

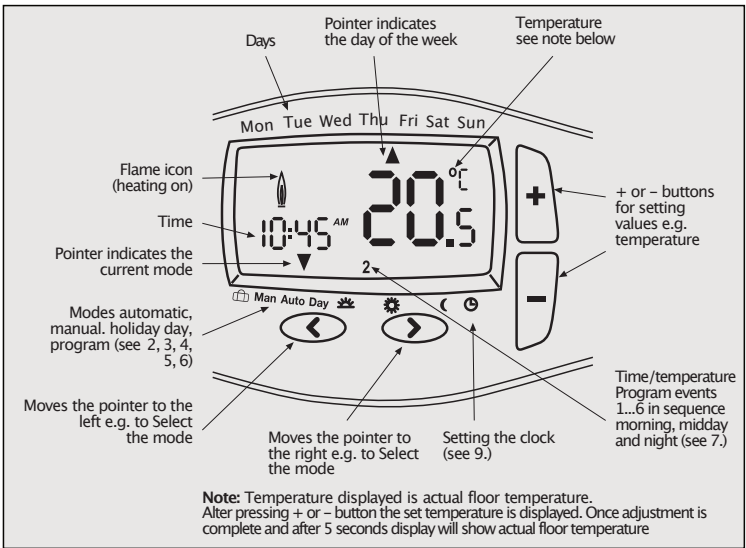
User and installation guide  
INSTAT+ 3F  
Floor temperature Controller

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I. User Guide

Operation (Overview)



1. Principle of function

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

Note:  
The adjusted values (while programming) will be accepted automatically after ~5 sec.

2. Automatic mode (AUTO)

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

3. How to change the temperature for a short period of time (Override)

When in AUTO mode, you can override the existing temperature setting for a short period of time.  
Press the + or - button to change the temperature setting.  
While in temperature override, the pointer indicates both AUTO and MAN (Fig. 2).  
When the next programmed time/temperature event is reached, the device will revert to the AUTO mode.

4. How to set a constant Floor temperature (manual operation)

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

How to activate this mode

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

Exit the mode

by pressing the > button.

5. How to set the Floor temperature for a set time (holiday party mode)

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

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

How to activate this mode

Press the < button until the pointer indicates the suitcase icon (Fig. 4).  
Set the temperature by pressing the +- button.  
Select the time by pressing the < button.  
Set the time by pressing the +- button.

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

To exit this mode, press <or>

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

Note: the current day (today) must be included in the setting.  
e.g. 1 day is set, the controller returns to AUTO today at midnight.

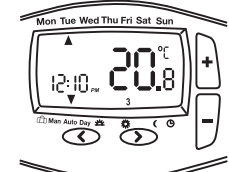


Fig. 1

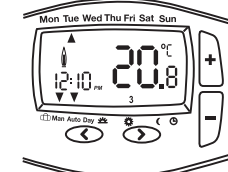


Fig. 2

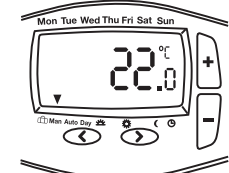


Fig. 3

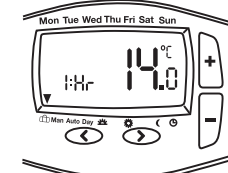


Fig. 4

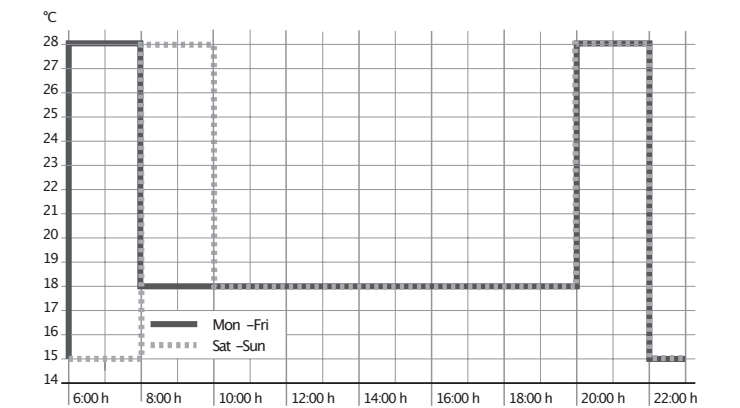
6. Pre-set programs

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

Program 1

| Monday to Friday |      |      |       |       |       |       |
|------------------|------|------|-------|-------|-------|-------|
| Events           | 1    | 2    | 3     | 4     | 5     | 6     |
| Time             | 6:00 | 8:00 | 12:00 | 14:00 | 20:00 | 22:00 |
| Temperature(°C)  | 28,0 | 18,0 | 18,0  | 18,0  | 28,0  | 15,0  |

