

Operating instructions

Clock thermostat



DB8 / MTC
optimising controller

1 Table of contents

OPERATING INSTRUCTIONS	1
CLOCK THERMOSTAT	1
1 TABLE OF CONTENTS	2
2 DESIGNATED USE	3
2.1 SAFETY	3
3 DESCRIPTION OF THE THERMOSTAT	3
3.1 CONCISE SPECIFICATIONS	3
3.2 TECHNICAL SPECIFICATIONS	3
4 MOUNTING AND ELECTRICAL CONNECTION	4
4.1 MOUNTING	4
4.2 ELECTRICAL CONNECTION	4
4.3 ONE HEATER ON ONE CONTROLLER	4
4.4 SEVERAL UNITS ON 1 THERMOSTAT	4
5 SETTINGS	5
5.1 LANGUAGE	5
5.2 TIME/DATE	6
5.3 TEMPERATURES	6
5.4 CLOCK PROGRAM	6
5.4.1 <i>Deleting programmed blocks</i>	7
5.5 HEATING PROGRAM	7
6 VENTILATION	7
7 OVERTIME TIMER	8
8 OPTIMISER	8
9 KEYBOARD LOCKING	8
9.1 UNLOCK THE DISPLAY	9
10 DISPLAY	9
11 CALIBRATING THE THERMOSTAT	9
12 DESTRATIFICATION (DELAT T REGULATION)	10
13 BACK TO FACTORY DEFAULT SETTINGS	10
14 REMOTE SENSOR	11
14.1 ELECTRICAL CONNECTION:	11
14.2 SETTING THE CONTROLLER FOR THE REMOTE SENSOR	11
14.3 AVERAGE TEMPERATURES	12
14.4 SETTING UP THE REMOTE SENSOR	12
14.5 ERRORS WITH THE REMOTE SENSOR	12
15 SOLVING AND ANALYSING FAILURES	12
16 OBTAINING EXTRA INFORMATION FROM THE CONNECTED HEATERS	12
17 INSTALLER MENU	13
18 INTERNAL BATTERY	14
19 MAINTENANCE AND SERVICE	14
19.1.1 <i>Waste processing</i>	14

2 Designated use

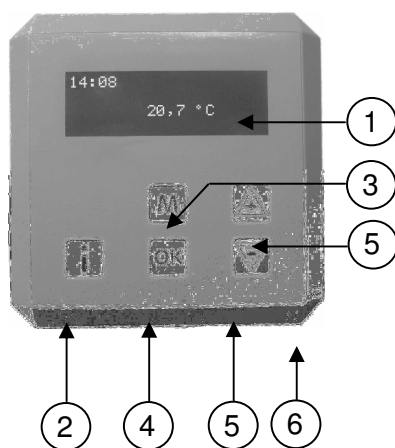
The Multi Therm-C clock thermostat has been designed to control room heaters that work according to the Argus bus system. This is a two-wire low voltage communication system. The thermostat is not suitable to switch 24V, 230V or other signals. It may only be used in dry rooms with slight impurities (degree of protection IP30).

Before use, carefully read these operating instructions and observe them. In case the mounting and operating instructions are not observed, the manufacturer's warranty will not apply to any resulting damage.

2.1 Safety

Electrical devices may only be connected by a qualified electrician. Always observe the relevant national regulations. Interferences and changes to the device will lead to cancellation of the warranty.

3 Description of the thermostat



1. Display
2. Info button to display information
3. Menu button to enter and exit the menu
4. OK button to confirm a setting
5. + and – buttons to raise or lower settings
6. openings for the temperature sensor

3.1 Concise specifications

- Room thermostat with clock function
- Optimising controller
- Permanent display of the room temperature
- 10 different programmable time blocks
- Up to 8 heaters controllable
- Frost protection
- Keyboard locking
- Overtime program
- Ventilation
- Failure diagnosis of the devices
- Suppression of interference of the heater
- Compensation for wall influence
- suited for remote sensor
- Supplied battery, excellent for preserving data in case of power failure

3.2 Technical specifications

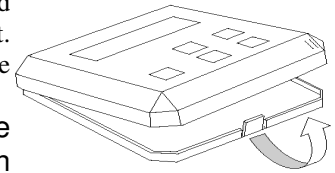
- Power supply: low-voltage current
- Temperature range: 0-30 degrees Celsius
- Controller: PI
- Clock: 10 programmable switch blocks
- Degree of protection: IP30

4 Mounting and electrical connection

4.1 Mounting

The clock thermostat is suitable for mounting in dry, not too dusty rooms. Place the thermostat in a room in a location where air can circulate unimpeded. Beware that in winter the low-standing sun cannot shine directly onto the thermostat. Placement above or near a device that radiates heat is also not recommended. Avoid placement on a cold outdoor wall; place the thermostat on an indoor wall free of draught. All these things have an adverse effect on the correct measurement of the room temperature and hence on the proper operation of the thermostat.

