OPERATION MANUAL

Domestic hot water heat pump

EKHVWQ002AAV3

EKHHS200AA1V3
EKHHS260AA1V3

CONTENTS

CAREFULLY READ THIS OPERATION MANUAL BEFORE USING THE UNIT. IT WILL TELL YOU HOW TO USE THE UNIT PROPERLY AND HELP YOU IF ANY TROUBLE OCCURS. AFTER READING THE MANUAL, FILE IT AWAY FOR FUTURE REFERENCE.

The English text is the original instruction. Other languages are translations of the original instructions.

This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
Children should be supervised to ensure that they do not play with the appliance.

WARNING

Before operating the unit, make sure the installation has been carried out correctly by a professional Daikin dealer.

If you feel unsure about operation, contact your Daikin dealer for advice and information.

- This unit contains electrical and hot parts.
- Before operating the unit, make sure the installation has been carried out correctly by a professional dealer.

  If you feel unsure about operation, contact your dealer for advice and information.

1. Definitions

1.1. Meaning of warnings and symbols

Warnings in this manual are classified according to their severity and probability of occurrence.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

Indicates situations that may result in equipment or property-damage accidents only.

INFORMATION

This symbol identifies useful tips or additional information.

Some types of danger are represented by special symbols:

Electric current.

Danger of burning and scalding.

1.2. Meaning of used terms

Installation manual:

Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

Operation manual:

Instruction manual specified for a certain product or application, explaining how to operate it.

Maintenance instructions:

Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.

Dealer:

Sales distributor for products as per the subject of this manual.

Installer:

Technical skilled person who is qualified to install products as per the subject of this manual.

User:

Person who is owner of the product and/or operates the product.

Service company:

Qualified company which can perform or coordinate the required service to the unit.

Applicable legislation:

All international, European, national and local directives, laws, regulations and/or codes which are relevant and applicable for a certain product or domain.

Accessories:

Equipment which is delivered with the unit and which needs to be installed according to instructions in the documentation.

Optional equipment:

Equipment which can optionally be combined to the products as per the subject of this manual.

Field supply:

Equipment which needs to be installed according to instructions in this manual, but which are not supplied by Daikin.

2. General Safety precautions

The precautions listed here are divided into the following four types. They all cover very important topics, so be sure to follow them carefully.

DANGER: ELECTRICAL SHOCK

Switch off all power supply before removing the switchbox service panel or before making any connections or touching electrical parts.

Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electrical shock. Before touching electrical parts, turn off all applicable power supply.

To avoid electric shock, be sure to disconnect the power supply 1 minute or more before servicing the electrical parts. Even after 1 minute, always measure the voltage at the terminals of main circuit capacitors or electrical parts and, before touching, be sure that those voltages are 50 V DC or less.

When service panels are removed, live parts can easily be touched by accident. Never leave the unit unattended during installation or servicing when the service panel is removed.

DANGER: DO NOT TOUCH PIPING AND INTERNAL PARTS

Do not touch the refrigerant piping, water piping or internal parts during and immediately after operation. The piping and internal parts may be hot or cold depending on the working condition of the unit.

Your hand may suffer burns or frostbite if you touch the piping or internal parts. To avoid injury, give the piping and internal parts time to return to normal temperature or, if you must touch them, be sure to wear protective gloves.

WARNING

- Never directly touch any accidental leaking refrigerant. This could result in severe wounds caused by frostbite.
- Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts.

  Your hands may suffer burns or frostbite if you touch the refrigerant pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.

CAUTION

Do not rinse the unit. This may cause electric shocks or fire.

3. INTRODUCTION

3.1. This manual

This manual describes how to start up and switch off the unit, set parameters and configure the schedule timer by means of the controller, maintain the unit and solve operational problems.

INFORMATION

Refer to the installation manual of the unit for installation procedures.

3.2. General information

Thank you for purchasing the domestic hot water heat pump.

This unit consists out of two parts, a heat pump unit (EKHVWQ002AAV3) and a domestic hot water tank (EKHHS). Only this type of domestic hot water tanks can be combined with the heat pump unit.

The domestic hot water tank is available in two sizes: 200 and 260 litre and can be mounted on top of the heat pump unit. For installation of the domestic hot water tank on the floor next to the heat pump unit, the dedicated EKFMHHSAA connection kit is required.

The domestic hot water tank contains an electric heater of 1.5 kW as backup system.

4. QUICK START-UP OF THE UNIT

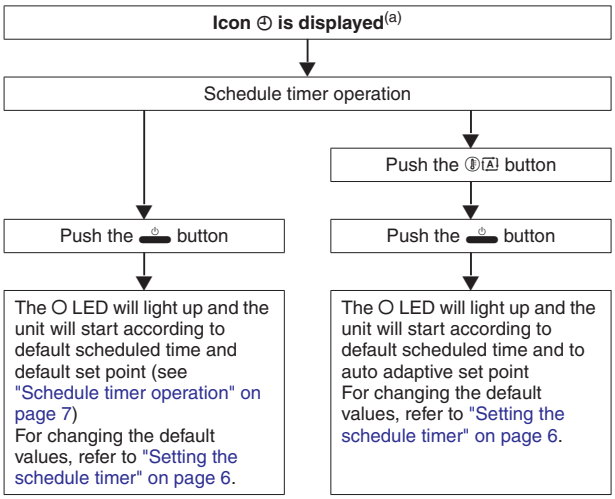
In this chapter the step-by-step procedure is explained for starting up domestic water heating.

The more detailed information of how the unit must be operated is explained in the chapter "Operating the unit" on page 4.

The quick start-up offers the user the possibility to start up the system before reading the entire manual.

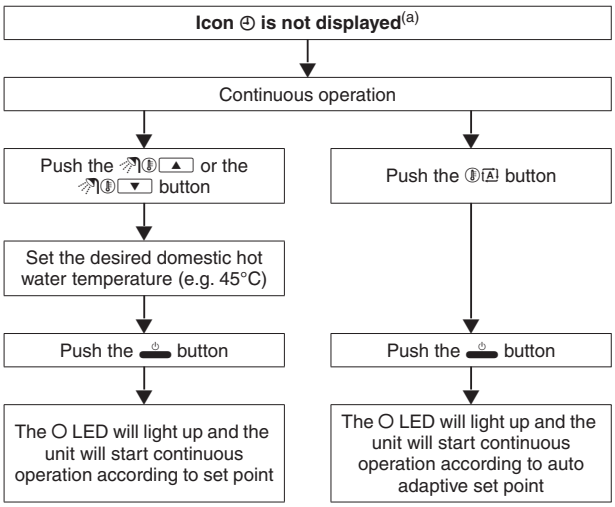
4.1. Domestic water heating operation – quick start-up

■ Schedule timer operation



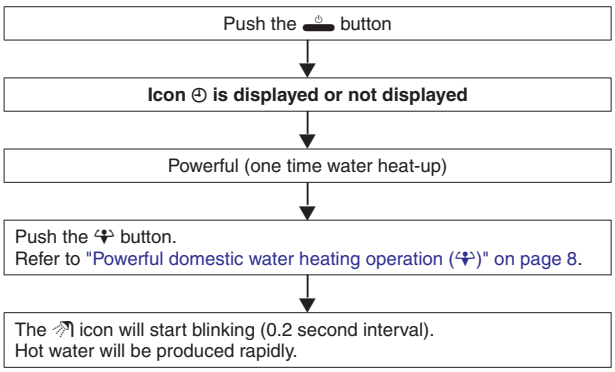
(a) To display or remove the icon press the button.