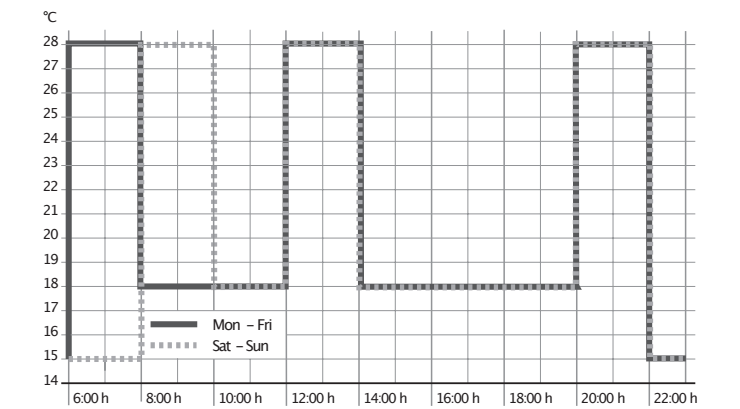
| Saturday and Sunday |      |       |       |       |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
| Events              | 1    | 2     | 3     | 4     | 5     | 6     |
| Time                | 8:00 | 10:00 | 12:00 | 14:00 | 20:00 | 22:00 |
| Temperature(°C)     | 28,0 | 18,0  | 18,0  | 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 | 20:00 | 22:00 |
| Temperature °C   | 28,0 | 18,0 | 28,0  | 18,0  | 28,0  | 15,0  |

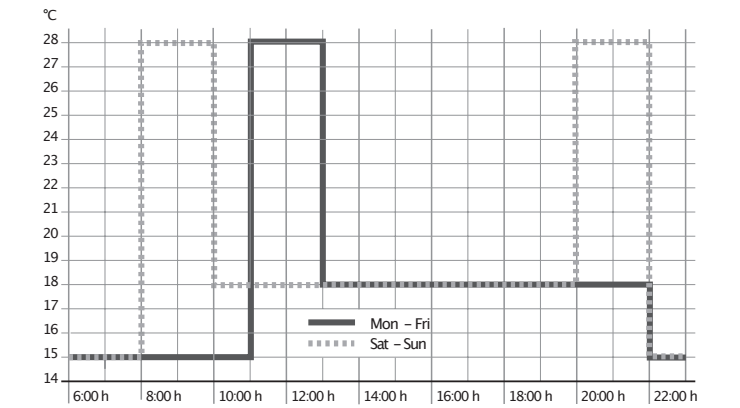
| Saturday and Sunday |      |       |       |       |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
| Events              | 1    | 2     | 3     | 4     | 5     | 6     |
| Time                | 8:00 | 10:00 | 12:00 | 14:00 | 20:00 | 22:00 |
| Temperature °C      | 28,0 | 18,0  | 28,0  | 18,0  | 28,0  | 15,0  |



Program 3

| Monday to Friday |       |       |       |       |       |       |
|------------------|-------|-------|-------|-------|-------|-------|
| Events           | 1     | 2     | 3     | 4     | 5     | 6     |
| Time             | 11:00 | 13:00 | 14:00 | 15:00 | 20:00 | 22:00 |
| Temperature °C   | 28,0  | 18,0  | 18,0  | 18,0  | 18,0  | 15,0  |

| Saturday and Sunday |      |       |       |       |       |       |
|---------------------|------|-------|-------|-------|-------|-------|
| Events              | 1    | 2     | 3     | 4     | 5     | 6     |
| Time                | 8:00 | 10:00 | 12:00 | 14:00 | 20:00 | 22:00 |
| Temperature °C      | 28,0 | 18,0  | 18,0  | 18,0  | 28,0  | 15,0  |



7. How to adjust the pre-set time/temperature program to suit personal needs

Select the day function by pressing the > button up to position "Day".  
Select the day by pressing the +- button.