By pressing the notch on the bottom of the thermostat, you can open the thermostat. The bottom plate containing the connector can be mounted on a universal wall box or directly on the wall.



! Be ware that the controller should not be mounted near a antennas from any internal communication network. These antennas may disturb the correct functioning of the controller. Always keep a few meters distance.



4.2 Electrical connection

To connect the thermostat, always ensure that the heating device has been shut down.

The thermostat receives electric power from the heating device. The connection is 2-wire low-voltage and is not phase sensitive, i.e. it does not matter how the wires are connected.

Beware that the thermostat wires do not run through the same circuit as 230 volt wires and are not parallel with high-voltage current wires.

If the wires are longer than 20 metres or run through an environment where there is a great deal of EMC radiation, a low-noise cord is recommended. This can, for example, be a wire with an earthed sheathing.

Cable length:

0 – 50 m	- min. 0,13 mm ²
50 – 100 m	- min. 0,25 mm ²
100 – 250 m (max.)	- min. 0,50 mm ²

The given length is the maximum distance between the controller(s) and the heater(s).

4.3 One heater on one controller

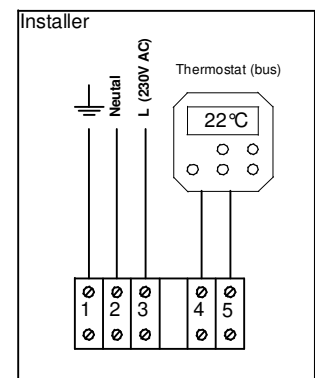
Standard nothing needs to be changed in the heating device. In case the thermostat does not work, check that the micro-switches S2 on the print plate in the room heater are set as shown on the right: number 1 up (ON) and the other numbers down. The switch S3 should be set to 1. In case several devices are connected to 1 thermostat, refer to the relevant chapter in this manual.



This thermostat is only suitable for connection to heating devices specifically intended for this purpose. Never connect, for example, 24V or

another voltage of another system to the thermostat. This can damage the thermostat.

After making the changes inside the heater always unplug and re plug the power to the heater for the changes to become effective.

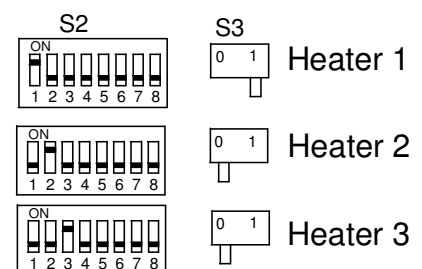


4.4 Several units on 1 thermostat

The room thermostat can control up to 8 room heaters. Connecting them is simple, but it should be done properly.

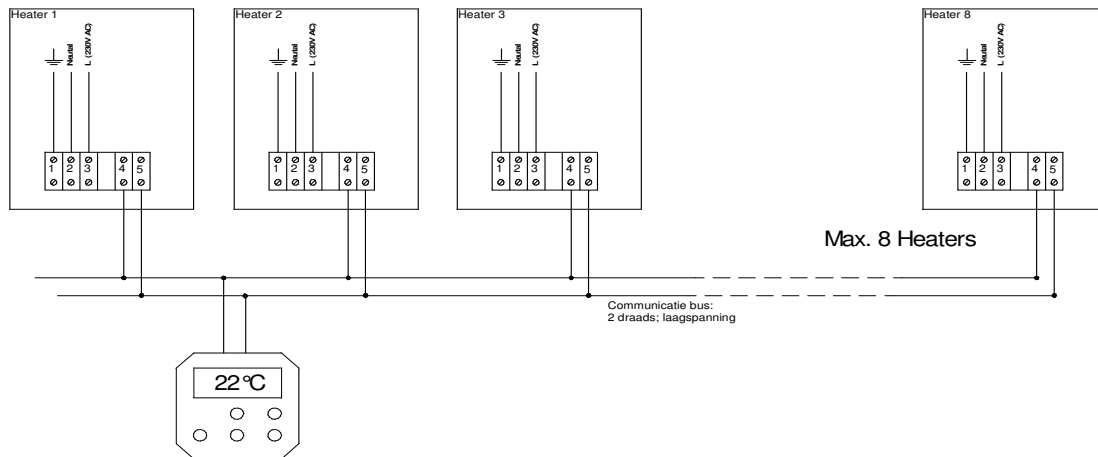
Pay attention to the following:

- Each unit must be given its own number (to be set with the micro-switch S2 in the unit).
- One unit must have the S2 number 1 set on ON (this unit provides for the communication) and S3 to 1, all the other heaters should have S3 set to 0.



- Between the separate units, the numbers 4 must be connected with the numbers 4 and the number 5 with 5. They must not be connected in a cross-wise manner.

The functionality of the thermostat does not change by connecting a number of room heaters.