■ Continuous operation



(a) To display or remove the icon press the button.

■ Powerful operation



5. Operating the unit

5.1. Introduction

The heat pump system is designed to provide you domestic hot water for many years at low energy consumption.

To get the most comfort with the lowest running cost of your system, it is very important to observe the items listed below.

Defining possible schedule timer actions for each day and filling out the form at the very end of this manual can help you minimize the energy consumption. Ask your installer for support if required.

- Make sure the heat pump system works at the lowest possible hot water temperature required to fulfill your domestic hot water needs.

  To optimize this, make sure the auto adaptive set point is used. Refer to "Auto adaptive set point operation" on page 9.

- Recommendation
  - If you set the set point manually, make sure the domestic hot water is only heated up to the domestic hot water temperature you require.
    Start with a low domestic hot water temperature set point (e.g. 45°C), and only increase if you feel that the domestic hot water supply temperature is not sufficient.

    INFORMATION

    Use the auto adaptive set point to optimise.

  - Also keep hours with low electricity cost tariffs in mind.
    To do this, program the domestic water heating schedule timer. Refer to "Programming" in chapter "Programming and consulting the schedule timer" on page 9.

    INFORMATION

    There is a default schedule timer set (refer to "Schedule timer operation" on page 7).

5.2. Operating the digital controller

Operating the domestic hot water heat pump comes down to operating the digital controller.

CAUTION

- Never let the digital controller get wet. This may cause an electric shock or fire.
- Never press the buttons of the digital controller with a hard, pointed object. This may damage the digital controller.
- Never inspect or service the digital controller yourself, ask a qualified service person to do this.
- Do not rinse the indoor unit. This may cause electric shock or fire.
- Do not climb, sit or stand on top of the unit.
- Do not place any objects or equipment on the unit top plate.

Features and functions

The digital controller is a state of the art controller that offers full control over your installation.

NOTICE

- Descriptions in this manual that apply to a specific installation or that depend on the installed equipment, are marked with an asterisk (*).
- Some functions described in this manual may not be available or should not be available. Ask your installer or your local dealer for more information on permission levels.

Basic controller functions

The basic controller functions are:

- Turning the unit ON/OFF.
- Schedule timer/continuous mode
- Selection of features:
  - quiet mode (refer to page 8),
  - auto adaptive set point control (refer to page 9).
- Temperature set point adjustment (refer to page 6).
- Powerful mode

The digital controller supports a power cut off of maximum 2 hours. When autorestart is enabled (see "Field settings" in the installation manual) this allows a power supply shut down of 2 hours without user intervention (e.g. benefit kWh rate power supply).

Clock function

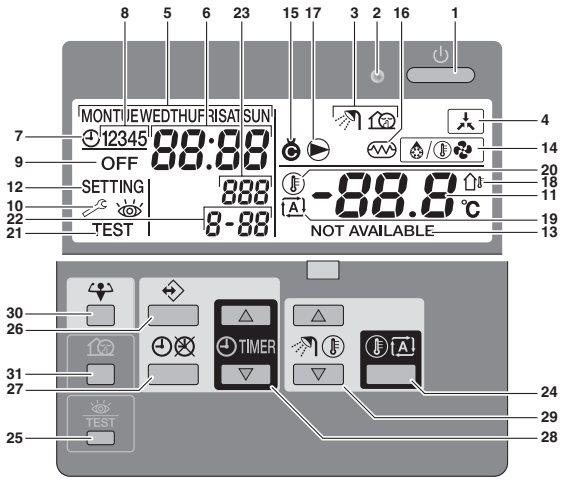
The clock functions are:

- 24 hour real time clock.
- Day of the week indicator.

Schedule timer function

The schedule timer function allows the user to schedule the operation of the installation according to a daily or a weekly program.

Name and function of buttons and icons



1. HEATING DOMESTIC WATER ON/OFF BUTTON

The ON/OFF button starts or stops the normal heating function of the unit.

Pressing the ON/OFF button consecutively too many times may cause malfunction of the system (maximum 20 times per hour).

2. OPERATION LED ○

The operation LED is lit when domestic water heating is possible. The LED blinks if a malfunction occurs. When the LED is OFF, normal heating is not possible while the safety modes can still be active.

3. OPERATION MODE ICONS

These icons indicate the current operation mode(s): domestic water heating ( ) or quiet mode ( ).

Within limits, the two different modes can be combined, then the mode icons will be displayed simultaneously.
When the icon is shown, the unit is activated and heating the domestic water. When the icon is blinking rapidly, the powerful mode is active. When the icon in blinking slowly, the disinfection mode is active.
When the icon is shown, the unit will work in quiet mode.

4. EXTERNAL CONTROL ICON

When the benefit kWh power rate signal is sent, the centralised control indication will appear to indicate that benefit kWh power rate is active.

5. DAY OF THE WEEK INDICATOR MONTUEWEDTHUFRISATSUN

This indicator shows the current weekday.

When reading or programming the schedule timer, the indicator shows the set day.

6. CLOCK DISPLAY *88:88*

The clock display shows the current time.

When reading or programming the schedule timer, the clock display shows the action time.

7. SCHEDULE TIMER ICON

This icon indicates that the schedule timer is enabled. When this icon is blinking, it means the domestic hot water tank was not heated up to the set point within the scheduled time (refer to the field settings explained in the installation manual).

8. ACTION ICONS 12345

These icons indicate the programming actions for each day of the schedule timer.

9. OFF ICON **OFF**

This icon indicates that the OFF action is selected when programming the schedule timer.

10. INSPECTION REQUIRED and

These icons indicate that inspection is required on the installation. Consult your dealer.

11. SET TEMPERATURE DISPLAY *-88.8*

The display shows the current domestic water temperature .

12. SETTING SETTING

This icon appears when the scheduled program is saved.

13. NOT AVAILABLE NOT AVAILABLE

This icon is displayed whenever a function is restricted or a function is not available.

14. DEFROST MODE ICON

This icon indicates that the defrost mode is active.

15. COMPRESSOR ICON

- This icon indicates that the compressor of the heat pump unit is active.
- When freeze protection mode is active, this icon is blinking.

16. BOOSTER HEATER ICON

- This icon indicates that the booster heater is active. The booster heater provides auxiliary heating for the domestic hot water tank (if a higher temperature than 60°C is needed) (refer to the field settings explained in the installation manual) or works as backup heating when the temperature in the installation room becomes too low.
- When freeze protection mode is active, this icon is blinking.

The booster heater is located in the domestic hot water tank.

