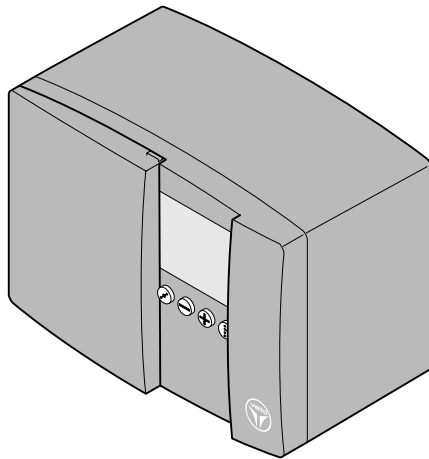# veltamat 3D

Operating Instructions 1/2000

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veltamat 3D

Congratulations

Congratulations and thank you for purchasing the veltamat 3D regulation system. You are now in possession of a velta product which is built on more than 20 years of experience. Experience of quality, know-how, functionality and service.

With the veltamat 3D regulator, which is specially tuned to the heating curve for floor heating, you can control the temperature in your floor heating system. It monitors changing seasons and outdoor temperatures. You save heating costs because the regulator reduces the temperature and uses less energy when you are out or asleep. A built-in perpetual calendar automatically switches the clock between summer and winter time. An automatic anti-frost function is activated if the outdoor temperature falls to 2 °C or below, whilst a built-in summer cut-off switch saves energy when the outdoor temperature exceeds a preset value. The dual sensor principle (both flow and return temperature are measured) shortens the heating-up phases when your floor heating is running.

The veltamat 3D digital regulator has a large display and an instruction card so that it can be quickly set up to take care of all of the operating functions.

Using the operating instructions for the veltamat 3D

These **operating instructions** describe how to use the veltamat 3D. The other section (installation instructions, service settings) provides a complete overview of factory settings and the various setting options (commissioning, special functions, service settings).
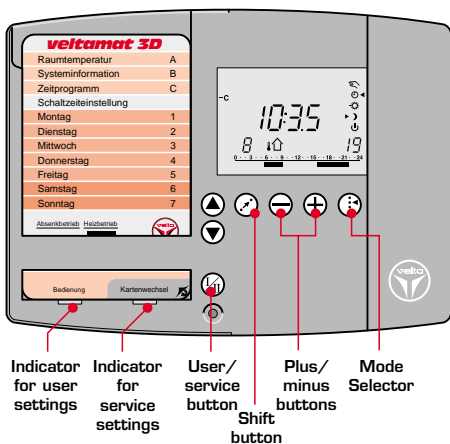
Contents

These instructions explain how to operate the veltamat 3D.

veltamat 3D

1 Operating the veltamat 3D

When using the regulator you can leave the cover open so that the entire display and instruction card is visible. Setting the regulator is quick and easy.

Symbol	Description
(::)	**Mode selector**
✍	**Manual mode** (e.g for service and maintenance)
⏱	**Automatic mode**
✿	**Heating Mode**
)	**Reduced Mode**
⏻	**Standby**
▲ ▼	**Use the arrow keys to scroll through the display line by line**
⟲	**In some display screens you can set more than one value. Use the shift button to select the values.**
⊖ ⊕	**Change settings by pressing the plus and minus keys.**
(₁/₁₁)	**Switch between user settings (orange side of the instruction card) and service settings (grey side of the instruction card).**

Indicator for user settings — **Indicator for service settings** — **User/ service button** — **Shift button** — **Plus/ minus buttons** — **Mode Selector**

When the instruction card is inserted, the indicator below the card shows which side is on view.

Getting started

To operate and change the user settings, the yellow side of the card must be on view.

Place the instruction card in the regulator with the yellow side to the front. Check that the indicator to the bottom left of the card lights up. Otherwise press the m button to select user settings. The left-hand indicator below the card lights up to confirm your selection.