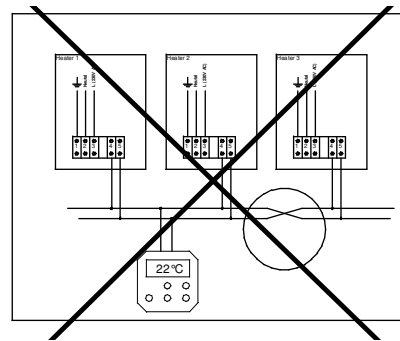
beware that the thermostat wires do not run through the same circuit as 230 volt wires and are not parallel with high-voltage current wires.

If the wires are longer than 20 metres or run through an environment where there is a great deal of EMC radiation, a low-noise cord is recommended. This can, for example, be a wire with an earthed sheathing.

Cable length:

- 0 – 50 m - min. 0,13 mm²
- 50 – 100 m - min. 0,25 mm²
- 100 – 250 m (max.) - min. 0,50 mm²

The given length is the maximum distance between the controller(s) and the heater(s).

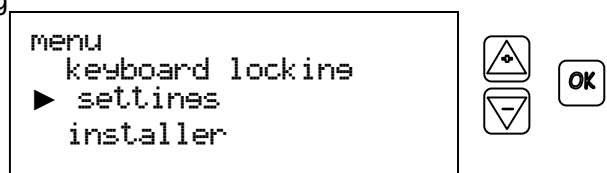


5 Settings

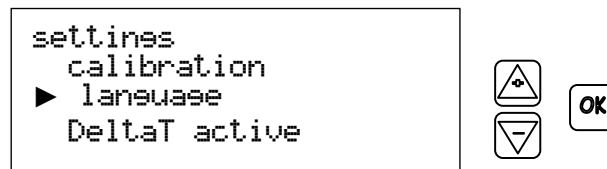
5.1 Language

You can change the language of the various menu items of the thermostat. To change the language of the thermostat, observe the following procedure.

1. Activate the menu with the M button. Select settings and confirm with OK.



2. Select language and confirm with OK.

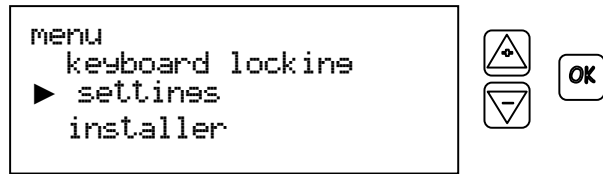


3. Select the correct language and confirm with OK. Exit the menu by pressing M twice.

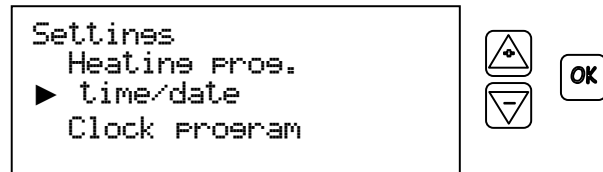


5.2 Time/date

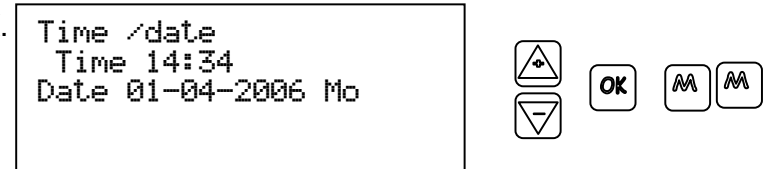
1. Activate the menu with the M button. Select settings and confirm with OK.



2. Select time/date and confirm with OK.



3. Change the settings with the + and - buttons and each time confirm with OK. To exit the menu, press M twice.



5.3 Temperatures

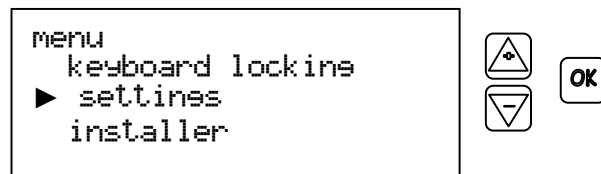
During the clock program, the thermostat works with 3 temperature levels in a room: Day, Night and Frost temperature.

These levels can each be set from 0 to 30 degrees Celsius. This allows you to set the desired temperature quickly when programming the clock program.

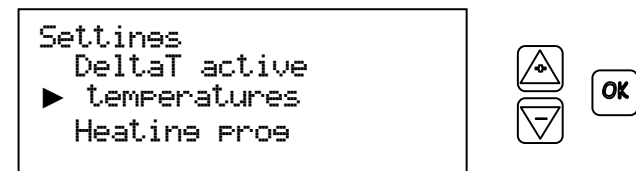
Comment. For the sake of ease, the names day, night and frost have been chosen. You are free to set the temperature levels at any desired time and on any desired value between 0 and 30 degrees.

To set the temperatures:

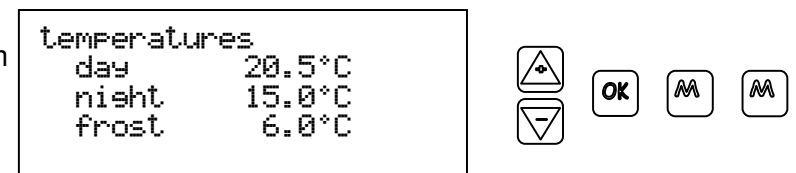
1. Activate the menu with the M button. Select settings and confirm with OK.



