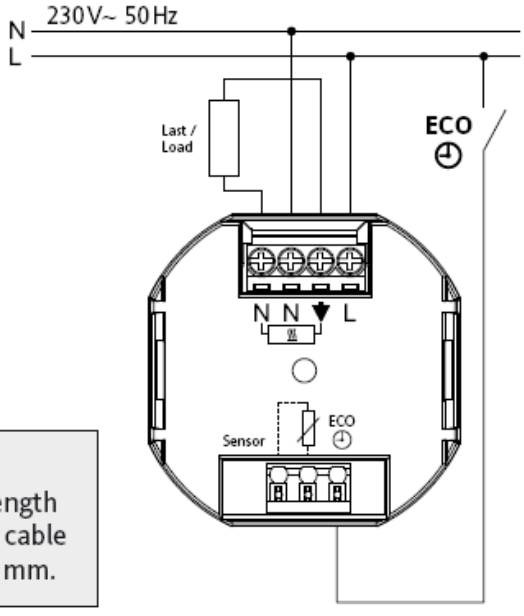
- The controller should be mounted at a location in the room which:
- Can be easily accessed
- Is free of curtains, cabinets, shelves,…
- Allows free air circulation
- Is not exposed to direct sunlight
- Is no draughty (when doors or windows are opened)
- Is not directly influenced by the source of heat/cooling
- Is not located on a n outer wall
- Is approx. 1.5m above the floor

5. Wiring diagram

With temperature limiter



Without temperature limiter



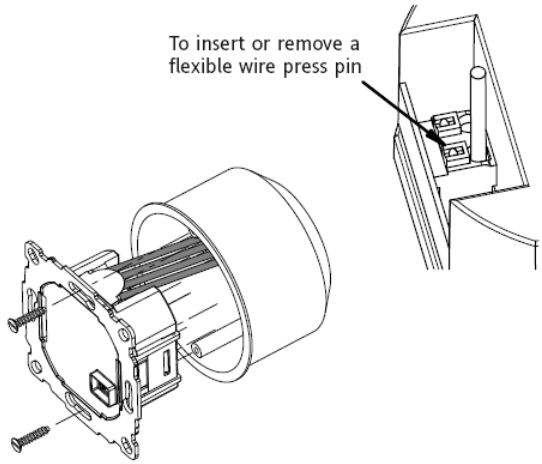
Caution!
Maximum length of removed cable insulation 8 mm.

FONT BARCELONA
Pol.Ind.Can Bernades-Subirà
C/Anoia 15
Sta.Perpètua de Mogoda (Barcelona)

6. Fitting

Fit in a conduit box of 60 mm diameter.
Remove the display unit from the main body
Fit the main body in the conduit box by means of the screws

Caution: Mounting in plastic wall boxes only



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

7. Manual instructions

Please follow instructions provided with the thermostat.

FONT BARCELONA
Pol.Ind.Can Bernades-Subirà
C/Anoia 15
Sta.Perpètua de Mogoda (Barcelona)

Für den Installateur
Installationsanleitung *FITnp 3U* (D)

1 Verwendung

Der Universal-Temperaturregler *FITnp 3U* vereint Regler für 3 unterschiedliche Anwendungen in einem Gerät.

Folgende Heizungsarten können ausgewählt werden:

- Raumtemperaturregler
- Raumtemperaturregler mit Begrenzer
- Fußbodentemperaturregler

2 Heizungsart auswählen

Installateur Einstellungen auswählen, dazu:

- Taste **MENÜ** drücken, dann mit Taste **+** durch die Menüs bewegen
- Bei „Installateuer Einstellungen“ **OK** drücken

CODE = 7 eingeben

- Mit **OK** bestätigen

H1 = Heizungsart wählen

- Mit **OK** bestätigen
- **Heizungsart** einstellen (RAUM, BEGRENZER, BODEN)
  BODEN ist voreingestellt
- Mit **OK** bestätigen

Hinweis:

Bei Wechsel der Heizungsart werden alle Benutzer- und Installateur-Einstellungen auf deren Voreinstellung gesetzt.