veltamat 3D

Instruction card/display

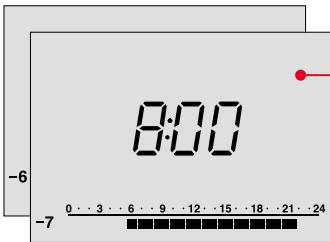The instruction card is divided into horizontal lines. Each line is linked its own display screen, which provides a rapid overview of operation and settings.
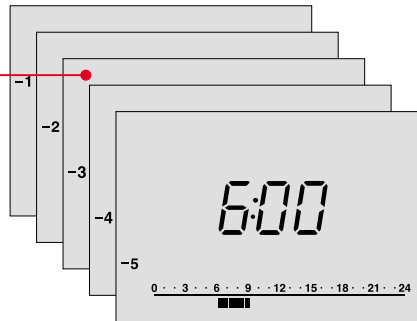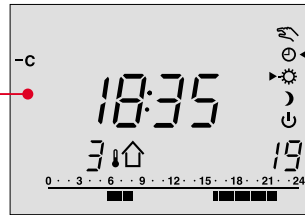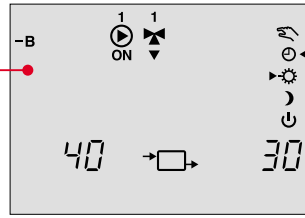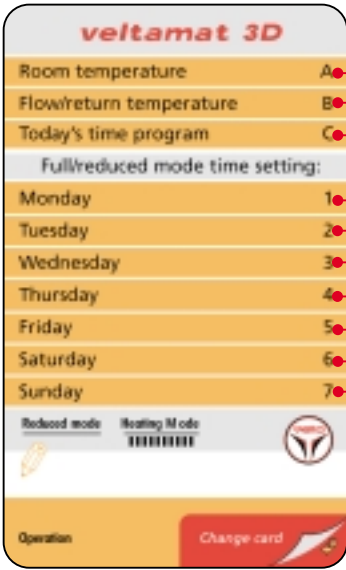
2 Glossary of Terms

Current flow temperature
Feedback value of flow temperature in the heating system

Mode indicator
Black arrow to the right of the symbols indicating which mode (e.g. manual mode, heating mode, etc.) you have selected.

Mode selector
Used to set the operating modes for the regulator

Required room temperature
The room temperature setpoint can only be accurately adjusted if a room temperature sensor is connected to the regulator. Otherwise the regulator can only regulate the setpoint for the flow temperature; the room temperature is then adjusted by means of the individual room regulators.

Heating circuit
Pipes laid in a given area and connected to the manifold (filled with water).

Heating period
Period in which the system is run at the heating temperature.

Heating temperature
Temperature in the heating circuits during the heating period.

Feedback value (actual temperature)
The temperature measured at a given time.

Mean heating water temperature
Mean value between the flow temperature and return temperature, e.g. flow = 40°C/return = 30°C, mean heating water temperature = 35°C. By measuring the return temperature, the heating-up of the building is taken into consideration when switching from reduced mode to normal mode.

Optimisation
The regulator automatically determines the optimum on and off times for a heating period.

Pt 1000 sensor
All of the sensors for use with the regulator are Pt 1000-type sensors. The resistance at 0°C is 1000 ohms and changes by 3.9 ohms per degree Celsius.

Setpoint (required temperature)
Required temperature at a given time.

Room temperature
The temperature measured by the room temperature sensor. The room temperature can only be adjusted accurately if a room temperature sensor is connected.

Room temperature sensor
This sensor is installed in the room whose temperature is to be regulated. It must be a Pt 1000 sensor.

Reduced temperature
The temperature in the heating system during reduced mode (e.g. at night).

Return temperature
The temperature measured at or in the pipe in the direction of the boiler.

Status indicator
Arrow to the left of the mode symbols. The arrow indicates the current status - heating mode or reduced mode - if the regulator is set to automatic mode (clock symbol).

Flow temperature reference
Setpoint for the flow temperature in the system. Calculated by the regulator from the current outdoor, flow and room temperatures and from the heating curve setting.

Factory settings
Settings stored in the regulator, making a new regulator immediately ready for use.

Time bar
An area showing a time period together with the heating temperature (heating mode). The bar is divided into half-hour intervals.

Time line
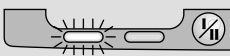A line divided into hours in the lower part of the display.

Time program
Various periods set to heating temperature or reduced temperature. You can set the time program separately for each day of the week – with up to 3 heating periods per day.
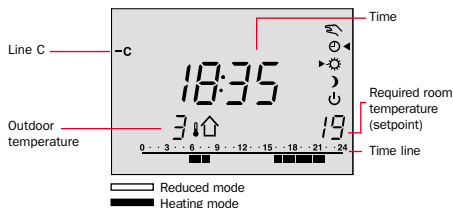
3 Floor heating display

The explanations below relate to the display for floor heating.