2. Select temperatures and confirm with OK.



3. Set the desired temperatures from 0 to 30°C. Confirm with OK. Exit the menu by pressing M twice.



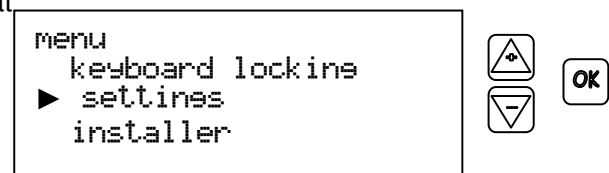
5.4 Clock program

You can program 10 time blocks in the thermostat.

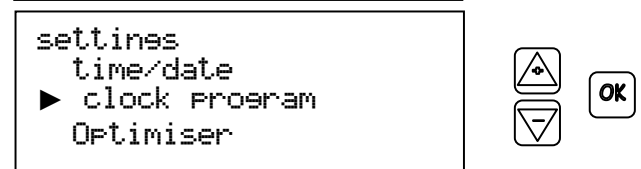
A time block is for example:

Every Monday at 7.00 day temperature; and at 17.00 night temperature.

1. Activate the menu with the M button. Select settings and confirm with OK.



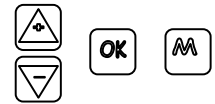
2. Select clock program and confirm with OK.



3. Go through the different programmed blocks with the + and – buttons. By pressing OK you can change the selected block.

```

Program      Block 1
Mo Tu We Th Fr
07:00 day
17:00 night
  
```



For days there are various options:

```

off
Mo Tu We Th Fr Sa Su
Mo Tu We Thu Fr      Sa Su
Mo                    Tu
  
```

And further...

When the block has been filled in correctly, press OK to save the block.

5.4.1 Deleting programmed blocks

When selecting day, you can also select the off option. In that case the settings of the block are deleted.

```

Program      Block 1
Off
  
```



5.5 Heating program

This thermostat can work in different ways.

Naturally, it can work automatically on the clock, but also in other ways.

Cont. day The thermostat maintains the programmed day temperature; the temperature is not lowered. However, you can change the temperature manually.

Cont. night The thermostat maintains the programmed night temperature; the temperature is not raised. However, you can change the temperature manually.

Cont. frost The thermostat maintains the programmed frost temperature; the temperature is not raised. However, you can change the temperature manually.

Clock program The thermostat maintains the clock program. You can still change the set point manually, the set point will return to its automated value at the program step of the clock.

1. Activate the menu with the M button. Select settings and confirm with OK.

```

menu
keyboard lockins
▶ settings
installer
  
```



2. Select time/date and confirm with OK.

```

settings
temperatures
▶ heating pros
time/date
  
```



3. Change the settings with the + and – buttons and each time confirm with OK. To exit the menu, press M twice.

```

Heating pros
Cont. frost
▶ Clock program
Cont. day
  
```



6 Ventilation

With some devices it is possible to control the ventilator without the heater being on. In summer this can, for example, have a cooling effect. The ventilator can be switched to 4 positions: position 1, 2, 3 and off. Setting the ventilation:

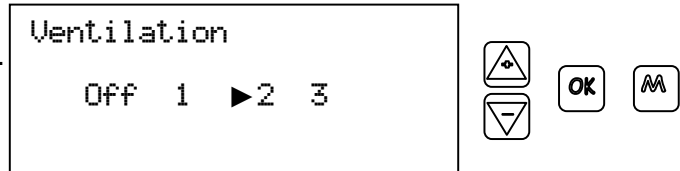
1. Activate the menu with the M button. With the + and – buttons select ventilation and confirm with OK.

```

menu
overtime program
▶ ventilation
keyboard lockins
  
```



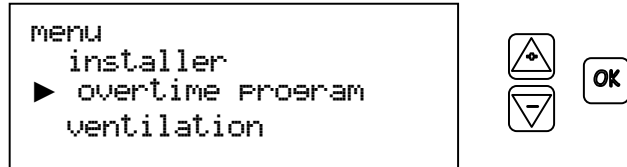
2. With the + and – buttons select the ventilator position and confirm with OK. Exit the menu by pressing M.



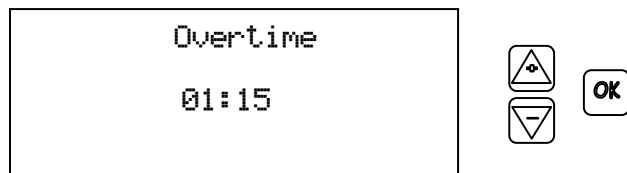
7 Overtime timer

When the thermostat is set on the clock and you would like temporarily to maintain the temperature longer on day level, you can do so with the overtime timer. The overtime timer can be set per 15 minutes.

