Solarico®

INSTALLATION, MAINTENANCE AND USER MANUA

UniQube Heat Pump

Manuals are made for different series of devices. Because of that reason there could be some differences between real parameters, dimensions or pictures.
We reserve the right to change the technical or any other specifications without notice and without liability. We do not take responsibility for typographical errors.

Solarico®

CONTENT:

1 BASIC INFORMATION

- The enclosed installation, maintenance and user instruction manual contains all information for safe installation, maintenance and use of the device. **BEFORE USAGE, PLEASE READ THIS MANUAL CAREFULLY!**
- Store this instruction manual in a safe and dry place, if possible somewhere near the unit. The installation manual must be kept in full legible condition during the lifespan of the device.
- The device must be installed and connected according to this manual. **IF YOUR ARE NOT ABSOLUTELY SURE, THAT THE DEVICE IS CORRECTLY INSTALLED AND CONNECTED, DO NOT TURN THE DEVICE ON!**
- Maintenance must be regularly carried out in time intervals, prescribed by the manufacturer. Maintenance can only be carried out by suitably qualified and authorized service personnel. **INADEQUATE AND UNAUTHORISED MAINTENANCE LEADS TO THE LOSS OF WARRANTY RIGHTS!**
- The installer is obliged to explain to the end user how the device is properly used and maintained in accordance with this manual.
- **THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY DAMAGE CAUSED BY IMPROPER OPERATION OF THE DEVICE AS A RESULT OF IMPROPER INSTALLATION AND MAINTENANCE!**
- The manufacturer reserves the right to modify the installation, maintenance and user manual without prior notice. If you lose or damage the manual (in unreadable condition), contact the manufacturer or the retailer where you purchased the device.

2 SAFETY WARNINGS

Read the instructions bellow carefully. In order to avoid any damage to persons, animals or plants, use the device only in accordance with the instructions. The magnitude of danger is highlighted by graphic symbols with the corresponding description.

WARNING!
Failure to follow the instructions can lead to injury or damage to the device. Failure to follow the instructions will lead to a loss of warranty.

DANGER!
Failure to follow the instructions can lead to injury or damage to the device. Improper use can lead to serious injury or even death. Improper use can be harmful to humans, animals and the environment.

DANGER!
Failure to follow the instructions can lead to serious injuries or even death due to an electric shock.

DANGER!
Failure to follow the instructions can lead to device ignition or fire.

DANGER!
Failure to follow the instructions can lead to serious injuries to the extremities.

DANGER!
Failure to follow the instructions can lead to serious burns.

DANGER!
Exposure to specific device parts or refrigerant can lead to frostbite.

DISPOSAL INSTRUCTIONS!

NOTE
Contains useful information and recommendations.

3 IMPORTANT WARNINGS

WARNING!

The unit can only be used for purposes prescribed by the manufacturer.

WARNING!

Only an adult person acquainted with the content of this manual, can operate the device.

DANGER!

Unit Installation, first start-up, service and maintenance must be performed by a qualified installer and always in non-electrically supplied condition.

NOTE

Install the device in a room/place, where there is enough space left around the device for cleaning and maintenance purposes. Consider the space for installation (recommended space requirements).

DANGER!

Never incline the device for more than 30°from its vertical position or transport/carry it by hand. To move the device, use only proper transport equipment.

WARNING!

Do not install the unit in a space where the temperature can fall below 0°C, water in the pipes and unit can freeze and cause damage to the unit or pipes.

WARNING!

The unit must be installed in a dry space, if it is exposed to direct sunlight it must be protected from it.

DANGER!

During operation it is forbidden to move, clean or repair the unit.

DANGER!

Do not put any object below or on the unit.

WARNING!

Connect the unit to the system using removable pipe unions, so that the unit can be easily moved or removed in case of a service intervention without the need of a greater intervention in the piping system.

DANGER!

If the intended installation location of heat pump is in room, where there is a lot of dust or ash, possibility of leakage of volatile and flammable or other undesirable substances, wood or pellet stove, it is required to ensure air intake for the heat pump from another room. Ash and dust are deposited on the evaporator, which can lead to disturbances in operation or damage to the heat pump.

DANGER!