Set the times for this day

Select the event (1....6) by pressing the > button.  
Set the time by pressing the +- button.  
Select the temperature by pressing the > button.  
Set the temperature by pressing the +- button.  
The > button must be pressed to accept a setting.

If you wish to change other events or days, repeat the actions described above. To return to the auto mode, press the < button.

Note: The last event of the current day can be extended up to the first event of the following day.

If operating mode "7 days" is chosen (see installer options, option 1), the days can be selected as blocks or individual days (Fig. 5 to 8). The blocks are selected by repeatedly pressing the button.

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

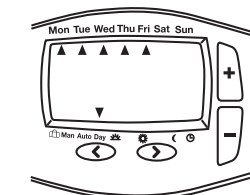


Fig. 5:  
Monday to Friday as one block (working days)

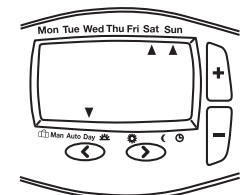


Fig. 6:  
Saturday and Sunday as one block (days off)

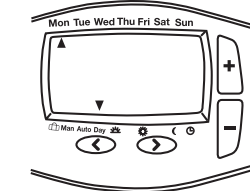


Fig. 7:  
Each day is individual day

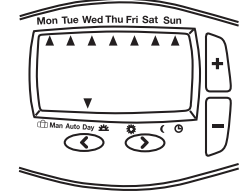


Fig. 8:  
Monday to Sunday as one block (all days)

8. How to change user options

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

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

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

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

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

Shows the time as 24 hours or 12 hours.

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

Setting the temperature used when the manual mode is selected for the first time, e.g. 28 °C.

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

Selection of a pre-set program to be used for programming events (see 6.).

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

2, 4 or 6 time/temperature events can be selected for each day according to individual need (not used events will be skipped).

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

You can select whether or not you want the time change to be carried out automatically. If it is not carried out automatically, the time has to be adjusted manually (see 9.).

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

The temperature display can be adjusted to individual needs, e.g. 3 = +0,3°; -15 = -1,5°.

8.7 How to restore the built-in time temperature programs (option 7, table 1)

Restores the pre-set programs to its original factory settings.

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

When switched off, the programmable thermostat no longer controls the floor temperature and the floor is not heated. The display will show OFF, and the buttons will not function.  
In the installer options (refer to Installation Guide), you can select whether or not frost protection is to be active (heating is called for if the temperature falls below 5°C) when the programmable thermostat is switched off.

8.9 Display the floor temperature as number (Option 9, Table 1)

Here can be selected if the floor temperature is displayed as a number instead of temperature (e.g. 25.1 instead of 25.1°).

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

The controller comes with a pre-set clock, which also automatically switches from day light savings time to standard time.

There should be no need to change these settings. However, should the need arise, the settings can be changed in the following way.

Activate the clock mode:

Select DAY with button > and then Sunday with button +.

With button > move through all 6 time/temperature events (without any modification) until the pointer indicates the clock icon.

The time will now flash.

Set the time by pressing the +- button.  
Press the > button to select the day. Press the +- button to change the setting.  
Press the > button to select the month. Press the +- button to change the setting.  
Press the > button to select the year. Press the +- button to change the setting.  
Press the > button to return to the AUTO mode.

Table 1 User Options

| User Options | Description                                                        | Select between |     | Default |
|--------------|--------------------------------------------------------------------|----------------|-----|---------|
| 1            | Change 12 h or 24 h clock                                          | 12             | 24  | 24      |
| 2            | Change the manual set point temperature                            | 7              | 32  | 28      |
| 3            | Change to another pre-set program                                  | 1              | 3   | 1       |
| 4            | Change the number of program events per day                        | 2, 4 or 6      |     | 6       |
| 5            | Switch on/off automatic daylight savings time/standard time change | ON             | OFF | ON      |
| 6            | Change temperature display                                         | -5.0           | 5.0 | 0.0     |
| 7            | Restore the built-in time temperature programs                     | ON             | OFF | OFF     |
| 8            | Switch off the thermostat                                          | ON             | OFF | OFF     |
| 9            | Display floor temperature as number                                | ON             | OFF | OFF     |

II. Installation Guide

**Warning!**  
Switch off mains supply before removing an existing Floor temperature controller or installing this controller

**Caution!**  
The device must only be opened by a competent electrician and installed according to the wiring diagram in the housing cover or this guide. The existing safety regulations must be complied with

Appropriate installation measures must be taken to achieve protection class |.