1. Activate the menu with the M button . Select overtime program and confirm with OK.



2. With the + and – buttons enter a time in steps from 15 min., and confirm with OK. The time will start to count down immediately.

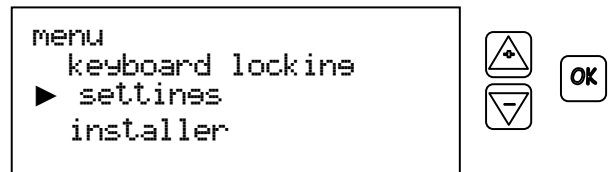


8 Optimiser

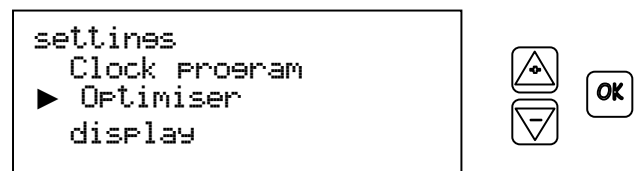
the controller can be set in such a way that it will start the heaters earlier by means of a optimising program. The controller calculates when the heaters should be started in order to reach the setpoint temperature at the desired time.

De optimiser can be set by:T

1. Activate the menu with the M button. Select settings and confirm with OK.



2. Select Optimiser and confirm with OK.



3. Change the settings with the + and – buttons and each time confirm with OK. To exit the menu, press M twice.



After setting the optimiser it will take several days for the controller to gathered the information needed for the calculations. When the controller is confronted with sudden colder or warmer nights it will not take this in its calculations immediately. When the temperatures are lower for a few days it will adjust its calculations.

Remark: The maximum time that the heaters will start earlier is 3 hours, and the earlier start is not overnight.

9 Keyboard locking

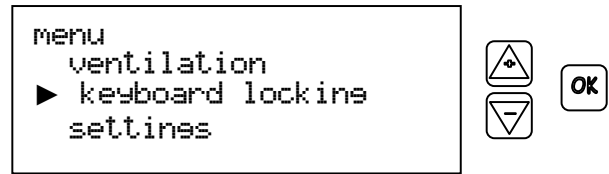
It may be handy to secure the thermostat in whole or in part against unauthorised changing of the settings.

There are several levels of security:

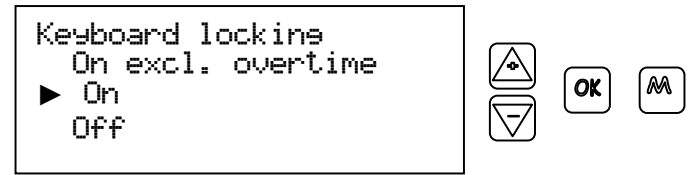
- Unlocked.
- Fully locked.
- Limited, with only the overtime timer.

Setting the keyboard locking:

1. Activate the menu with the M button. With the + and – buttons select keyboard locking and confirm with OK.



2. With the + and – buttons select the desired level and confirm with OK. Exit the menu by pressing M.



The locking becomes active as soon as OK is pressed.

The message “keyboard locking” appears in the display as soon as a button is pressed.

9.1 Unlock the display

The thermostat can be unlocked by:

Pressing the M button for at least 10 seconds.

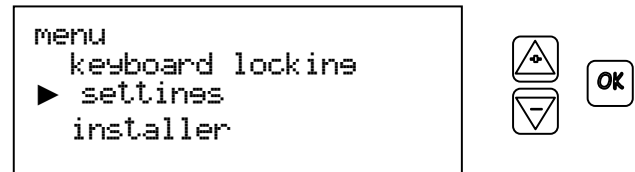
10 sec



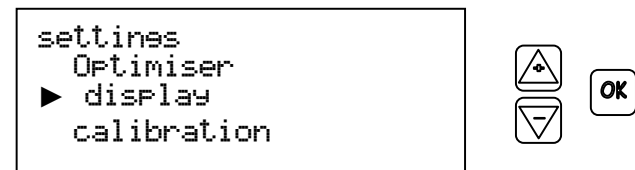
10 Display

The thermostat can arrange the display in various ways.

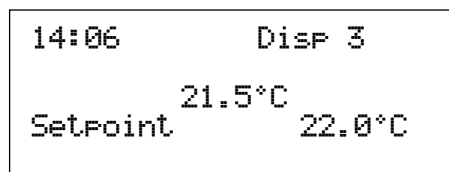
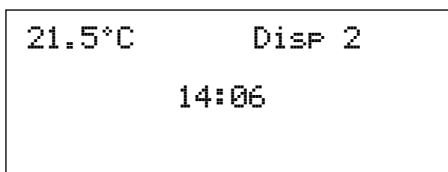
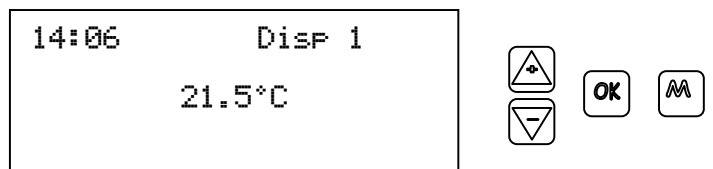
1. Activate the menu with the M button . Select settings and confirm with OK.