17. PUMP ICON

- This icon indicates that the circulation pump is active.
- When freeze protection mode is active, this icon is blinking.

18. AMBIENT TEMPERATURE DISPLAY

Refer to the installation manual.

19. AUTO ADAPTIVE SET POINT ICON

This icon indicates that the controller will adapt the temperature set point automatically, based on the history of used domestic hot water. (Example: when there was little use of domestic hot water, the set point will automatically adapt to a lower set point.) (Refer to "Auto adaptive set point operation" on page 9.)

20. TEMPERATURE ICON

This icon is displayed when the displayed value represents a temperature.

The icon is also displayed when the temperature set point is set in schedule timer programming mode.

21. TEST OPERATION ICON TEST

This icon is not applicable with this unit.

22. FIELD SET CODE *8-88*

- This code represents the code from the field set list. Refer to the "Field settings table" on page 15.
- This code also refers to the error code list and is for service purposes only. Refer to the error code list in the installation manual.

23. ERROR CODE *888*

The three digits are used to display the indication codes while consulting the actual temperatures. Refer to the installation manual.

24. AUTO ADAPTIVE SET POINT BUTTON

This button enables or disables the auto adaptive set point function.

If the controller is set in permission level 3 (refer to "Field settings" on page 13), the auto adaptive set point button will not be operable.

25. INSPECTION/TEST OPERATION BUTTON

This button is used for installation purposes and changing field settings. Refer to "Field settings" on page 13.

26. PROGRAMMING BUTTON

This multi-purpose button is used to program the controller. The function of the button depends on the actual status of the controller or on previous actions carried out by the operator.

27. SCHEDULE TIMER BUTTON ⊗/◷

The main function of this multi-purpose button is to enable/disable the schedule timer. If the schedule timer is disabled, the system will heat up the domestic water the whole day as long as the actual domestic hot water tank temperature is lower than the set point temperature.

The button is also used to program the controller. The function of the button depends on the actual status of the controller or on previous actions carried out by the operator.

If the controller is set in permission level 3 (refer to "Field settings" on page 13), the schedule timer button will not be operable.

28. TIME ADJUST BUTTON ◷▲ and ◷▼

These multi-purpose buttons are used to adjust the clock and in schedule timer programming mode.

29. DOMESTIC HOT WATER TEMPERATURE ADJUST BUTTONS ▲ and ▼

These multi-purpose buttons are used to adjust the current set point of the domestic hot water in continuous operation mode or in schedule timer programming mode. The buttons are also used to select the weekday while setting the clock.

30. POWERFUL MODE BUTTON

This button is used if a sudden request for hot water is needed while no hot water is available in the domestic hot water tank. When pushed, the domestic water will be heated up fast until the set point temperature (determined by field setting) is reached. The icon wil be blinking rapidly with 0.2 seconds interval.

This action is only possible when the unit is operating. If the powerful mode button ( ) is pressed when the unit is in OFF mode, the "**NOT AVAILABLE**" message will be displayed.

31. QUIET MODE BUTTON

This button enables or disables quiet mode.

If the controller is set in permission level 3 (refer to "Field settings" on page 13), the quiet mode button will not be operable.

5.3. Setting up the controller

After initial installation, the user can set the clock and day of the week.

The controller is equipped with a schedule timer that enables the user to schedule operations. Setting the clock and day of the week is required to be able to use the schedule timer.

Setting the clock

1 Hold down the ◷⊗ button for 5 seconds.

The clock read-out and the day of week indicator start flashing.

2 Use the ◷▲ and ◷▼ buttons to adjust the clock.

Each time the ◷▲ or ◷▼ button is pressed, the time will increase/decrease by 1 minute. Keeping the ◷▲ or ◷▼ button pressed will increase/decrease the time by 10 minutes.

3 Use the ▲ or ▼ button to adjust the day of the week.

Each time the ▲ or ▼ button is pressed the next or previous day is displayed.

4 Press the button to confirm the current set time and day of the week.

To leave this procedure without saving, press the ◷⊗ button.

If no button is pressed for 5 minutes the clock and day of the week will return to their previous setting.

⚠ The clock needs to be set manually. Adjust the setting when switching from summertime to wintertime and vice versa.

Setting the schedule timer

To set the schedule timer, refer to chapter "Programming and consulting the schedule timer" on page 9.

5.4. Description of the operation modes

Basic domestic water heating operation ( )

In this mode, the indoor unit will heat up the domestic hot water tank.

There are 2 basic domestic water heating modes: continuous mode and scheduled timer mode. All heating will be activated as required by the water temperature set point. The set point can be set manually or auto adaptive (refer to "Auto adaptive set point operation" on page 9).

Continuous operation

In continuous operation mode, the domestic water is always heated up to the required set point. As soon as the domestic water temperature is lower than the set point temperature (taking into account the heat pump ON differential), the heating up of the domestic water will start automatically. This operation mode remains enabled until the schedule timer button is pressed (refer to "Schedule timer operation" on page 7).

As the controller has a wide variety of functions, it is possible to select a function which is restricted at a certain moment. In that case the message **NOT AVAILABLE** will appear.

Switching on domestic water heating ( )

1 Switch on the unit by pushing the button.

The operation LED ○ lights up.

2 For continuous operation the ◷ icon must be OFF.

3 Use the ▲ and ▼ buttons to set the desired water temperature.

The temperature range for heating is by default 35°C to 60°C. This means that in default operation only the heat pump will heat up the water.

For temperatures higher than 60°C (until 75°C maximum) refer to the field settings explained in the installation manual.

In order to avoid freezing of installation space, heating by the heat pump is not operable when the indoor ambient temperature drops below a certain temperature (refer to the field settings explained in the installation manual). The booster heater will take over the heating process.

INFORMATION

The domestic hot water temperature set point can also be auto adaptive (icon A is shown).

This means that the controller calculates the water temperature set point based on the history of use of domestic hot water.

Schedule timer operation

In schedule timer operation, the installation is controlled by the schedule timer. The actions programmed in the schedule timer will be executed automatically.

INFORMATION

Default: the schedule timer is set as follows.

		Time	Set point temperature
Sunday until thursday	SUN~THU	22~6 h	45°C
Friday and saturday	FRI+SAT	22~6 h	55°C

If this does not fullfill the customers demands, it has to be set as explained in "Programming and consulting the schedule timer" on page 9.

The schedule timer always follows the last command until a new command is given. This means that the user can temporarily overrule the last programmed set point by manual operation (by pressing the ▲ and ▼ buttons). Only during the period when the schedule timer is active, this overruling action is possible. If schedule timer heating is not active, it will only be possible to observe and not to adjust the scheduled set point.

The schedule timer is enabled (🕒 icon displayed) or disabled (🕒 icon not displayed), by pressing the 🕒⊗ button. When it is disabled the unit will work in continuous operation.

INFORMATION

- Only use the 🕒⊗ button to enable or disable the schedule timer.
- If the auto restart function is disabled, the schedule timer will not be activated when power returns to the unit after a power supply failure. Press the 🕒⊗ button to enable the schedule timer again.
- When power returns after a power supply failure, the auto restart function reapplies the user interface settings at the time of the power supply failure.