Non-return valve and dirt trap are necessary to install on the domestic cold water inlet tube. Maximum allowed supply pressure is 1,0 MPa.

WARNING!

When connecting the unit to the heating system it is necessary to prevent the formation of a galvanic couple and related corrosion. To connect the unit to the heating system it is **MANDATORY** to use the enclosed transition pieces, also the piping system **MUST** be electrically grounded. In case of failure due to improper device connection the manufacturer will take no liability or warranty.

DANGER!

In case of power supply cable damage, smoke, unusual smell from unit or any other abnormality in operation, immediately disconnect the power supply cable from the supply and contact an authorized customer service.

DANGER!

Do not insert your fingers through the intake/exhaust gratings. Rotating parts of the device can injure you.

DANGER!

The unit requires reliable grounding during operation, otherwise serious injuries or even death may occur.

DANGER!

The unit needs to be connected to the power supply protected with the prescribed fuse.

DANGER!

In the event of damage to the connecting cable, it must be replaced with original cable, provided by manufacturer or authorized customer service.

DANGER!

Do not use or store flammable materials near the unit

DANGER!

Water with temperature above 50°C can cause injuries, when set temperature is higher than 50°C be careful when children and other users are using hot water.

DANGER!

Evaporator operates at low temperature. Touching it can cause frostbite.

DANGER!

Never damage or rupture the refrigerant piping. Refrigerant leakage can cause serious frostbite.

DISPOSAL INSTRUCTIONS!

The unit must be replaced and disposed according to local regulations; it contains environment potentially harmful gasses.

4 PURPOSE OF THE DEVICE

The device is an air/water heat pump with a UniQube water storage tank below. Its primary task is to heat sanitary water – the cooling effect on the surroundings is a side effect. The heat pump needs to be set in a sufficiently large and ventilated room with an enough high air temperature (basement, pantry) from which it will take the energy for its operation. The heat pump draws 75% of the necessary heat from the air, the rest is provided by the electrical power that drives the high-quality rotary compressor. The sanitary water is heated through a refrigerant heat exchanger (condenser) submerged in the water of the storage tank. It is 310L hot water tank. The 310L tank unit is meant to be installed in a building with a daily consumption not more than 700L per day.

WARNING!
Injuries and resulting damage to the device or third things, which are caused due to misuse and improper use of the device, **are the users sole responsibility**.

5 RESPONSIBILITY

5.1 Producer responsibility

As a producer we accept no responsibility if:

- The installation and user manuals were not considered properly.
- Unit was not correctly or enough maintained.

5.2 Installer responsibility

Installers take responsibility that the unit is installed and commissioned in accordance with the next requirements:

- Read the complete installation and user manuals.
- Installation of the unit must be performed according to national standards and laws.
- Performs commissioning and solves any problems that occurred during the installation and first startup.
- Explains to the customer proper usage, settings and needed unit maintenance.

5.3 User responsibility

User needs to consider next requirements for proper unit operation:

- Read the complete installation and user manuals.
- Installation and first startup must to be performed by a professional and authorized installer.
- Regular service from an authorized person needs to be allowed / ordered.
- Keep these manuals in a safe dry place, somewhere near the unit.
- For any uncertainty ask the installer for explanation.
- Any modifications or replacement of components of the heat pump **EXCLUDES LIABILITY** of the manufacturer for the safety and functionality. In case of misuse and improper use of the device, the **manufacturer does not accept liability**. Injuries and resulting damage to the device or third things, which are caused due to misuse and improper use of the device, **are the users sole responsibility**.

6 REFRIGERANT

The unit is prefilled with HFC R134a refrigerant. The refrigerant is non-toxic, non-flammable and not explosive, is also not harmful to the ozone layer, but is heavier than air, which can lead to a crowding-out of air from the area. The result may be smaller concentration of oxygen in the air, but because of a very small amount of refrigerant in the unit, there are no serious health risks. A reduced concentration of oxygen can occur only in unventilated areas less than 10 m3 volume. Nevertheless, we recommend that you read the manufacturer's refrigerant safety sheet and handle in accordance with the written instructions.

DANGER!

Refrigerant leakage can cause serious frostbite. In case of refrigerant leakage immediately disconnect power supply and inform the authorized customer service. Do not approach the device, only when necessary (to disconnect the power supply).