2. Select display and confirm with OK.



3. Change the display with the + and – buttons and confirm with OK. To exit the menu, press M twice.

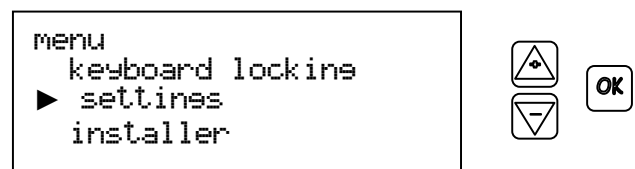


11 Calibrating the thermostat

Under unfavourable circumstances, variations can occur between the actual temperature and the displayed temperature. This may be caused by assembly to an outdoor wall, irradiation of the sun, monitors, etc. This temperature difference can be compensated for by means of a calibration function.

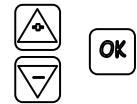
Example: The difference between the measured value and the displayed value is 2°C, i.e. the displayed value is 2°C too high. The correction value is therefore -2°C.

1. Activate the menu with the M button. Select settings and confirm with OK.



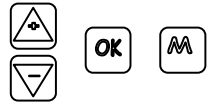
2. Select calibration and confirm with OK.

```
settings
display
▶ calibration
language
```



3. Change the settings with the + and - buttons and confirm with OK. To exit the menu, press M twice.

```
calibration
Temp. difference
-2.0
```



12 Destratification (delat T regulation)

Warm air wants to go up and stay under the ceiling of the room. The heater has the ability to push this warm air back to the ground, and spread it into the room. This is called destratification or delta T regulation. The thermostat measures the temperature on ground level and reads the temperature above in the room from the sensors on the heater. When the temperature difference between the ceiling and ground level the ventilator inside the heaters will start to push the warm air down. (factory default 12°C. When this regulation is active the heater wil also stop to burn until this temperature is leveled.

The destratification can be set by:

1. Activate the menu with the M button.
Select settings and confirm with OK.

```
menu
keyboard lockine
▶ settings
installer
```



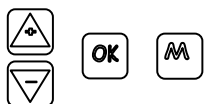
2. Select deltaT active and confirm with OK.

```
settings
Language
▶ DeltaT active
Temperatures
```



4. Change the settings with the + and - buttons and confirm with OK. To exit the menu, press M twice.

```
DeltaT active
▶ ON
Off
```



In the special installer menu the parameters of this dela T regulations can be changed. For example the temperature difference when the fan should start and stop can be changed. See for this in the chapters from the installer menu.

13 Back to factory default settings

In case the thermost needs to become its factory default settings back it can be done with:

- Press the OK button for 10 seconds and confrm with OK.



```
RESET ALL ?
```



All settings are lost and the default language menu wil show.

14 Remote sensor

In some cases it is applicable that the temperature is measured on another place than the controller is suited. In that case a remote sensor can be plugged on the same 2 wires as the heaters and the controller. The controller then works with the temperature from the separate remote sensor. It is also possible that the controller takes the average between its own internal sensor and the remote sensor.

14.1 ELECTRICAL CONNECTION:



The sensor should be connected according to the diagram as shown.

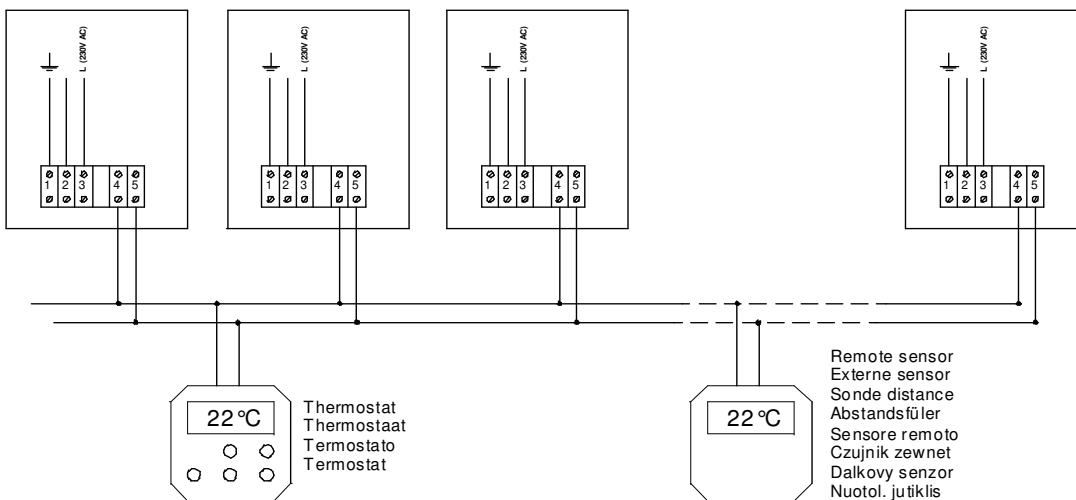
The sensor is connected through a 2-wire low voltage communication system, the Argus Link. Maximum 8 heaters can be connected on this system.