This electronic device which can be installed independently may only be used to control the temperature in dry and enclosed rooms in a normal environment. The device is radio-interference suppressed according to VDE 0875 T.14 resp. EN 55014 and functions according to method of operation 1C (EN 60730).

1. Applications:

The electronic Floor heating controller INSTAT+ 3F can be used to control the surface temperature of the floor.

2. Installation:

Installation location:

The device should be installed in a location which is easily accessible for operation.

Remote Sensor

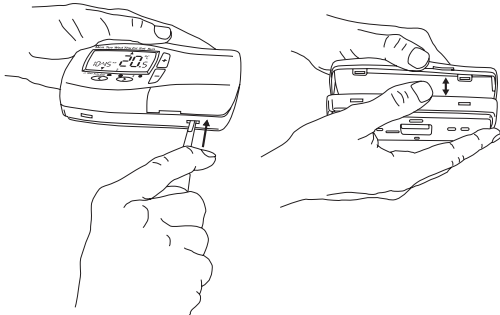
- The remote sensor (type F 193 720) can be extended up to 50m (cable suitable for 230V is required)
- The sensor should be mounted in a protection pipe. This will allow easy replacement.
- In case of a sensor failure (cut or short circuit the controller activates the emergency mode Cheating with 30% of time if option 10 is active)

Attention

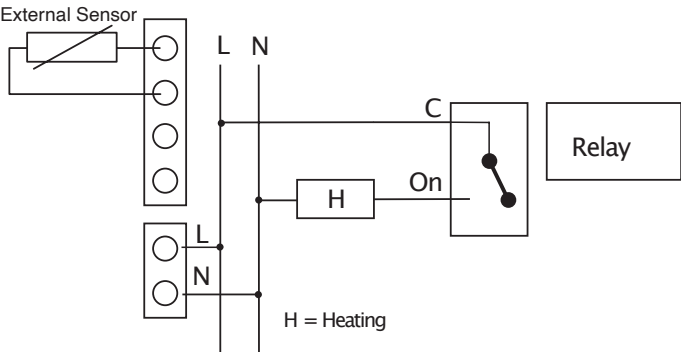
The sensor cable carries 230V

The controller must be installed directly onto the wall or on a flush-mounting socket.

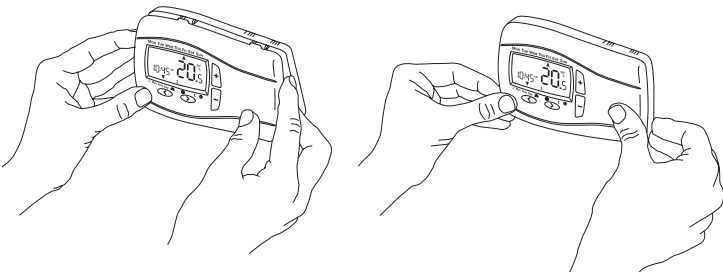
1. Remove the front cover using a flat screwdriver and separate from back plate.



2. Attach the back plate to a flush-mounting socket using suitable wall plugs and screws.
3. Complete the wiring to the heating source according to the wiring diagram inside the product or below.



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



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

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

3. Installer options

**Attention:** The settings should only be carried out by the installer only, as settings ma affect the functions and security of the heating system. List of Installer options see Table 2.

To activate the menu press the < and + buttons simultaneously for 5 seconds

Select an option by pressing the <or> button

Change an option by pressing the +- button

Press > to accept each change

To exit the menu, press the < and + buttons simultaneously for 5 seconds.

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

3.1 Kind of program (option 1, table 2)

The operating mode of the controller is set via this function.

7 days (7d):  
Different time/temperature settings can

5/2 days (5:2):  
Different time/temperature settings can be chosen for the weekdays (Monday to Friday) and the weekend (Saturday and Sunday) in this mode. This is the default mode.

24 hours (24h):  
The same time/temperature settings are used for all days of the week in this mode. chosen for each day individually.