7 RECYCLING

1. Waste Product: Consult the manufacturer regarding recycling or disposal.
2. Contaminated packaging: reuse or recycle after decontamination.
3. Removing the refrigerant must be performed in accordance with EC Directive 842/2006, as well as other national and local regulations.

DISPOSAL INSTRUCTIONS!

The unit must be replaced and disposed according to local regulations; it contains environment potentially harmful gasses.

8 UNIT SPECIFICATIONS

MODEL	**UNIQUBE HEAT PUMP**	**310**
Heat output	kW	2,5
Compressor nominal power consumption	kW	0,68
Compressor	type	rotary
Coefficient of performance A20/W15-W45	W/W	3,1
Power supply	f/Hz/V	1/50/230
Refrigerant/quantity	Typ/g	R134a / 1100
Tank volume	L	310
Surface of bottom solar heat exchanger (optional)	m^2	1,2
Surface of upper hygienic domestic hot water heat exchanger (optional)	m^2	3,8
Air flow	m^3/h	500
Air connection dimensions	mm	150
Maximal length of air ducts	m	10
Unit dimensions	a x H (mm)	734 x 2000
Max. water outlet temperature	°C	55
Working range	°C	-10~35
Water connection dimensions	″	5 /4
Unit net weight	kg	147

* According to SIST EN16147 standard

9 TRANSPORT AND DEPOT

DANGER!

The device can only be moved or transported in non-electricaly supplied condition.

WARNING!

The aggregate of the device is attached on the top of the water storage tank and it is protected with a plastic cover. The cover must not be used as a holding or support point when the unit is being transported.

WARNING!

THE DEVICE MUST BE PROPERLY PROTECTED WITH COMPULSORY PROTECTIVE BELTS WHEN TRANSPORTED IN ORDER TO PREVENT JUMPING, MOVING OR OVERTURNING.

WARNING!

Before transport the device must be properly protected by protective foil or cardboard to avoid damage such as scrapes, abrasions and holes.

WARNING!

Because of the device's construction (the aggregate being on top) there is a high risk of the device overturning during transport. The max incline of 30° must not be exceeded.

WARNING!

Do not exceed the maximum inclination of 30° from vertical.

WARNING!

The allowed temperature during transport and depot is between 10 and 45°C. During shorter periods of time (up to 24h), a higher temperature is allowed (up to 55°C).

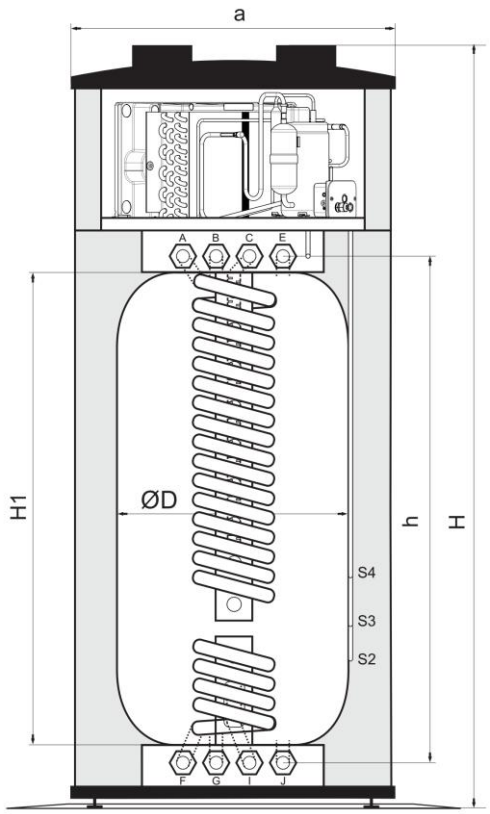
DANGER!