Check that the left-hand indicator below the card is illuminated. If not, press the ⍟ button. The left-hand indicator below the card lights up. User settings can now be accessed.
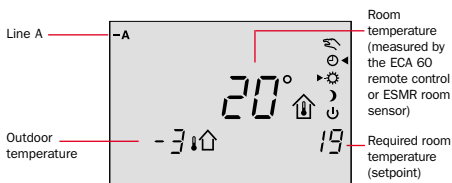
▲
▼

Use the arrow keys to select the line required – A, B, C, 1, 2, 3, etc.
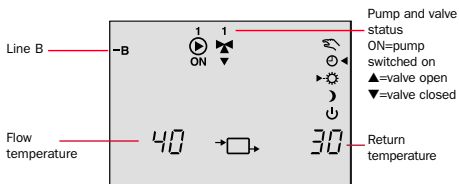
Room temperature – Line A

Line A — **–A**

Room temperature (measured by the ECA 60 remote control or ESMR room sensor)

$20°$

Outdoor temperature — -3

19

Required room temperature (setpoint)

Select this display if you want to check the room temperature. Please note that if no room temperature sensor or remote control is connected, no temperature will be displayed. Instead, two bars will appear in the centre of the display.

System information – Line B

Line B — **–B**

1   1
ON ▼

Pump and valve status
ON=pump switched on
▲=valve open
▼=valve closed

Flow temperature — 40 →☐→ 30 Return temperature

Select this display if you want to check the current status of your heating system.

Current time program – line C

Line C — **–C**

$18:35$

Time

Outdoor temperature — 3

19

Required room temperature (setpoint)

0 · · 3 · · 6 · · 9 · · 12 · · 15 · · 18 · · 21 · · 24   Time line

▭ Reduced mode
▬ Heating mode

Select this display if you want to see today's time program at a glance.

4 Mode Selector

Check that the left-hand indicator below the card is illuminated. If not, press the ⓟ button. The left-hand indicator below the card lights up. User settings can now be accessed.

Status display (heating mode or reduced mode)

The operating mode is indicated by the arrow on the right.

Mode selector. Press this button to change the regulator mode.

During automatic mode the left-hand arrow indicates the current status. The arrow flashes when the regulator is in optimised mode.

What do the symbols mean?

Manual mode (e.g. for service and maintenance). Please note: The system's anti-frost function is deactivated when this mode is selected.

Automatic mode. The system is controlled by the clock. Automatic switching between heating mode and reduced mode. The temperature is regulated according to your time program and switches automatically between heating temperature and reduced temperature.

Heating mode. The time program is deactivated. This should be used if you require extended periods at heating temperature.
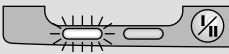
Reduced mode. The time program is deactivated. This mode can be selected in summer, for example.

Standby. The system is switched off, but the anti-frost function is still active. This mode is useful when you go away on holiday, for example.

5 Regulating the room temperature

Check that the left-hand indicator below the card is illuminated. If not, press the ⑭ button. The left-hand indicator below the card lights up. User settings can now be accessed.

For this option an ECA 60 remote control or an ESMR reference room temperature sensor must be installed to measure the room temperature.

Start at line C (displays time program and temperature)

Status display
(heating mode
or reduced
mode)

Room
temperature
(setpoint)
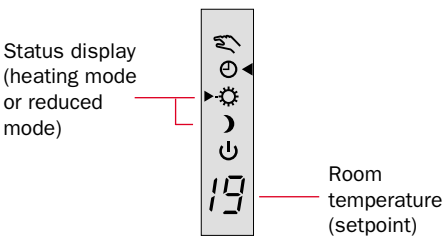
You can alter the room temperature for heating mode ☼ and/or reduced mode ⟩. The arrow on the left indicates the current mode.

⊖ ⊕ Set the required temperature for the current mode.

To change the reduced room temperature during heating mode (or vice versa):

Press the shift button and hold it down

⊖ ⊕ Change the room temperature

Please note

■ **Systems with reference room temperature sensors**
Are you having difficulty increasing the room temperature to the temperature you require?
Check that the heating circuits are completely open for the room in which the sensor is located. (If necessary, contact your installation engineer for advice).

■ **Systems with no reference room temperature sensors**
Does the room feel too cold?
Check the individual room regulator and adjust it if necessary. If you still feel too cold, the maximum flow temperature may be set too low. This can be altered in the service settings area. Please refer to section 4.1.8 "Additional service settings", line 64, in the installation instructions / service settings.
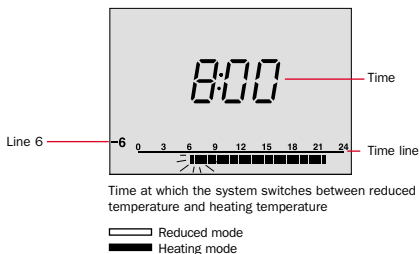
6 Time Program

Check that the left-hand indicator below the card is illuminated. If not, press the ⑭ button. The left-hand indicator below the card lights up. User settings can now be accessed.

Checking the current time program

▲
▼ Choose between lines 1 and 7 (Monday to Sunday) to view your individual time program for each day of the week. The example below shows a program for Saturday (line 6).