3.2 Access protection lock/ child lock (option 2, table 2)

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

To switch off the protection lock, enter the installer options and set option 2 to OFF.

3.3 Frost protection (option 3, table 2)

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

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

When in Off mode frost protection will still be active.

3.4 Low and high limit set points (option 4, 5, table 2)

These limits can be used to prevent temperatures from being set too high or too low.

The set point default values are 40°C (high limit) and 10°C (low limit).

3.5 Optimum start (option 6, table 2)

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

This function is a major energy saving factor,

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

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

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

The following message is shown in case of sensor failures:

E1 for an internal sensor failure  
E2 for an external sensor failure

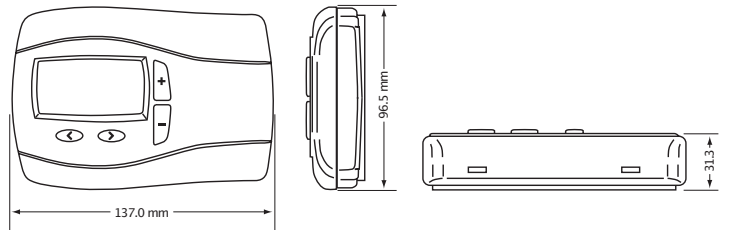
**A sensor failure can have the following effects:**

1. If this function is activated, the heating is switched on for 30% of the time (this prevents the floor from being too cold or overheating)
2. When this function is not activated, the heating is switched off

4. Technical data

|                                                                       |                                                                   |
|-----------------------------------------------------------------------|-------------------------------------------------------------------|
| Order type                                                            | INSTAT+ 3F                                                        |
| Supply Voltage                                                        | 230 V AC 50 HZ (195...253 V)                                      |
| Temperature setting range                                             | 10°C to 40°C                                                      |
| Temperature resolution                                                | 0,1°C                                                             |
| Switching current                                                     | 10mA ....16(2)A AC 230 V~                                         |
| Output                                                                | Relay change over contact, voltage free                           |
| Output signal                                                         | Pulse width modulation (PWM)                                      |
| Timing resolution                                                     | 1 Minute                                                          |
| Accuracy of clock                                                     | < 4 Min / year                                                    |
| Remote sensor                                                         | F 193 720 length 4m,<br>can be extended to 50m                    |
| Ambient temperature                                                   | Operating 0°C to 40°C<br>Storage -20°C to 85°C                    |
| Ambient humidity                                                      | Operating 25% to 85% (without condensation)<br>Storage 15% to 95% |
| Rated impulse voltage                                                 | 2,5 kV                                                            |
| Ball pressure test                                                    | 75°C                                                              |
| Voltage and current for the for purposes of interference measurements | 230V, 16A                                                         |
| Pollution degree                                                      | IP 30                                                             |
| Degree of protection                                                  | 2 (see caution)                                                   |
| Software class                                                        | A                                                                 |
| Weight (with sensor)                                                  | ~ 350 g                                                           |

Dimensions



5. Troubleshooting:

- 1. It is getting warm too late**
- a. Are clock and program events set correctly?
  - b. Is the Optimum Start switched on (see 3.5)?
  - c. Did the thermostat have enough time (some days) to determine the Floor data?
- 2. The thermostat does not accept any changes**
- Is the access protection lock switched on (see 3.2)?
- 3. E1 or E2 is shown in the display:**
- Sensor failure (see 3.6)

Table 2 Installer Options

| Installer Options | Descriptions                          | Select between |             |               | Default |
|-------------------|---------------------------------------|----------------|-------------|---------------|---------|
| 1                 | Kind of program                       | 5:2 days (5:2) | 7 days (7d) | 24hours (24h) | 7 days  |
| 2                 | Access protection lock (child lock)   | ON             | OFF         |               | OFF     |
| 3                 | Frost protection                      | ON             | OFF         |               | ON      |
| 4                 | Low limit set point °C                | 10             | High limit  |               | 10      |
| 5                 | High limit set point °C               | Low limit      | 40          |               | 40      |
| 6                 | Optimum Start                         | ON             | OFF         |               | ON      |
| 7                 | not used                              |                |             |               |         |
| 8                 | not used                              |                |             |               |         |
| 9                 | Emergency heating (if sensor failure) | ON             | OFF         |               | OFF     |