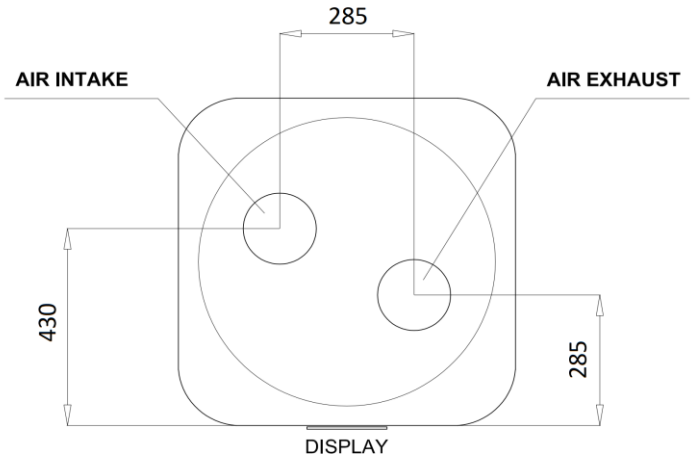
Because of the devices weight there is a high risk of injury to the extremities when moving the device. When moving the device, only use proper transport equipment.

WARNING!

For damage to the device, due to improper depot and transport, the manufacturer will take no liability!

10 UNIT DIMENSIONS





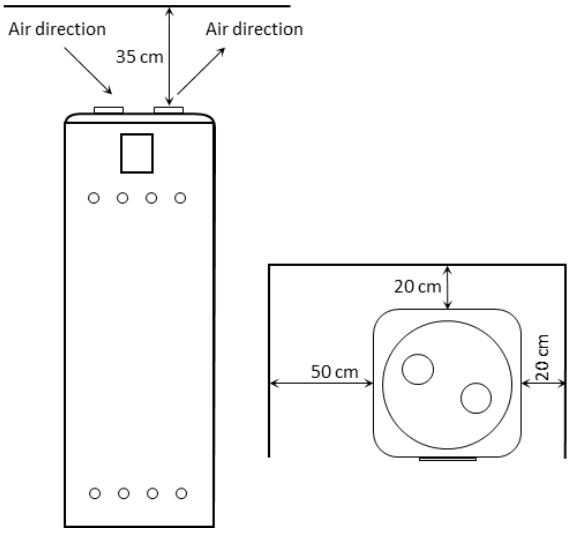
UNIQUBE HEAT PUMP		
D (diameter)	(mm)	620
H1 (height)	(mm)	1300
h (connectors)	(mm)	1470
H (height)	(mm)	2000
a (width)	(mm)	734
max. working temp.	(oC)	90
max. working pressure	(bar)	6
max. test pressure	(bar)	9
Net tank capacity	(liters)	290
Approx. weight	(kg)	147
S2 Solar sensor position	(mm)	1110
S3 Heating sensor position	(mm)	910
S4 DHW sensor position	(mm)	710
Pivot measurement	(mm)	2130
Solar heat exchanger		
dimension		5/4''
max. working pressure	(bar)	10
max. test pressure	(bar)	15
capacity	(liters)	5
output area	(m2)	1,2
Water heat exchanger		
dimension		5/4''
max. working pressure	(bar)	10
max. test pressure	(bar)	15
capacity	(liters)	15
output area	(m2)	3,8

All connections are 5/4"

Air duct connections have a diameter of 150mm. Connection pipes need to have the same diameter or bigger.

11 UNIT INSTALLATION

Minimal space requirements for installation and maintenance



The unit must always be installed in a vertical position. We recommend that the unit is inclined 2-3° backwards to enable smoother condensate runoff.

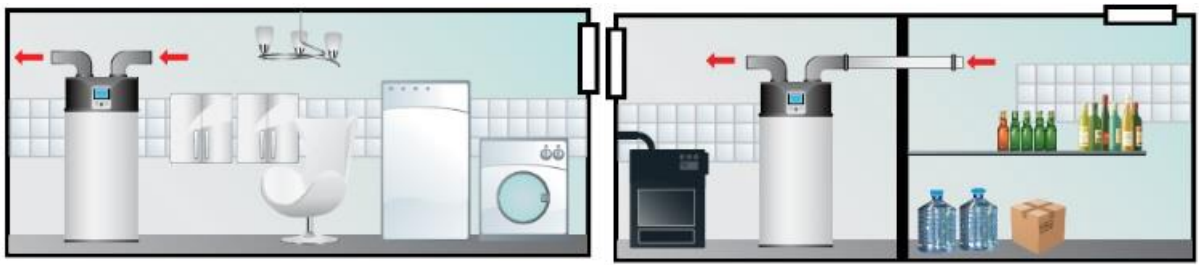
WARNING!
After placing the unit in its final location, wait at least 1 hour before turning the unit on.