3 Anleitung

Je nach gewählter Heizungsart die passende Anleitung verwenden für:

RAUM = FITnp 3R für Raumtemperaturregler
BODEN = FITnp 3F Fußbodentemperaturregler
BEGRENZER = FITnp 3L für Raumtemperaturregler mit Begrenzer

Beim Kunden sollte nur die jeweils passende Anleitung zurückgelassen werden.

For the Installer
Installation manual *FITnp 3U* (GB)

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 it's default values.

3 Manual

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

ROOM = FITnp 3R for Room Temperature Controller
FLOOR = FITnp 3F for Floor Temperature Controller
LIMITER = FITnp 3L for Room Temperature Controller with Limiter

With the customer only the suitable manual should be left.

468 931 003 798-1

Installatiebediening voor de installateur *FITnp 3U*

NL

1 Toepassingen

Deze universele temperatuurregelaar *FITnp 3U* is geschikt voor de navolgende toepassingen:

- Ruimtetemperatuur
- Ruimtetemperatuur met begrenzer
- Vloertemperatuur

2 Selecteer toepassing

Selecteer installateur setting

- door op knop **MENU** te drukken en daarna **+** tot installateur setting verschijnt
- nu op **OK** drukken

CODE = 7

- Druk op **OK**

Selecteer H1 = Applicatie

- Druk op **OK**
- Selecteer **Applicatie** (RUIMTE, BEGRENZER, VLOER) Als standaard is **VLOER** ingesteld.
- Druk op **OK**

Attentie:

Wanneer er een keuze gemaakt wordt, worden de desbetreffende fabrieksinstellingen overgenomen.

3 Gebruiksaanwijzingen

Afhankelijk van de gekozen instelling de daartoe aanwezige gebruikershandleiding kiezen:

RUIMTE = FITnp 3R voor ruimte temperatuur
VLOER = FITnp 3F voor vloertemperatuur
BEGRENZER = FITnp 3L voor ruimte temperatuur met begrenzer

Aan de klant alleen de gebruikershandleiding afgeven.

468 931 003 798-1

À l'attention de l'installateur Guide d'installation *FITnp 3U*

F

1 Domaines d'applications

Le régulateur de température universel *FITnp 3U* fait office de régulateur pour 3 applications différentes en un seul appareil.

Les modes de chauffage suivants peuvent être sélectionnés :

- Régulateur de température ambiante
- Régulateur de température ambiante avec limiteur
- Régulateur de température du sol

2 Sélectionner le type de chauffage

Sélectionner les réglages installateur, pour ce faire :

- Appuyer sur la touche **MENU**, puis naviguer à travers les menus à l'aide de la touche **+**.
- Sur « Réglages installateur », appuyer sur **OK**

Saisir le CODE = 7

- Confirmez avec **OK**

H1 = sélectionner le type de chauffage

- Confirmer avec **OK**
- **Régler le** type de chauffage (PIÈCE, LIMITEUR, SOL) **SOL** est prédéfini
- Confirmer avec **OK**

Note :

En cas de changement de type de chauffage, tous les réglages utilisateur et installateur repassent au réglage de départ.

3 Mode d'emploi

En fonction du type de chauffage sélectionné, utiliser les instructions adaptées pour :

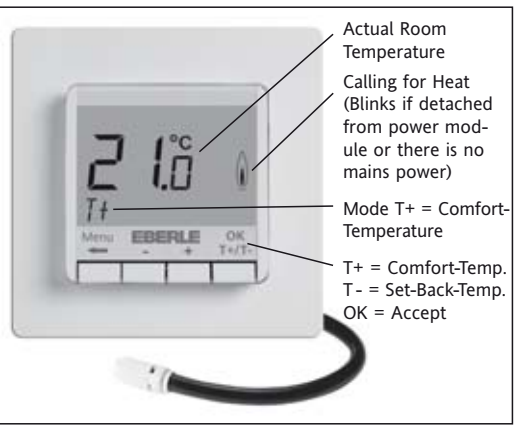
PIÈCE = FITnp 3R pour régulateur d'ambiance
SOL = FITnp 3F régulateur de température du sol
LIMITEUR = FITnp 3L pour régulateur d'ambiance avec limiteur

Remettre uniquement les instructions correspondantes au client.