Line 6 —

Time

Time line

Time at which the system switches between reduced temperature and heating temperature

▭ Reduced mode
▬ Heating mode

Changing the heating periods

▲
▼ Select a day from lines 1 to 7

Line 1
(Monday)

The switchover point flashes in the time line

⊖ ⊕ Alter the first flashing switchover point. The end of the bar moves, extending or reducing the heating period.

↗ Go to the next switchover point and alter it as required.

Adding an additional heating period

↗ Select a switchover point directly before or after the new period.

↗ ⊕ Press the shift button and plus button at the same time.

The new period appears in the time line

Changing the length of the heating period

If you have just added an additional heating period, you can initially only adjust it towards the left ⊖. Press the shift button ↗ to move to the switchover point and adjust it by pressing the plus button ⊕.

Removing a heating period

↗ ⊖ Hold down the shift button and minus button together for 2 seconds.

Clearing changes to your personal settings

⊖ ⊕ Hold down the minus button and plus button together for 2 seconds to return to the factory settings.

7 Hints/Troubleshooting

The clock on the display is an hour fast or slow.
If the time shown on the display is an hour fast or slow, this could be because the automatic adjustment to summer or winter time has not been activated. Switch on automatic summer time switching in line 198. Please refer to the installation instructions / service settings (overview of settings).

The time shown on the display is incorrect.
In the event of a power cut, the veltamat 3D has a power reserve for up to 12 hours. If the power cut lasts for longer than 12 hours, the integrated time and date will need to be reset. Please refer to "Commissioning" in the installation instructions / service settings.

The room temperature is too low.
If an individual room regulator is fitted, check that this is set to the required temperature. If adjusting it does not increase the room temperature, the flow temperature may be too low. Increase the maximum flow temperature on the regulator. Please refer to section 4.1.8 "Additional service settings", line 64, in the installation instructions / service settings.

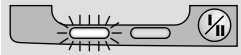**How do I add an additional heating period?**
You can add an additional heating period by pressing the shift button and the plus button at the same time. Please refer to page 9.

How do I remove a heating period?
You can remove a heating period by pressing the shift button and the minus button at the same time. Please refer to page 9.
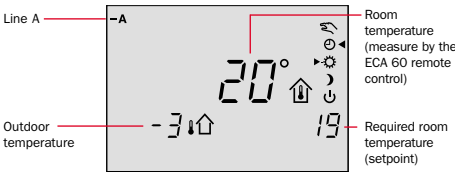
Display for floor heating with additional thermostat function

Check that the left-hand indicator below the card is illuminated. If not, press the ⓘ button. The left-hand indicator below the card lights up. User settings can now be accessed.

▲ Use the arrow keys to select the line required – A, B, C, 1, 2, 3, etc.
▼

Room Temperature - line A

Line A

Room temperature (measure by the ECA 60 remote control)

Outdoor temperature

Required room temperature (setpoint)

Select this display if you want to check the room temperature. Please note that if no remote control is connected, no temperature will be displayed. Instead, two bars will appear in the centre of the display.
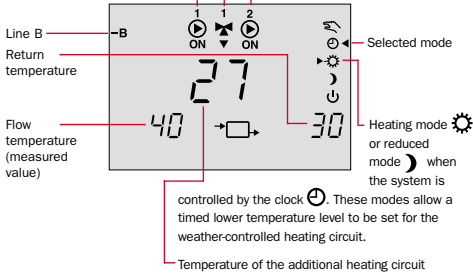
System information – line B

Pump and valve status:
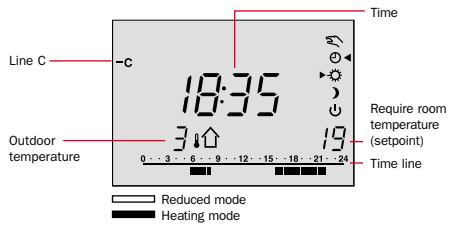
1
▶
ON   ON = pump switched on

1
▲ = valve open

▼ = valve closed

2
▶
ON   ON = Operating indicator for additional heating circuit. With an additional heating circuit a floor area can be operated as base load heating with thermostat-controlled floor temperature. This control system is independent from the outdoor temperature and the preset switching times. If the indicator is ON, the surface is heated until the floor temperature is reached.

Line B

Return temperature

Flow temperature (measured value)

Selected mode

Heating mode ☼ or reduced mode ☽ when the system is controlled by the clock ⏱. These modes allow a timed lower temperature level to be set for the weather-controlled heating circuit.

Temperature of the additional heating circuit

Current time program - line C

Line C

Time

Outdoor temperature

Require room temperature (setpoint)

Time line

□ Reduced mode
■ Heating mode

Select this display if you want to see today's time program at a glance.