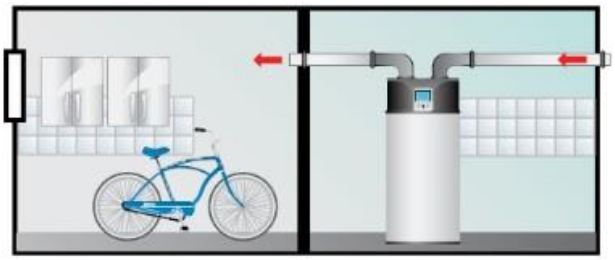
WARNING!
In case of service intervention and if minimum clearances are disregarded, the user covers the costs incurred.

Min. one elbow is required. Because the inlet and outlet air connections are very close together, there is a possibility of cold air recirculation, the device will go to defrost mode more often.

WARNING!
Good insulation of neighbouring walls is advisable**.**

Installation possibilities:

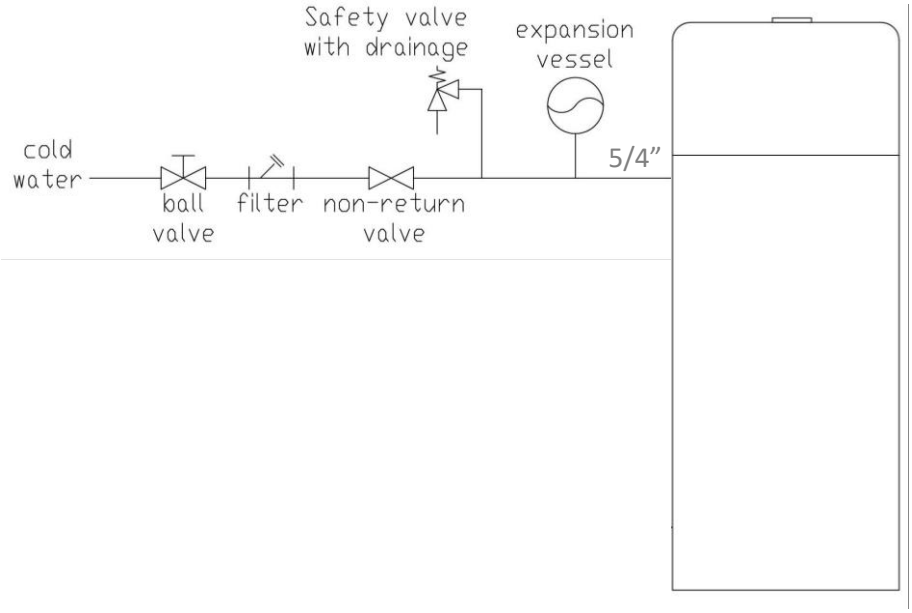




When the air inlet and outlet are in a different space, each space needs to have an opening to the outside or they need to be connected with an opening surface at least 300mm^2 to be able to equalize pressure.

WARNING!
Maximal length of air ducts is 10m. Each bend 90°reduces the maximal length for 1 m. All air duct pipes need to be insulated to prevent condensation. Never reduce the internal diameter of the pipe.

12 WATER CONNECTION



The cold water connection must be performed according to the scheme above. The maximum allowed pressure in the hygienic domestic water system is 1,0 MPa, a safety valve sould be choosen by installer. Expansion vessel for the hygienic domestic water circuit is optional, and is not mandatory necessary.

Hot water connection can be directly to tap, or can be upgraded with a circulation pump. Return from the circulation system can be connected to the connection marked with "A" in scheme "10 Unit dimensions".

During rapid water heating, a small water leakage on the safety valve can occur. This is not due to damage but due to normal event of water expansion. This water needs to be captured and lead into drainage.

In case of a solar system or other heat source connected to the internal heat exchanger, it must be assured that the pressure in the heat exchanger never exceeds 1,0 MPa. It must also be assured that the water does not exceed 80°C. Damage to internal components or heat pump can occur.