User and installation guide Room Temperature Controller with Limiter *FIT np 3L*

468 931 003 760

GB



1 Principle of operation

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 comfort-temperature 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.

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. 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 1C.

3 Use

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

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

Electric connection

Caution: disconnect electric circuit from supply

Connecting according to Wiring Diagram
For flexible or solid wires 1 - 2,5 mm²

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 230 V. Avoid laying sensor cable alongside power cables, for example inside a conduit.

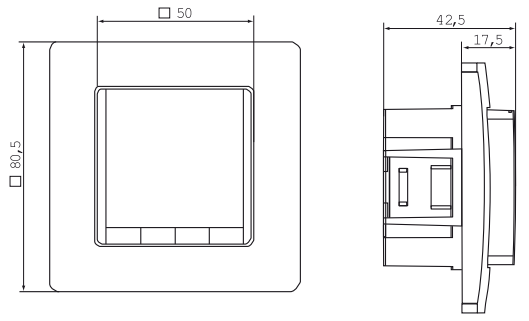
Caution!

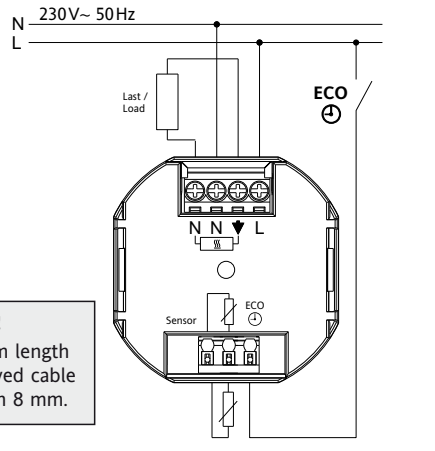
The sensor is at mains voltage.

6 Technical Data

Order Type	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(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)
Power consumption	~ 1,2 W
Remote sensor	F 193 720, length 4 m, can be extended up to 50 m
Ambient temperature Operating Storage	without condensation 0 °C ... 40 °C –20 °C ... 70 °C
Rated impulse voltage	4 kV
Ball pressure test	115 °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 (with remote sensor)	~ 280 g

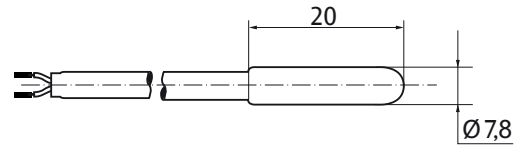
7 Wiring Diagram / Dimensions





Caution!
Maximum length of removed cable insulation 8 mm.

Remote Sensor F 193 720



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

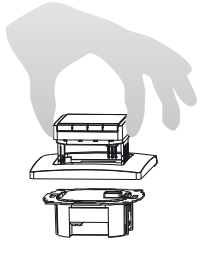
1. The controller does not accept any changes
   Is access protection switched on? see G6
2. The range of temperature setting is limited.
   Are temperature limits set? See G7
3. Temperature display doesn‘t change.
   Is display of set-temperature activated? See G10
4. The room heats up too slowly
   The floor temperature may be limited from the controller's max-limiter. See H3
5. The room becomes too warm
   The floor temperature may be limited from the controller's Min-limiter. See H3

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
- is not located on an outer wall
- is approx. 1.5 m above the floor.