  It is therefore recommended to leave the auto restart function enabled.

INFORMATION

- The programmed schedule is time driven. Therefore, it is essential to set the clock and the day of the week correctly. Refer to "Setting the clock" on page 6.
- Manually adjust the clock for summertime and wintertime. Refer to "Setting the clock" on page 6.
- A power failure exceeding 2 hours will reset the clock and the day of the week. The schedule timer will continue operation, but with a disordered clock. Refer to "Setting the clock" on page 6 to adjust the clock and the day of the week.
- The actions programmed in the schedule timer will not be lost after a power failure so that reprogramming the schedule timer is not required.

INFORMATION

- When changing from continuous operation mode to schedule timer operation mode, the unit applies the scheduled set point.
- When changing from schedule timer operation mode to continuous operation mode, the unit will keep the latest set point of the schedule timer operation mode. Beware to manually adjust the set point if required.

To set up the SCHEDULE TIMER refer to chapter "Programming and consulting the schedule timer" on page 9.

What can the schedule timer do?

The schedule timer allows the programming of:

1. Domestic water heating (refer to "Programming domestic water heating" on page 10)
   Switch on the domestic water heating mode at a scheduled time on or off in combination with a set point (auto adaptive or manually set). Five actions per weekday can be programmed, totalling 35 actions. When manual set point operation is required for each action, a set point can be chosen. If the auto adaptive button (🌡A) is pressed, all set points of the programmed schedule timer will be auto adapted.
2. Quiet mode (refer to "Programming quiet mode" on page 11)
   Switch the mode on or off at a scheduled time. Five actions can be programmed for this mode. These actions are repeated daily.

INFORMATION

The programmed actions are not stored according to their timing but according to the time of programming. This means that the action that was programmed first gets action number 1, even though it is executed after other programmed action numbers.

How to interpret the programmed actions

To be able to understand the behaviour of your installation when the schedule timer is enabled, it is important to keep in mind that the "last" programmed command overruled the "preceding" programmed command and will remain active until the "next" programmed command occurs.

Example: imagine the actual time is 17:30 and actions are programmed at 13:00, 16:00 and 19:00. The "last" programmed command (16:00) overruled the "previous" programmed command (13:00) and will remain active until the "next" programmed command (19:00) occurs.

So in order to know the actual setting, one should consult the last programmed command. It is clear that the "last" programmed command may date from the day before. Refer to "Consulting programmed actions" on page 12.

INFORMATION

During schedule timer operation, someone may have altered the actual settings manually (in other words, the "last" command was overruled manually). The icon 🕒, indicating the schedule timer operation, may still be displayed, giving the impression that the "last" command settings are still active. The "next" programmed command will overrule the altered settings and return to the original program.

Other operation modes

Defrost ( )

In heat pump domestic water heating operation, freezing of the air heat exchanger may occur due to low ambient temperature. If this risk occurs, the system goes into defrost operation. It takes heat from the compressor to undo freezing of the heat exchanger. After a maximum of 20 minutes of defrost operation, the system returns to domestic water heating operation.

Powerful domestic water heating operation ( )

In the case of urgent need of domestic hot water and no hot water is left in the domestic hot water tank, the domestic hot water temperature set point can be reached quickly by pressing the powerful button. The domestic water will be heating up to the set point temperature fixed in the field setting. During operation in this mode the icon will be blinking with 0.2 seconds interval.

Powerful operation can only be set when the system is in ON mode. When the system is in OFF mode and the powerful button ( ) is pressed, the message "NOT AVAILABLE" will be dispayed.

Depending on field setting, the powerful operation will be done by the heat pump alone or in combination with the booster heater (refer to the installation manual).

Selecting powerful domestic water heating operation

1 Press to activate powerful domestic water heating operation.
Icon start flashing rapidly.
Powerful domestic water heating is deactivated automatically when the powerful set point fixed in field setting is reached.

It can also be de-activated manually by pressing the powerful button again.

INFORMATION

The unit increases the domestic hot water temperature using the indoor stored heat.

The powerful mode might not function properly when the room ambient temperature is too low.

The system can not operate in powerful operation mode when user permission level 3 is selected. Refer to the installation manual.

Quiet mode operation ( )

Quiet mode operation means that the unit works at reduced capacity so that the sound produced by the unit drops. This implies that the domestic water heating capacity will drop. Beware of this when a certain level of heating is required.

Selecting quiet mode operation

1 Use the button to activate quiet mode operation.
The icon displays.
If the controller is set to permission level 3 (refer to "Field settings" in the installation manual), the button is not operable.

2 Press the button again to deactivate quiet mode operation.
The icon disappears.

There are 3 different levels of quiet mode operation. The desired quiet mode is set through a field setting. Refer to the field settings explained in the installation manual for a detailed description how to set one or more field settings.

INFORMATION

When powerful operation mode priority is enabled (refer to "Field settings" in the installation manual) and powerful operation mode is active, the quiet operation mode is suspended and will not operate. Any attempt to activate the quiet operation mode by pressing the quiet mode button ( ) will result in a "NOT AVAILABLE" message.

Disinfection operation

This mode will disinfect the domestic hot water tank by periodically heating the domestic water to a specific temperature. During the operation of this mode the icon will be blinking slowly with 0.5 second intervals.

INFORMATION

- Remark that the icon will only be blinking during effective operation.
- The disinfection function is enabled by default.
- The disinfection mode can also be active during OFF mode (refer to "Field settings" in the installation manual).

The disinfection temperature set point can be adjusted by field setting [0-01].

INFORMATION

The disinfection set point must be set according to local and national regulations

Reheat

This feature is only valid in schedule timer mode.

Reheat will prevent the domestic hot water from cooling down lower than a certain temperature. When enabled the unit will deliver hot water to the domestic hot water tank when the reheat minimum value is reached (taking into account the heat pump ON differential). The domestic water heating will continue until the reheat maximum temperature is reached.

Selecting reheat operation for domestic water heating

1 Make sure the schedule timer is ON.

2 In field setting [0-04] put the reheat function ON.

The reheat minimum and reheat maximum temperature set points are field settings. Refer to the chapter "Field settings" on page 13 for a detailed description how to set one or more field settings.

- **[0-02]** Set point: reheat minimum temperature (refer to the figure in "Domestic water heating modes" on page 14).
- **[0-03]** Set point: reheat maximum temperature (refer to the figure in "Domestic water heating modes" on page 14).

Auto adaptive set point operation

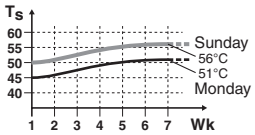
Recommendation

This function works best when the schedule timer operation mode is selected. In continuous operation mode the use of this function is not so effective.

The auto adaptive set point function automatically changes the water set point based on the amount of hot water used in the past (according to the users tapping pattern). This function calculates for each individual weekday a certain temperature set point.

