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

GB

- Actual Day
- Actual floor Temperature
- Calling for Heat (Blinks if detached from power module or there is no mains power)
- Helping text Mode = AUTO Time = 14:31
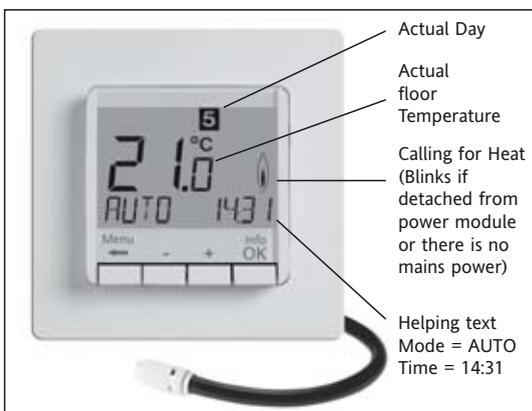
1 Principle of operation

The programmable temperature controller FIT 3F allows programming switching events (up to 9) and temperatures according the personnel needs. After installation the device shows automatically the actual time of the day and the floor temperature. In AUTO mode, the heater will be activated automatically according to programmed time and temperature. Program 1 is activated see 8. 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 3F can be used to control the floor temperature in conjunction with:
- direct floor heating
- floor temperature conditioning systems

4 Features

- One line text display for simplified operation
- Back light (off, continuous, temporary after key pres)
- Real time clock (setting of year, month, day, time)
- Automatic Summer- Wintertime change over
- Max 9 events per day (each day individually)
- Pre-set and adjustable programs
- Optimum-Start
- Arm chair programming (with removed display unit)
- OFF-Function, Key ← to be pressed for 10 sec
- Holiday-Mode (date from – until can be set)
- Timer (Party) specific temperature for some hours
- Energy consumption display (heating on time * cost) for last 2 days, -week, -month, -year
- Energy cost per hour adjustable
- Frost protection
- Range limits for adjusting max and min temperature
- Access protection
- Operating language can be selected
- Control mode PWM or ON/OFF
- Floor temperature can be read as number

Electric connection

Caution: disconnect electric circuit from supply

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

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

Connecting the remote sensor

The FIT 3F 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 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 *;
Output signal	PWM (Pulse Width modulation) or ON/OFF
PWM cycle time	adjustable
Minimum programmable time	10 Min
Power consumption	~ 1,2 W
Accuracy of clock	< 4 Min / year
Power reserve	~ 10 Years
Remote sensor	F 193 720, length 4m, can be extended up to 50m
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	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 > 14A do not loop the N-wire through the controller, use a separate terminal.

7 Wiring Diagram / Dimensions

230V~ 50Hz
N
L
Load
N N ▼ L
Sensor
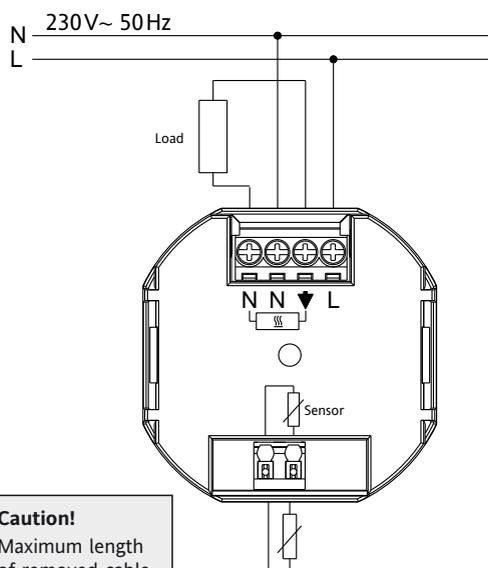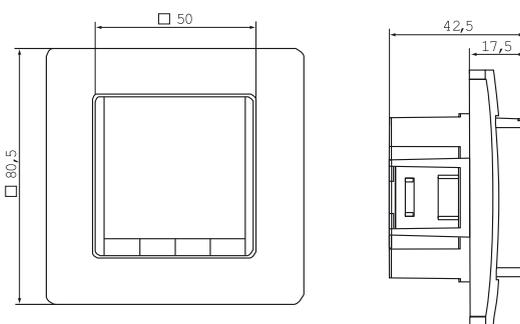
Caution!
Maximum length of removed cable insulation 8 mm.