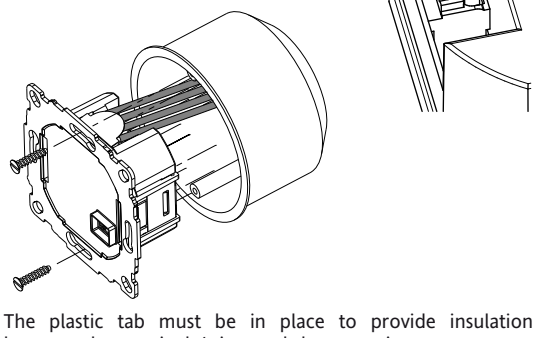
Einbau



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



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+	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 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, ← 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 ← 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	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.
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)	PWM/10 (/10 ... 30) 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

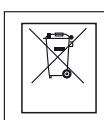
10. Error Indication

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 range
COMMUNICATION	Communication between display- and power unit fails ➞ unplug and re-plug display unit ➞ switch off and on power supply		

On all these errors, heating will be activated with 30% of time

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.

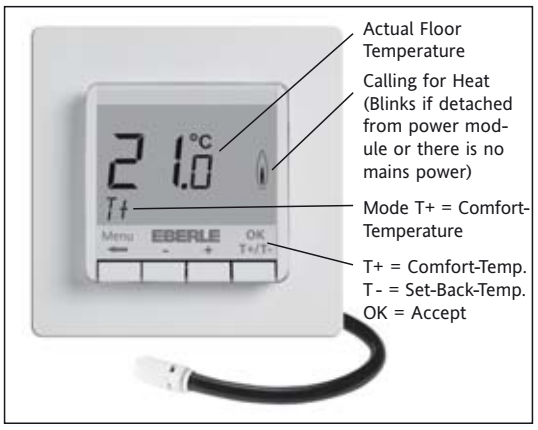
12. Resistance values for remote sensor

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

User and installation guide Floor Temperature Controller *FIT np 3F*

468 931 003 759

GB



1 Principle of operation

The temperature controller FIT np 3F 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 floor will be controlled to the comfort-temperature T+.

The floor temperature will be controlled according to the temperature measured by the 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. 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 1C.

3 Use

The electronic Floor Temperature Controller FIT np 3F can be used to control the floor temperature in conjunction with:

- Direct floor heating
- Floor temperature conditioning systems

In order to measure the floor temperature the remote sensor has to be used

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
- Floor temperature can be read a number

Electric connection

Caution: disconnect electric circuit from supply

Connecting according to Wiring Diagram
For flexible or solid wires 1 - 2,5mm²

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 230 V. Avoid laying sensor cable alongside power cables, for example inside a conduit.

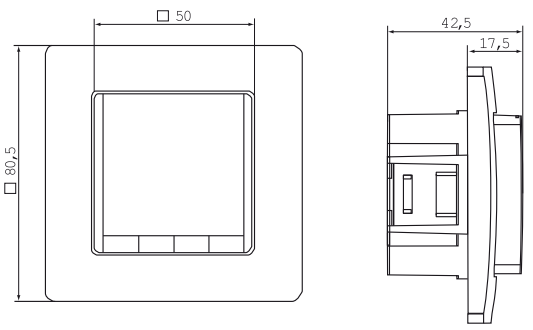
Caution!
The sensor is at mains voltage.