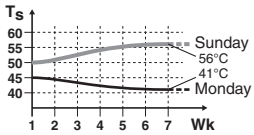
Example 1

If on mondays the customer is usually at home and uses a lot of hot water, the set point for "monday" will increase untill the required amount of hot water is reached (as shown in the figure below).



Example 2

If the customer almost never uses hot water on mondays, the set point for "monday" will decrease (as shown in the figure below).



T_S	Domestic hot water set point (°C)
Wk	Weeks
Sunday	Auto adaptive set point temperature for sunday
Monday	Auto adaptive set point temperature for monday

INFORMATION

- When the auto adaptive set point function is activated, all set points that have been manually put in the schedule timer will be replaced by the automatic calculated set point.

  When the auto adaptive set point is deactivated again, the schedule timer will work again according to the originally programmed set points.
- The auto adaptive set point operation function will work at his best when the customer has a domestic hot water tapping pattern on a regular basis. If the demand deviation is too big, shortage of hot water can occur. The demand expectation is based on maximum domestic hot water use of the past weeks.

  If a permanent change in domestic hot water demand requirement occurs, the automatic set point calculation must tbe reset ([8-03], refer to the field settings explained in the installation manual).
- Make sure that the field setting of the volume of the domestic hot water tank is set correct (refer to the field settings explained in the installation manual).
- Make sure to put the unit on stand-by during longer periods of absence.

  If this is not done, the auto adaptive set point wiil continue to be calculated, resulting in incorrect settings not representing the normal domestic hot water demands of the user.
- Auto adaptive set point will not work optimal if very large amounts of domestic hot water are used each day by frequently heating up water during the day.
- Reheat operation, powerful operation and disinfection operation overrule auto adaptive set point and heat up the domestic hot water tank to their respective set point.

Selecting auto adaptive set point operation

1 Press the button to select the auto adaptive set point operation.

  Icon appears on the display as well as the target auto adaptive set point.

2 Use the and buttons to change the auto adaptive set point. If it is changed, the auto adaptive set point will be adjusted only once for that specific day.

  Range for the shift value: –5°C to +5°C

The minimum temperature set point is set by field setting [1-01].
The maximum temperature set point is set by field setting [1-02].

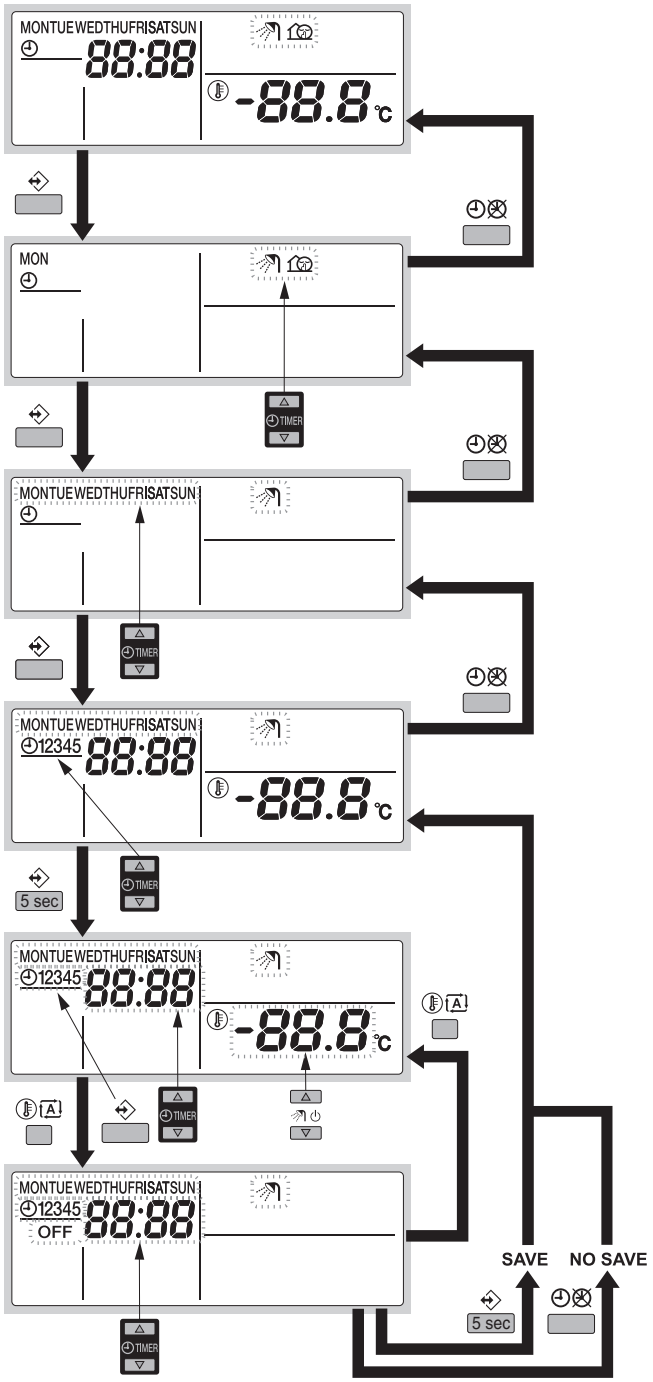
5.5. Programming and consulting the schedule timer

Getting started

Programming the schedule timer is flexible (you can add, remove or alter programmed actions whenever required) and straightforward (programming steps are limited to a minimum). However, before programming the schedule timer, remind:

- Familiarise yourself with the icons and the buttons. You will need them when programming. Refer to "Name and function of buttons and icons" on page 5.
- Fill out the form at the very end of this manual. This form can help you define the required actions for each day. Keep in mind that:
  - In the domestic water heating program, 5 actions can be programmed per weekday. The same actions are repeated on a weekly basis.
  - In the quiet mode program, 5 actions can be programmed. The same actions are repeated on a daily basis.
- Take your time to enter all data accurately.
- Try to program the actions in a chronological way: start with action 1 for the first action and end with the highest number for the last action. This is not a requirement but will simplify the interpretation of the program later.
- If 2 or more actions are programmed for the same day and at the same time, only the action with the lowest action number will be executed.
- You can always alter, add or remove the programmed actions later.

Programming domestic water heating



■ Programming domestic water heating is carried out as follows:

INFORMATION

Returning to previous steps in the programming procedure without saving modified settings is done by pressing the ⏲⊗ button.

1 Press the ◈ button.

The actual mode is blinking.

2 Use the ⏲▲ and ⏲▼ buttons to select the mode you want to program (quiet mode 🏠 or domestic water heating 🚿). Select domestic water heating (🚿).

The selected mode is blinking.

3 Press the ◈ button to confirm the mode.

The actual day is blinking.

4 Select the day you would like to consult or to program by means of the ⏲▲ and ⏲▼ buttons.

The selected day is blinking.

5 Press the ◈ button to confirm the selected day.

The first programmed action of the selected day appears.

6 Use the ⏲▲ and ⏲▼ buttons to consult the other programmed actions of that day.

This is called the readout mode. Empty program actions (e.g. 4 and 5) are not displayed.