Cable length:

0 – 50 m	- min. 0,13 mm ²
50 – 100 m	- min. 0,25 mm ²
100 – 250 m (max.)	- min. 0,50 mm ²

The given length is the maximum length between the thermostats and the heaters.

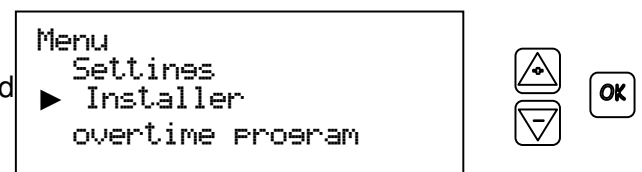
To connect the sensor, always ensure that the heating device has been shut down. Connect the sensor on the same wires as the clock thermostat. See Figure. Make sure the cable of the thermostat is not parallel to a 230 Volt cable.



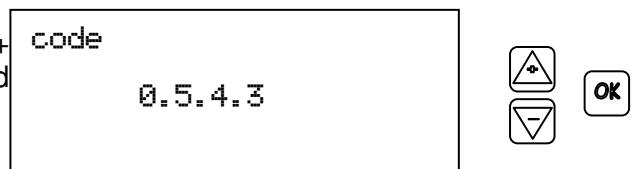
14.2 Setting the controller for the remote sensor

The settings in the controller should be changed so that it can see the remote sensor.

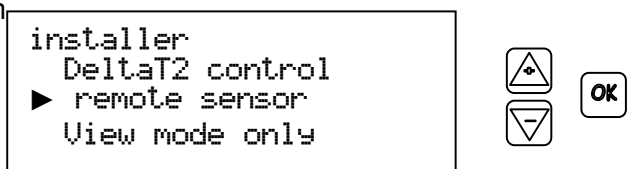
1. Activate the menu by pressing the M button and select Installer, and press OK.



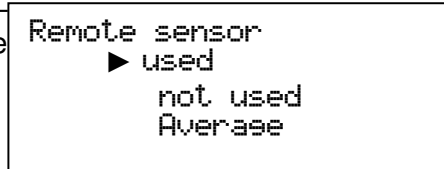
2. A security code is asked. By means of the + and - buttons fill in the code 0.5.4.3. and confirm with OK.



3. Select the option remote sensor and confirm with OK.



4. Change the settings with the + and - buttons and confirm with OK. Exit the menu by pressing the M button 2 times.



14.3 Average temperatures

The controller can also calculate the average between its internal sensor and the remote sensor. Select the option Average for that.

14.4 Setting up the remote sensor

The remote sensor is ready to use. When the sensor does not work correctly the settings in the sensor can be checked.

SETTINGS

By pushing the left arrow button for 5 seconds the menu will open. The display shows intermittent P01 - P04 and the set value. By pushing the left arrow button again, other parameters will become visible. The parameter menu can be shut by pushing the right button.



P01 calibration of the sensor.

Under bad circumstances, differences between actual temperature and shown temperature can occur. This can be caused by mounting on an external wall, sunshine, monitors etc.. This temperature difference can be compensated by this parameter. Example: The difference between the measured value and the shown value is 2°C, i.e. the shown value is 2°C too high. The value to set will then be -2°C. This can be done by pushing the + and - button.



P02 Not used

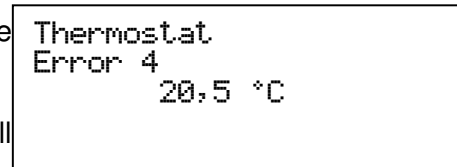
P03 Not used

P04

Standard value for the remote sensor is 1. When this is not 1 it has to be changed.

14.5 Errors with the remote sensor

In the case that the controller sees an error regarding the remote sensor it will show an error on the display. When there is no sensor found it will show error 3. When the sensor is found but is not set up correctly it will show error 4.

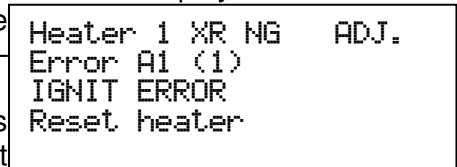


15 Solving and analysing failures

When one or more heater(s) has an error message, it appears on the display of the thermostat.

By pressing the Info button, you can obtain more information about the error message. With the + and - buttons, you can select different heaters if connected.

When, for this error message, resetting the room heater is an option, this also appears in the display. You can reset the heater by pressing OK.



NOTE: If a room heater frequently goes on failure, do not continue to reset; this can damage it. Let a recognised installer examine the room heater.

16 Obtaining extra information from the connected heaters

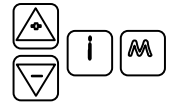
When the info button is pressed for 5 seconds a special information menu is shown. By pressing the + or - button the status of all the connected heaters can be checked. By pressing the Info button again more information about the selected heater will appear. The information will be shown in the English language.