To insert or remove a flexible wire press pin
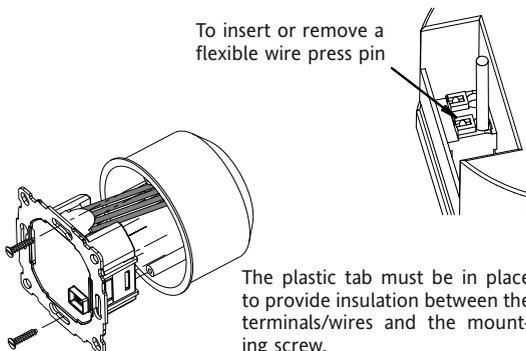
The plastic tab must be in place to provide insulation between the terminals/wires and the mounting screw.

Remote Sensor F 193 720

20
Ø 7,8
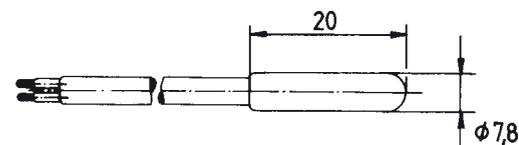
8. Pre-set programs

There are 3 pre-set time/temperature programs 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 the application, there will be no need to change the time/temperature settings on the device.
To select another program see 9. G1.

Program 1

Monday to Friday

Events	1	2		3	4
Time	6:00	8:00		19:00	22:00
Temperature °C	28,0	18,0		28,0	15,0

Saturday and Sunday

Events	1	2		3	4
Time	8:00	10:00		19:00	22:00
Temperature °C	28,0	18,0		28,0	15,0
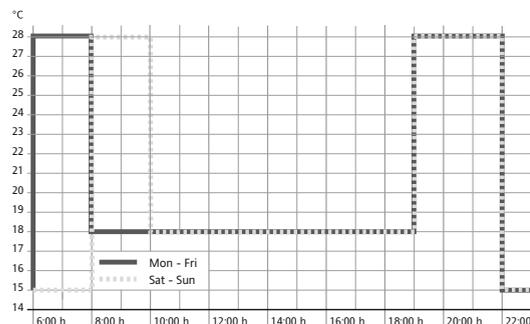
Program 2

Monday to Friday

Events	1	2	3	4	5	6
Time	6:00	8:00	12:00	14:00	19:00	22:00
Temperature °C	28,0	18,0	28,0	18,0	28,0	15,0

Saturday and Sunday

Events	1	2	3	4	5	6
Time	8:00	10:00	12:00	14:00	19:00	22:00
Temperature °C	28,0	18,0	28,0	18,0	28,0	15,0
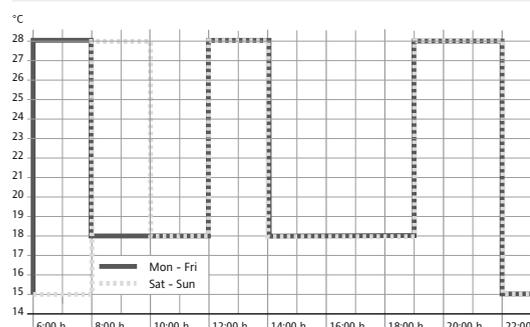
Program 3

Monday to Friday

Events	1	2		3
Time	11:00	13:00		22:00
Temperature °C	28,0	18,0		15,0

Saturday and Sunday

Events	1	2		3	4
Time	8:00	10:00		19:00	22:00
Temperature °C	28,0	18,0		28,0	15,0
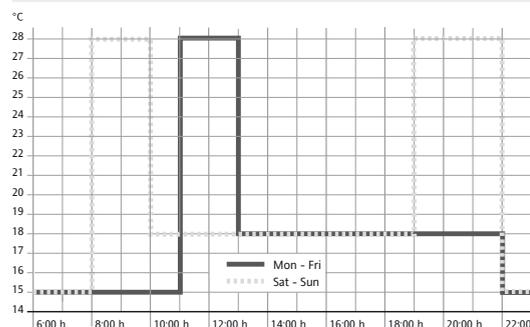
Notes for Programming

- 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 like AUTO, MAN, etc.
- 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 "Program select one" or H2 for "Control Mode".
- There can be gaps in the sequence of numbers

Troubleshooting

1. It is getting warm too late:
   a. Are clock and program events set correctly?
   b. Is the Optimum Start switched on? see H7
      Did the controller have enough time (some days) to adapt to the room's characteristics?
   c. Is change between Summer-and Wintertime activated, see G5
2. The controller does not accept any changes
   Is the access protection switched on? see G6
3. The range of temperature setting is limited.
   Are temperature limits set? See G7
4. Temperature display don't change.
   Is display of set-temperature activated? See G10