7 Press the ◈ button for 5 seconds to enter the programming mode.

8 Use the ◈ button to select the action number you would like to program or to modify.

9 Use the ⏲▲ and ⏲▼ buttons to set the correct action time.

10 Use the 🌡A button to select:

- **OFF**: to switch heating and the controller off.
- **-88.8℃**: set the temperature by means of the 🚿▲ and 🚿▼ buttons.

11 Repeat steps 8 to 10 to program the other actions of the selected day.

When all actions have been programmed, make sure that the display shows the highest action number you would like to save.

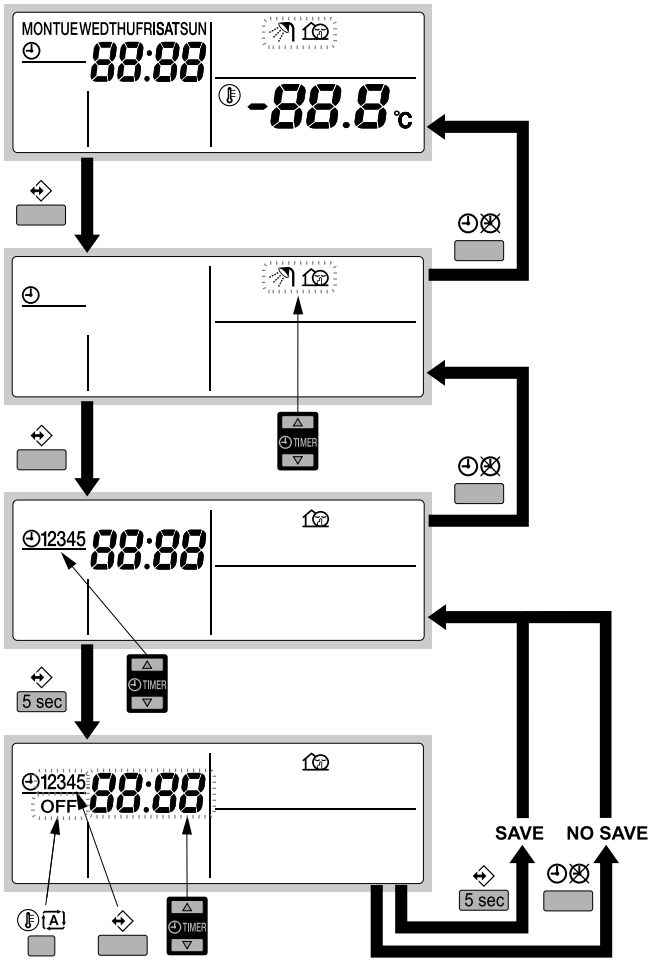
12 Press the ◈ button for 5 seconds to store the programmed actions.

If the ◈ button is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored but 4 and 5 are deleted.

You automatically return to step 6.

By pressing the ⏲⊗ button several times, you return to previous steps in this procedure and finally return to normal operation.

Programming quiet mode



■ Programming quiet mode is carried out as follows:

INFORMATION

Returning to previous steps in the programming procedure without saving modified settings is done by pressing the ⏲⊗ button.

1 Press the ⇳ button.

The actual mode is blinking.

2 Use the ⏲▲ and ⏲▼ buttons to select the mode you want to program (quiet mode 🏠 or domestic water heating 🚿). Select quiet mode (🏠).

The selected mode is blinking.

3 Press the ⇳ button to confirm the selected mode.

The first programmed action is displayed.

4 Use the ⏲▲ and ⏲▼ buttons to consult the other programmed actions of that day.

This is called the readout mode. Empty program actions (e.g. 4 and 5) are not displayed.

5 Press the ⇳ button for 5 seconds to enter the programming mode.

6 Use the ⇳ button to select the action number you would like to program or to modify.

7 Use the ⏲▲ and ⏲▼ buttons to set the correct action time.

8 Use the 🌡A button to select or deselect **OFF** as action:

9 Repeat steps 6 to 8 to program the other actions of the selected mode.

When all actions have been programmed, make sure that the display shows the highest action number you would like to save.

10 Press the ⇳ button for 5 seconds to store the programmed actions.

If the ⇳ button is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored but 4 and 5 are deleted.

You automatically return to step 4.

By pressing the ⏲⊗ button several times, you return to previous steps in this procedure and finally return to normal operation.

Consulting programmed actions

Consulting domestic water heating

Consulting domestic water heating is carried out as follows:

INFORMATION

Returning to previous steps in this procedure is done by pressing the ⏲⊗ button.

1 Press the ⏲ button.

The actual mode is blinking.

2 Use the ⏲▲ and ⏲▼ buttons to select the mode you want to consult (quiet mode, or domestic water heating). Select domestic water heating.

The selected mode is blinking.

3 Press the ⏲ button to confirm the selected mode.

The actual day is blinking.

4 Select the day you would like to consult by means of the ⏲▲ and ⏲▼ buttons.

The selected day is blinking.

5 Press the ⏲ button to confirm the selected day.

The first programmed action of the selected day appears.

6 Use the ⏲▲ and ⏲▼ buttons to consult the other programmed actions of that day.

This is called the readout mode. Empty program actions (e.g. 4 and 5) are not displayed.

Consulting quiet mode

Consulting quiet mode is carried out as follows:

INFORMATION

Returning to previous steps in this procedure is done by pressing the ⏲⊗ button.

1 Press the ⏲ button.

The actual mode is blinking.

2 Use the ⏲▲ and ⏲▼ buttons to select the mode you want to consult (quiet mode, or domestic water heating). Select quiet mode.

The selected mode is blinking.

3 Press the ⏲ button to confirm the selected mode.

The first programmed action is displayed.

4 Use the ⏲▲ and ⏲▼ buttons to consult the other programmed actions.

This is called the readout mode. Empty program actions (e.g. 4 and 5) are not displayed.

By pressing the ⏲⊗ button several times, you return to previous steps in this procedure and finally return to normal operation.

Tips and tricks

Programming the next day(s) for domestic water heating

After confirming the programmed actions of a specific day (i.e. after pressing the ⏲ button for 5 seconds), press the ⏲⊗ button once. You can now select another day by using the ⏲▲ and ⏲▼ buttons and restart consulting and programming.

Copying programmed actions to next day

In heating mode program it is possible to copy all programmed actions of a specific day to the next day (e.g. copy all programmed actions from "MON" to "TUE").

To copy programmed actions to the next day, proceed as follows:

1 Press the ⏲ button.

The actual mode is blinking.

2 Use the ⏲▲ and ⏲▼ buttons to select domestic water heating.

The mode is blinking.

You can leave programming by pressing the ⏲⊗ button.

3 Press the ⏲ button to confirm the selected mode.

The actual day is blinking.

4 Select the day you would like to copy to the next day by means of the ⏲▲ and ⏲▼ buttons.

The selected day is blinking.

5 Press the ⏲ and ⏲⊗ buttons simultaneously for 5 seconds.

After 5 seconds the display will show the next day (e.g. "TUE" if "MON" was selected first). This indicates that the day has been copied.

You can return to step 2 by pressing the ⏲⊗ button.