To exit the information menu press the M button.

Info Screen 1

line 1: shows the discription of the connected heater
line 2: shows the status of the heater
line 3 and 4: shows the temperatures from the internal sensors.

```
Heater 1 XR NG 10kW  
          STANDBY_0  
Tcy      Ttop 23  
Tx1 22   Tx2 22
```



Ycy = flue temperature if the sensor is fitted (optional)

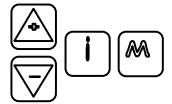
Ttop: temperature of the air where the heater is located.

Tx1 and Tx2: Temperatures from the sensor mounted on the heatexchanger

info screen 2

line 1: shows the discription of the connected heater
line 2: shows the status of the heater
line 3 and 4:

```
Heater 1 XR NG 10kW  
          STANDBY_0  
Ion 0 Ac 0 SF 0  
Mi3480 Ie4740 Ma6000
```



Ion = ionisation level 0 -90

Ac = actual speed of the burnerfan

Sf = actual modulation level of the system fan 0-255

Mi = minimum speed of the burnerfan

Ig = ignition speed of the burnerfan

Ma = maximum speed of the burnerfan

When no heaters are found or connected, the following display will show.

Also when the connedted heaters do not have the right setting of the switches S2 and S3 the controller will show this display, because he can not communicate with the heaters.

```
Heater 1 N.C.
```



17 Installer menu

The functioning of the heater and the controller can be changed by changing the parameters in the installer menu.

1. Activate the menu by pressing the M button and select Installer, and press OK.

```
Menu  
  Settings  
  ► Installer  
  overtime program
```



2. A security code is asked. By means of the + and - buttons fill in the code 0.5.4.3. and confirm with OK.

```
code  
      0.5.4.3
```



3. Select the different options available and confirm with OK.

```
installer  
  DeltaT2 control  
  ► remote sensor  
  View mode only
```



The following options are available

- Delta T Hystereses (standard values UP 12 and Down 8.0)
The temperature difference when the system fan turns on and off can be set here. The UP value is the temperature difference between the temperature down on the thermostat, and the temperature above at the heater, when the system fan should start the destratification.
The down value is the value when the fan should stop the destratification.
- Heater Modes (standard value Heater full)
In exceptional cases it might occur that a total modulation of the heater is not desired. This can be set with this parameter. The burner and fan work

Heater full (fully modulatin)
Heater high (Only on high position)
Heater mid (Only on middle position)
Heater low(Only on low position)
Heater low&mid (Low and middle position)
Heater mid&high (Middle and high position)

- Remote sensor
 - Used
 - Not used (standard)
 - Average
- View mode only. With this option the controller can be used as a monitoring device. The temperature control system is disabled. The special information menu is available for monitoring the connected heaters.
 - On
 - Off (standard)Only the info button can be used. To exit the view mode the M button has to be pressed for 10 seconds (like keyboard lock) and then the settings from view mode in the installer menu have to be changed.
- DeltaT2control NOT used (standard on OFF)
- DeltaT2hystereses NOT used (standard values up 4 down 2)
- I Factor Do not change this value (standard 5 min) only change this after contacting your supplier.

18 Internal battery

When the thermostat is connected to the room heater, it does not use power from the internal battery. This battery only serves to allow the internal clock to run on in case of a power failure. The programmed data always remains in memory. This means that the battery, too, will stand years of use.

When the battery is empty, the clock of the thermostat will be on 00:00 after a power failure of the room heater that has number 1.

If it is necessary to replace the battery:

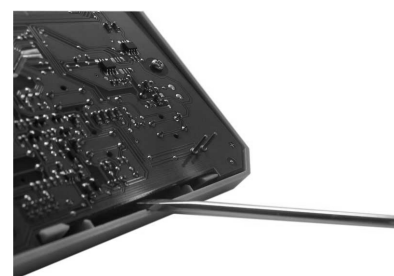
Click the top of the thermostat loose from the wall plate. Use a flat screwdriver for this and push it into the opening on the bottom of the thermostat.

Carefully prise the print plate out of the top of the thermostat using a flat screwdriver. See picture.

Carefully prise the print plate out of the holder (see picture). Then prise the battery out of the holder and insert a new battery. Click the thermostat back together again.

Note: Do not dispose the battery in your regular household waste.

Dispose it separately in accordance with national guidelines.



19 Maintenance and service

Under normal use, the thermostat requires no maintenance.

In a very dusty environment it may be necessary to clean the ventilation openings of the temperature sensor.

Clean the device exclusively with a dry or moist lint-free cloth. Beware of moisture inside the device.

19.1.1 Waste processing

At the end of the life cycle, the thermostat should be disassembled by an expert and processed in an environmentally-friendly way in accordance with the relevant national regulations.

Do not dispose the battery in your regular household waste. Dispose it separately in accordance with national guidelines.