9 Description of Functions and Operation

How the FIT Temperature Controller can be used

Change temperature until next switching event see **keys, +− in AUTO**	Set temperature for a specific date see **main menu, HOLIDAY**
Controlling the temperature according to pre-set profiles see **main menu, AUTO**	Use a separate program for special days see **main menu, AT-HOME**
Set a constant temperature (manual operation) see **main menu, MAN**	Adjust the controller to personal needs see **main menu, USER-SETTINGS**
Set temperature for a number of hours see **main menu, TIMER**	Adjust the controller to application needs see **main menu, INSTALLER-SETTINGS**

Keys	to confirm / activate ↓	
+− in AUTO (-)	Set temperature temporarily until next switching event. Indication by "-" behind AUTO-. First key-press shows set value, following ones change it.	OK
+− in menu	Scroll through the menu	
OK	Accepts modification / selection	
Info	Show related details in AUTO, MAN, TIMER, HOLIDAY, AT-HOME. To cancel press key again	
Menu	Enter menus. +− Key to move	
←	Go one step back	
← for 10 sec	Switch off connected load. Display reads OFF. Details see G4	

	Main Menu	to confirm / activate ↓	
A	MENU	Use **+−** in order to walk through the menu	
B	AUTO	The temperature will be controlled automatically according to the time and temperature of the selected program, see G1. Use **+−** keys to change temperature until next switching event.	OK
C	MAN	The temperature will be controlled continuously according to the temperature set in this menu. Use **+−** key to change temperature	OK
D	TIMER	The temperature will be controlled temporarily according to the hours and temperature set in this menu. On termination, AUTO will be re-started. HOLIDAY will be terminated.	OK
E	HOLIDAY	The temperature will be controlled for the period of days and the temperature set in this menu. Holiday starts at 0h of the first day, it ends at 24h of the last day, then going to AUTO. In the period of time before HOL starts, AUTO will be active. TIMER will be terminated. During this AUTO period of time, Temp can not be changed.	OK
F	AT HOME	The temperature will be controlled automatically according to the time and temperature of the program adjusted here (independent from AUTO). The program is the same for all days. Pre-set is the program of Monday. It needs to be terminated by user, e.g. by selecting AUTO. Usage: for holiday at home, illness etc.	OK
G	USER SETTINGS	Customise the controller according to personal needs	OK
H	INSTALLER SETTINGS	Customise the controller according to application needs (from installer only)	OK

G	**USER SETTINGS**	Customise the controller according to personal needs	default
1	**Program select**	Select one of the pre-defined programs, see 8. (If another program is chosen, settings will not be saved)	P1
2	**Event Setting**	Modify Time and Temperature of active program, see 8. Each event can be reduced to the previous one or to 00:00h Each event can be extended up to 23:50h, then ->>> is indicating that the event is in the next day. By pressing + or − key at ->>> a time can be adjusted. Max 9 events are possible. The first digit indicates the actual event e.g. 3.12:00- 14:00 shows event 3. Events can be set for day-blocks as well, when selecting days (Mon...Fri, Sat/Sun, Mon...Sun) In order to finish programming, press ← repeatedly.	as selected at G1
3	**Clock Settings**	Set Date and Time	
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. AUTO or by pressing key ← for 10 Sec. When re-activating via key ← or this menu, AUTO will be activated.	NO
5	**Summer/Winter time change over**	Select if automatic Summer/Winter-Time changeover	YES
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 to AUTO, MAN, HOL, TIMER, AT-HOME, Programming. The active program / mode 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.	10
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.	
		Calculation: On-Time of heater x cost per hour see above. Reset see H9	
10	**Set temperature to read**	Show set temperature instead of floor 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, Continuously OFF, temporarily illuminates after key press	SHORT
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
0	**Code**	Enter Code (= 7) in order to access the menus. It is valid for 1 Hour	
1	**Application**	For this heating system the controller is suitable	FLOOR
2	**Control Mode**	PWM or ON/OFF can be selected. In case of PWM, the cycle Time can be set (in Minutes). Use short time for fast and longer time for slow reacting heating systems	PWM/10
6	**Frost protection**	Set frost protection temperature. In OFF mode only, the Temperature will be controlled to that value.	10 °C
7	**Optimum Start**	The set temperature will be reached at the time specified in the program. During pre-heating time, AUTO_ will be displayd	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 external sensor ➜ remove 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, the relay will be off.

11. Batteries