Deleting one or more programmed actions

Deleting one or more programmed actions is done at the same time as storing the programmed actions.

When all actions for one day have been programmed, make sure that the display shows the highest action number you would like to save. By pressing the ⏲ button for 5 seconds, you store all actions except those with a higher action number than the one that is displayed.

E.g. when the ⏲ button is pressed when action number 3 is displayed, actions 1, 2 and 3 are stored but 4 and 5 are deleted.

To delete all actions on one day, press the ⏲ button when the blank action is selected.
(e.g. sequence of actions: 1→2→3→4→5→blank→1→2...)

6. FIELD SETTINGS

NOTICE

The default values mentioned in "Field settings table" on page 15 are the values from factory. The actual initial values shall be selected according to your application. These values shall be confirmed by your installer.

The unit shall be configured by the installer to match the installation environment (insulation of the house, etc.) and user demand. However, the field settings [0] and [1] mentioned in "Field settings table" on page 15 can be modified to customer preferences. Thereto, a number of so called field settings are available. These field settings are accessible and programmable through the user interface on the indoor unit.

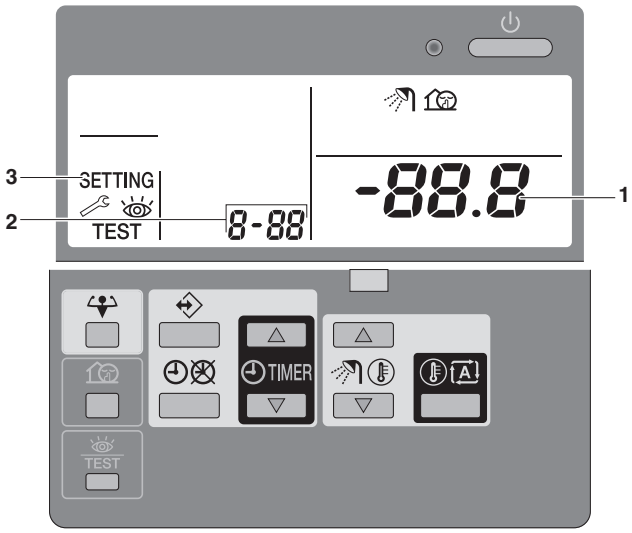
Each field setting is assigned a 3-digit number or code, for example [1-03], which is indicated on the user interface display. The first digit [1] indicates the 'first code' or field setting group. The second and third digit [03] together indicate the 'second code'.

A list of all field settings and default values is given under "Field settings table" on page 15. In this same list, we provided for 2 columns to register the date and value of altered field settings at variance with the default value.

A detailed description of field settings [0] and [1] are given under "Detailed description" on page 13, the other field settings are exclusively described in the installation manual.

6.1. Procedure

To change one or more field settings, proceed as follows.



1 Press the TEST button for a minimum of 5 seconds to enter FIELD SET MODE.

2 Press the ▲ button to select the appropriate field setting first code.

3 Press the ▼ button to select the appropriate field setting second code.

4 Press the TIMER ▲ button and TIMER ▼ button to change the set value of the select field setting.

5 Save the new value by pressing the button.

6 Repeat step 2 through 4 to change other field settings as required.

7 When finished, press the TEST button to exit FIELD SET MODE.

INFORMATION

Changes made to a specific field setting are only stored when the button is pressed. Navigating to a new field setting code or pressing the TEST button will discard the change made.

INFORMATION

Before shipping, the set values have been set as shown under "Field settings table" on page 15.

Detailed description

To understand the field setting possibilities explained in the following chapters, understand that different domestic hot water tank operation modes are possible.

- Powerfull operation
  - If the button is pressed, the heat pump module heats up the domestic hot water tank as fast as possible to a predefined setpoint. This means that the inverter compressor frequency will be higher then in normal operation mode and that sound level and power consumption can be higher.
    This mode might be usefull when exceptional high hot water consumption depletes all the available domestic hot water and hot water is required.
  - Depending on settings, simultaneous heat pump operation and booster heater operation can occur (refer to the installation manual).

INFORMATION

The unit increases the domestic hot water temperature by using the indoor stored heat.

NOTICE

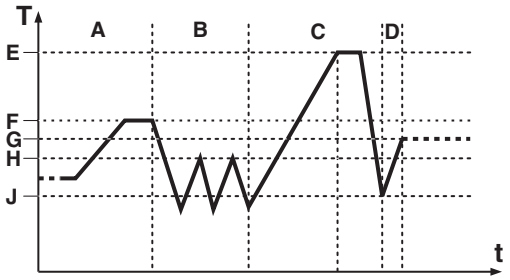
The powerful mode might not function properly when the room ambient temperature is too low.

- Disinfection operation
  - This mode will disinfect the domestic hot water tank by periodically heating the domestic water to a high temperature. This can be required for e.g. legionella prevention.
  - This mode is enabled by default.
- Reheat operation

  This mode will prevent the domestic hot water from cooling down lower than a certain temperature. When enabled the unit will heat up the domestic hot water tank when the reheat minimum value is reached. This heating will continue until the reheat maximum temperature is reached.

  This means that the unit can heat up continuously and e.g. not limited to night time operation. The difference with continuous operation mode is that in reheat operation mode the domestic water tank is heated up to a lower set point than the standard scheduled set point. This function is only valid when schedule timers are used.

- Automatic set point operation
  - This operation mode contains a learning function to predict the daily hot water consumption. It will calculate and predict the optimum tank temperature setpoint based on the user tapping history.
    Enabling this operation mode will keep the tank temperature as low as possible but to a temperature which guarantees a high comfort level.
  - The advantage of a low tank temperature setpoint are :
  - Reduced heatlosses
  - Better unit performance, the lower the tank temperature the better the heat up coefficient of performance (COP).
  - Lower electric power consumption
- Domestic water heating modes



A Normal or automatic domestic hot water tank operation (if activated)
B Reheat operation (if activated)
C Disinfection operation (if activated)
D Powerful operation

Field settings

E Disinfection operation temperature
F Normal or automatic domestic hot water tank temperature
G Powerful temperature set point
H Reheat maximum water temperature
J Reheat minimum water temperature
t Time
T Domestic hot water tank temperature

[0] Different operation modes

- [0-00] Powerfull operation mode temperature set point
- [0-01] Disinfection operation mode temperature set point
- [0-02] Temperature setpoint: reheat minimum temperature
- [0-03] Temperature setpoint: reheat maximum temperature
- [0-04] Reheat function enabled/disabled: defines whether the reheat operation is turned ON(1) or OFF(0)

[1] Automatic domestic hot water tank temperature set point calculation

- [1-00] Renewal time for set point calculation

  The automatic temperature set point calculation is done on a daily basis. The algorithm calculates for each day of the week an optimum domestic hot water tank temperature set point. To calculate this temperature setpoint, the learning function monitors per 24 hours the domestic water heating demand and based on this demand calculates the optimum set point for that specific day of the week.

  This field setting contains the starting time for the 24 hours monitoring period.