In case that the additional heat exchanger is not to be used, it needs to be filled with glycol to prevent corrosion. It is not allowed to close both sides of the heat exchanger to enable pressure equalization.

WARNING!
Improper installation of the unit can lead to damages or malfunction of the unit and loss of rights under warranty.

WARNING!
Connect the unit to the system using removable pipe unions, so that the unit can be easily moved or removed in case of a service intervention without the need of a greater intervention in the piping system.

WARNING!
When connecting the unit to the heating system it is necessary to prevent the formation of a galvanic couple and related corrosion. To connect the unit to the heating system it is **MANDATORY** to use the enclosed transition pieces, also the piping system **MUST** be electrically grounded. In case of failure due to improper device connection the manufacturer will take no liability or warranty.

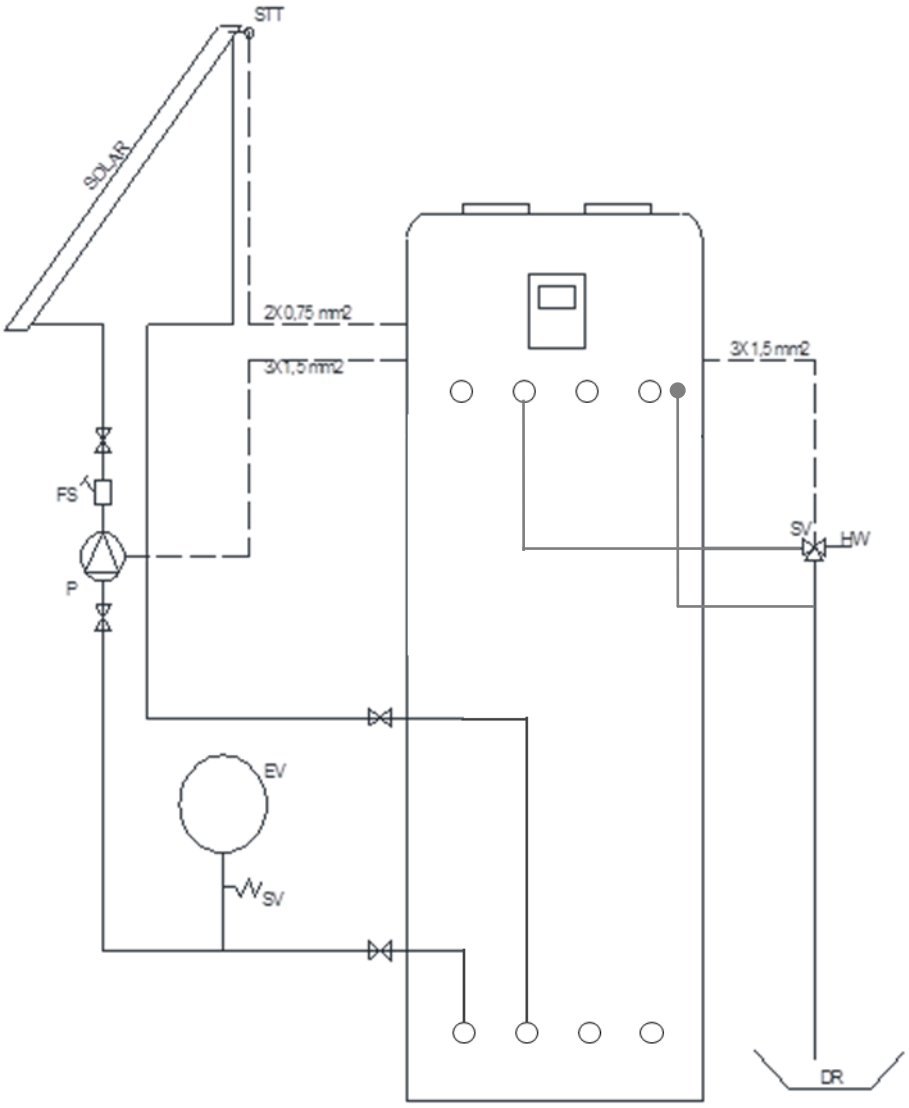
WARNING!
Before the unit is turned on, it needs to be filled with water and the system completely vented. To do this, open all hot water taps and wait until water starts to flow from all of them.