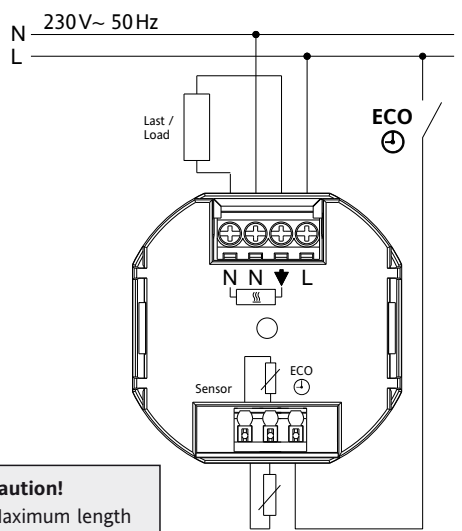
6 Technical Data

Order Type	FIT np 3F
Supply voltage	230 V AC 50 HZ (195...253 V)
Temperature setting range	10°C to 40°C; in 0,5°C steps
Temperature resolution	0,1°C steps
Output	Relay NO contact
Switching current	10mA ... 16(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 (230 V Input)
Power consumption	~ 1,2 W
Remote sensor	F 193 720, length 4m, can be extended up to 50m
Ambient temperature Operating Storage	without condensation 0°C ... 40°C –20°C ... 70°C
Rated impulse voltage	4 kV
Ball pressure test	115°C
Voltage and Current for the purposes of Interference measurements	230V, 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

* For current > 14 A do not loop the N-wire through the controller, use a separate terminal.

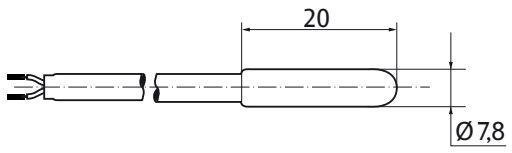
7 Wiring Diagram / Dimensions





Caution!
Maximum length of removed cable insulation 8 mm.

Remote Sensor F 193 720



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.

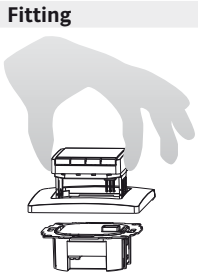
Troubleshooting

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

5. Mounting

The controller should be mounted in a location of the room that is easily accessible for operation purposes.

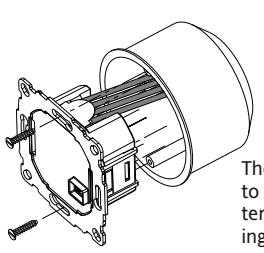
Fitting

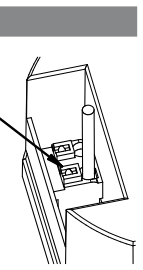


in a conduit box Ø 60 mm

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

Caution!
Mounting in plastic wall boxes only





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+	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 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, ← 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	28 °C (10 ... 40 °C)
2	**T- Setting**	Pre-set Set-Back Temperature	18 °C (10 ... 40 °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.	10; 40 °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
12	**Number for floor temperature**	Read the floor temperature as number. Instead of a temperature in °C a number will be displayed e.g. instead of 28,5 °C, 285 can be read.	NO
13	**Backlight**	Continuously ON, OFF, temporarily illuminates after key press	SHORT (SHORT, OFF, ON)
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	FLOOR 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. 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)
6	**Frost protection**	Set frost protection temperature. Only if controller is switched OFF, the temperature will be controlled to that value.	10 °C (OFF, 10 ... 40)
7	**ECO Temp. Setting**	Pre-set ECO temperature see 8. (Will be used if ECO-input becomes active)	18 °C (10 ... 40 °C)
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

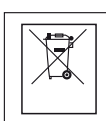
10. Error Indication

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 range
COMMUNICATION	Communication between display- and power unit fails ➜ unplug and re-plug display unit ➜ switch off and on power supply		

On all these errors, heating will be activated with 30% of time

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.

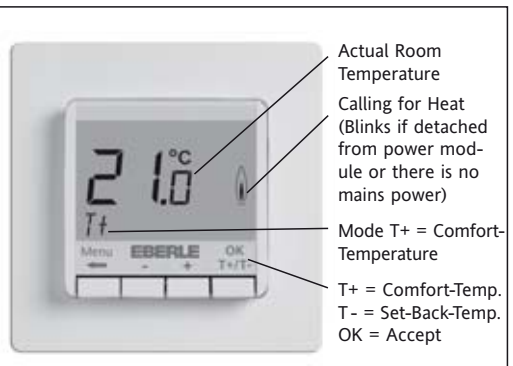
12. Resistance values for remote sensor

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

User and installation guide Room Temperature Controller *FIT np 3R*

468 931 003 758

GB



1 Principle of operation

The temperature controller FIT np 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. 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 1C.