  This field setting must be set preferably after the main heating up of the domestic water of the day has finished.
  For example: If in schedule timer operation mode the schedule timer was set from 22 h until 6 h, the renewal time should be set at 6 h.

- [1-01] Minimum automatic temperature set point

  If required the minimum temperature set point for the automatic set point calculation can be adjusted. If, for example, considerable heatlosses are expected on the field piping between the hot water tap and the domestic hot water heat pump, this temperature set point can be useful.

- [1-02] Maximum automatic temperature set point

  The maximum temperature that the automatic set point can reach.

6.2. Field settings table

First code	Second code	Setting name	Installer setting at variance with default value				Default value	Range	Step	Unit
			Date	Value	Date	Value				
0	**Different operation modes**									
	00	Powerfull operation mode temperature set point					40	35~50	1	°C
	01	Disinfection operation mode tempeature set point					60	55~75	1	°C
	02	Temperature setpoint: reheat minimum temperature					35	35~75	1	°C
	03	Temperature setpoint: reheat maximum temperature					45	35~75	1	°C
	04	Status: defines whether the reheat operation is turned ON(1) or OFF(0)					0 (OFF)	0/1	1	—
1	**Automatic domestic hot water tank temperature set point calculation**									
	00	Renewal time for set point calculation					6:00	0:00~23:30	0:30	hour
	01	Mnimum automatic temperature set point					42	35~75	1	°C
	02	Maximum automatic temperature set point					60	35~75	1	°C
2	**Disinfection operation**									
	00	Installation related setting					Fri			
	01	Installation related setting					1 (ON)			
	02	Installation related setting					23:00			
	03	Installation related setting					0 (OFF)			
	04	Installation related setting					32			
3	**Miscellaneous**									
	00	Installation related setting					1 (ON)			
	01	Installation related setting					3			
	02	Installation related setting					0 (OFF)			
	03	Installation related setting					0 (OFF)			
4	**Miscellaneous**									
	03	Installation related setting					0			
	04	Installation related setting					1			
6	**Miscellaneous**									
	00	Installation related setting					10			
	01	Installation related setting					0			
	02	Installation related setting					0			
	03	Installation related setting					1 (ON)			
	04	Installation related setting					1			
7	**Miscellaneous**									
	01	Installation related setting					2			
	02	Installation related setting					3			
	03	Installation related setting					0			
	04	Installation related setting					2			
8	**Automatic setpoint calculation**									
	00	Installation related setting					45			
	01	Installation related setting					50			
	02	Installation related setting					15			
	03	Installation related setting					0 (OFF)			
	04	Installation related setting					0 (260 l)			
D	**Benefit kWh rate power supply/Local shift value weather dependent**									
	01	Installation related setting					0			
E	**Unit information readout**									
	00	Installation related setting					—			
	01	Installation related setting					—			
	02	Installation related setting					—			

7. MAINTENANCE

7.1. Important information regarding the refrigerant used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

Refrigerant type: R410A

GWP(1) value: 1975

(1) GWP = global warming potential

Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

7.2. Maintenance activities

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly.

- Each inspection has to be carried out by your local Daikin technician and **not by the user**.
- Do not touch water pipes immediately after operation as the pipes may be hot. Your hand may suffer burns. To avoid injury, give the piping time to return to normal temperature or be sure to wear proper gloves.

WARNING

- Before carrying out any maintenance or repair activity, always switch off the circuit breaker on the supply panel, remove the fuses or open the protection devices of the unit.
- Do not touch live parts for 10 minutes after the power supply is turned off because of high voltage risk.
- Do not touch any switch with wet fingers. Touching a switch with wet fingers can cause electrical shock.
- Please note that some sections of the electric component box are hot.
- Make sure you do not touch a conductive section.
- Do not rinse the unit. This may cause electric shocks or fire.

Play it safe!

Touch a metal part by hand (such as the stop valve) in order to eliminate static electricity and to protect the PCB before performing service.

WARNING

- Do not touch water pipes during and immediately after operation as the pipes may be hot.
- Do not touch the refrigerant pipes during and immediately after operation as the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts.

Your hands may suffer burns or frostbite if you touch the pipes. To avoid injury, give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.

The only maintenance which may be required by the operator is:

- keeping the remote controller clean by means of a soft damp cloth,
- A check for correct operation of the field installed pressure relief valve installed on your domestic hot water tank, has to be carried out at least every 6 months: it is important that the lever on the valve is actuated to prevent accumulation of mineral deposits that may impair valve operation and to confirm that the valve and discharge pipe are not blocked. The lever should be operated slowly and smoothly to avoid a sudden rush of hot water from the discharge pipe.
  Failure to operate the relief valve actuating lever may result in the water heater exploding.
- Continuous leakage of water from the discharge pipe may indicate a problem with the water heater.
- If a discharge pipe is connected to the pressure relief device it must be installed in a continuously downward direction and in a frost-free environment. It must be left open to the atmosphere.

7.3. Standstill

WARNING

Switching off the power supply stops the automatic repetitive movement of the pump in order to prevent it from getting jammed.

- If the domestic hot water is not used for two weeks or more, a quantity of hydrogen gas which is highly flammable may accumulate in the domestic hot water tank. To dissipate this gas safely, it is recommended that a hot tap be turned on for several minutes at a sink, basin, or bath, but not at a dishwasher, clothes washer or other appliance. During this procedure there must be no smoking, open flame or any electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make a sound as of air escaping.

8. Troubleshooting

The guidelines below might help to solve your problem. If you cannot solve the problem, consult your installer.

Possible causes	Corrective actions
No readings on the remote controller (blank display)	• Check if the mains power is still connected to your installation. • The benefit kWh rate power supply is active (see installation manual).
One of the error codes appears	Consult your local dealer. Refer to the installation manual for a detailed list of error codes.
The schedule timer does work but the programmed actions are executed at the wrong time (e.g. 1 hour too late or too early)	Check if the clock and the day of the week are set correctly, correct if necessary.
The schedule timer is programmed but does not work.	In case the ⏲⊗ icon is not displayed, push the ⏲⊗ button to enable the schedule timer.
Capacity shortage	Consult your local dealer.

9. Disposal requirements

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

Your product is marked with this symbol. This means that electrical and electronic products shall not be mixed with unsorted household waste.

Do not try to dismantle the system yourself: the dismantling of the system, treatment of the refrigerant, of oil and other parts must be done by a qualified installer in accordance with relevant local and national legislation.

Units must be treated at a specialized treatment facility for re-use, recycling and recovery. By ensuring this product is disposed off correctly, you will help to prevent potential negative consequences for the environment and human health. Please contact the installer or local authority for more information.

	[hh:mm]	[°C]	OFF [☑]
MON			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
TUE			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
WED			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
THU			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
FRI			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
SAT			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑
SUN			
1	:		❑
2	:		❑
3	:		❑
4	:		❑
5	:		❑

	[hh:mm]	ON [☑]	OFF [☑]
1	:	❑	❑
2	:	❑	❑
3	:	❑	❑
4	:	❑	❑
5	:	❑	❑

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