WARNING!
On the back side of the unit there is a pipe connection for condensate drain. At high water usage and high air humidity, more than a few litres of condensate water per day can occur, so this connection must be connected to outlet drainage. This pipe needs to have a constant incline of at least 1° and must be always clean.

WARNING!
Condensate pipe must be checked and cleaned once per month.

DANGER!
The supply socket must be positioned at least 1,5m above ground level, to avoid direct water spray causing injuries or damage. The socket must be earthed, secured with a 16A fuse and FI relay with max. current 0,03A. The wire cable to the socket needs to be at least 3x1,5 mm, only the heat pump can be connected to the socket.

12.1 Solar collector installation



Marks:

STT: solar temp. sensor

P: solar circulation pump

EV: solar expansion vessel

SV: safety pressure valve

FS: flow limiter with flow meter

SV: electronic safety valve

HW: hot water outlet

DR: drainage

The solar system must be connected to connections marked with »F« and »G« on scheme »10. Unit dimensions«.
The solar circulation pump must be connected to connection clamps marked with »Solar pump«. The enclosed temperature sensor for the solar system must be connected to connection clamps marked with »Solar temp.«. The installer needs to remove the resistor and then connect the enclosed temperature sensor for the solar system. On the hot water outlet, it is advisable to install an electronic safety valve, which will open water when it is heated too much by the solar system. This electronic safety valve needs to be connected to connection clamps, marked with »Solar drainage valve«. All connection clamps can be found inside the heat pump, under the top plastic cover.
After installation and connection of the solar system, all parameters for the solar system need to be checked and properly set. Parameter /01 has to be set to »2«, and parameter /02 to »3«. Other parameters are described in table »parameters«.

When connecting other additional sources of heating, for example. a gas furnace or a biomass stove, follow the steps above, but you must change the parameters **N01** from 0 to 1, n11 from 0 to 1, **N03** from 5 to 20 and **N10** of 84 to 70. A detailed explanation of the parameters is given in chapter ***PARAMETERS***.

WARNING!

Failure to abide with the above instructions can lead to device malfunction or failure. In this case rights under warranty are lost.

13 TRIAL OPERATION

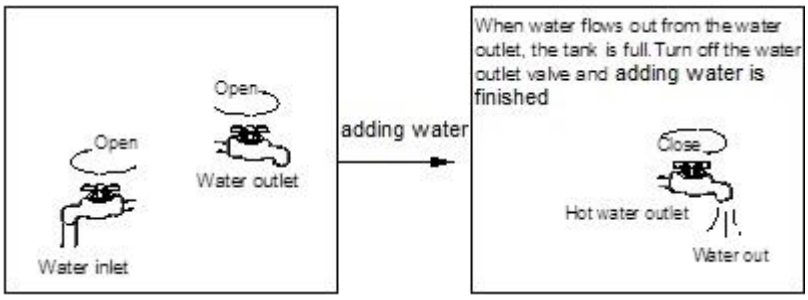
13.1 Confirmation before trial operation

1) All the installation preparations are complete.
2) Water heater is installed correctly.
3) The pipelines and wiring connections are correct.
4) The accessories are installed correctly.
5) The drainage is unblocked.
6) The thermal insulation is intact.
7) The earthing wire is connected correctly.
8) The power voltage is consistent with the rated voltage of the heater.
9) There is no obstacle at the air inlet and outlet of the unit.
10) All of the electric protection is working correctly.
11) The water tank is full.

CAUTION:

Before using this unit, please follow the steps below.

Adding water: If the unit is used for the first time or used again after emptying the tank, please make sure that the tank is full of water before turning the power on.



NOTE

The ball valve at water inlet should be open when the unit is in operation.

WARNING!

Operation without water in the water tank may result in damage of freon heat exchanger. Due to such damage, the supplier is not responsible for the quality issue.

DANGER!

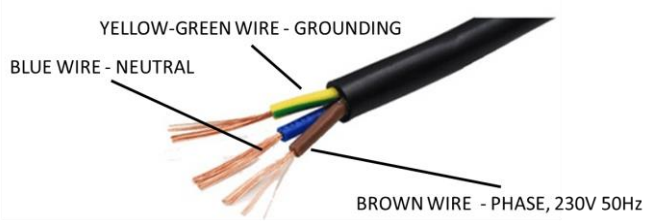
Water over 50°C may cause serious burns or death. Special care should be paid to children, the disabled and the elderly.