3 Use

The electronic Room Temperature Controller FIT np 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

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.

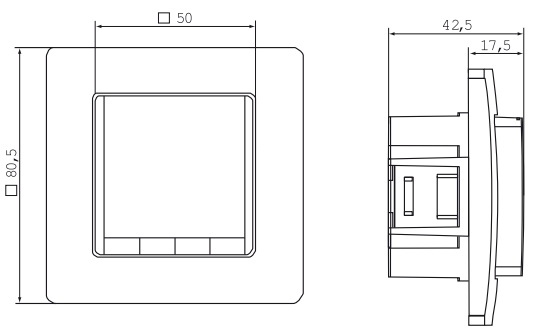
Lay sensor inside a protective tube (simplifies replacement). The sensor lead can be extended up to 50 m by using a cable and connections suitable for 230 V. Avoid laying sensor cable alongside power cables, for example inside a conduit.

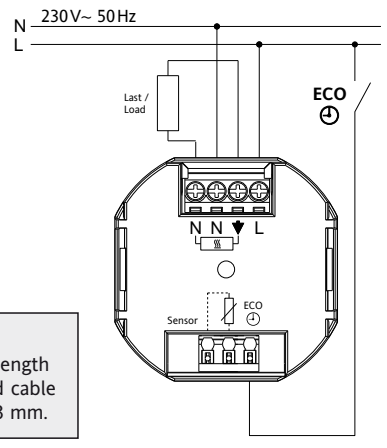
Caution!
The sensor is at mains voltage.

6 Technical Data

Order Type	FIT np 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)
Power consumption	~ 1,2 W
Remote sensor (optional)	F 193 720, length 4m, F190 021
Ambient temperature	without condensation
Operating	0 °C ... 40 °C
Storage	–20 °C ... 70 °C
Rated impulse voltage	4 kV
Ball pressure test	115°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

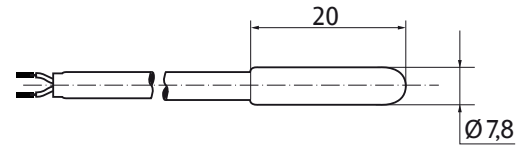
7 Wiring Diagram / Dimensions





Caution!
Maximum length of removed cable insulation 8 mm.

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

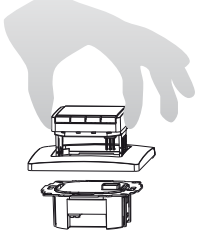
1. The controller does not accept any changes
   Is access protection switched on? see G6
2. The range of temperature setting is limited.
   Are temperature limits set? See G7
3. Temperature display doesn‘t change.
   Is display of set-temperature activated? See G10

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.

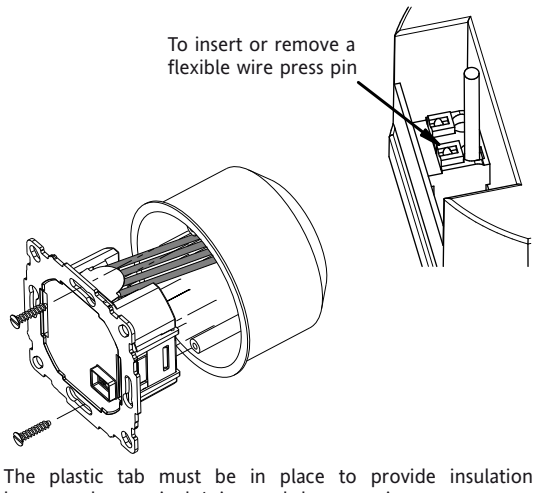
Fitting



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



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+	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 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, ← 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 ← 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.

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. 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 • In case of error = no cooling • Frost protection (H6) = NO (can not be activated) • 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**	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
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 range
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. 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