WARNING!

Failure to abide with the above instructions can lead to device malfunction or failure and serious material or human damage. In this case rights under warranty are lost.

14 UNIT SETTINGS

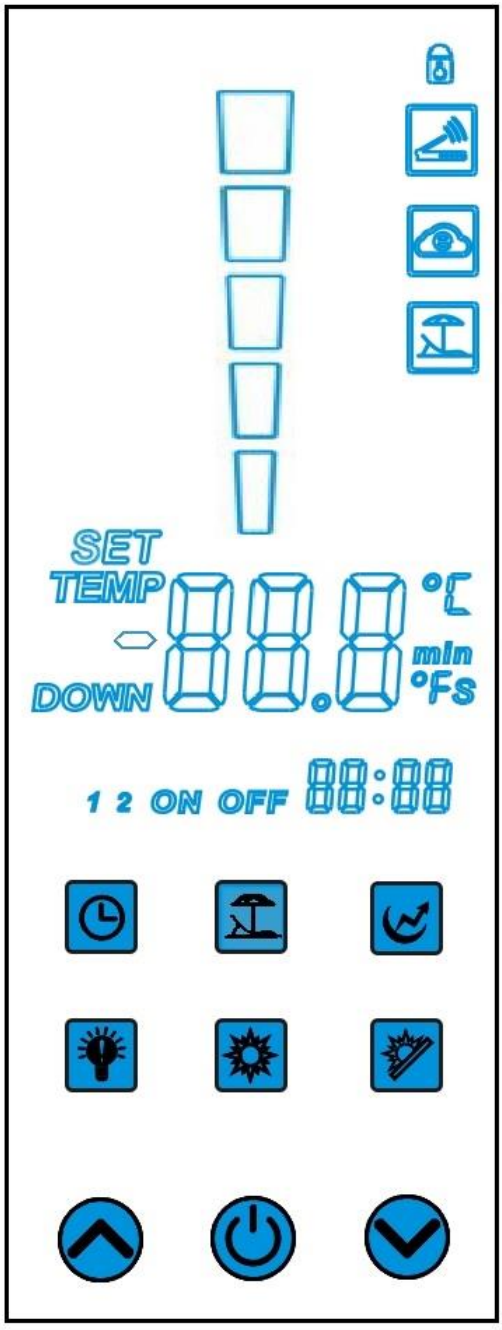
When the unit is connected to the water system and filled with water, it can be connected to the power supply:



Power supply can only be plugged into a grounded socket (16A, 230V / 50 Hz).

14.1 Operations

a) Keys



b) Key Introduction

ON/OFF

Tap this key to turn the unit ON/OFF. When the unit is on, the color of the key will turn to red.

Heating Modes

Heating mode

i. Tap this key to select normal heating mode, the color of this key will turn to red.
ii. Go to factory parameters setting function by pressing and holding this key for 10s.

Intelligent Mode

Tap this key to select intelligent heating mode, the color of this key will turn to red.

Eco Heating Mode

Tap this key to select ECO heating mode, the color of this key will turn to red.

High Require Mode

Tap this key to select the high require heating mode, the color of this key will turn to red.

Holiday Mode

Tap this key to set the holiday ON/OFF program, the color of this key will turn to red.

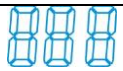
Clock

Set the timer and date.

/ UP/DOWN

Increase/decrease the setting value.

c) Status icons

Status icon	Meaning	Status icon	Meaning
	The volume of hot water available in the tank		Key-Lock
			A WI-FI adapter is connected with the unit.
			The unit is connected to »cloud«.
			The holiday function is active.
	It is shown when parameter is being set		Take centigrade as the unit
	It is shown when TOP/DOWN temp. is displayed		Take minutes as the unit
	It is shown when DOWN temp. is displayed		Take fahrenheit as the unit
	It is shown when timer/clock is being set.		Take seconds as the unit
	This area will show temp value or parameter value.		This area will show down temp. or clock time

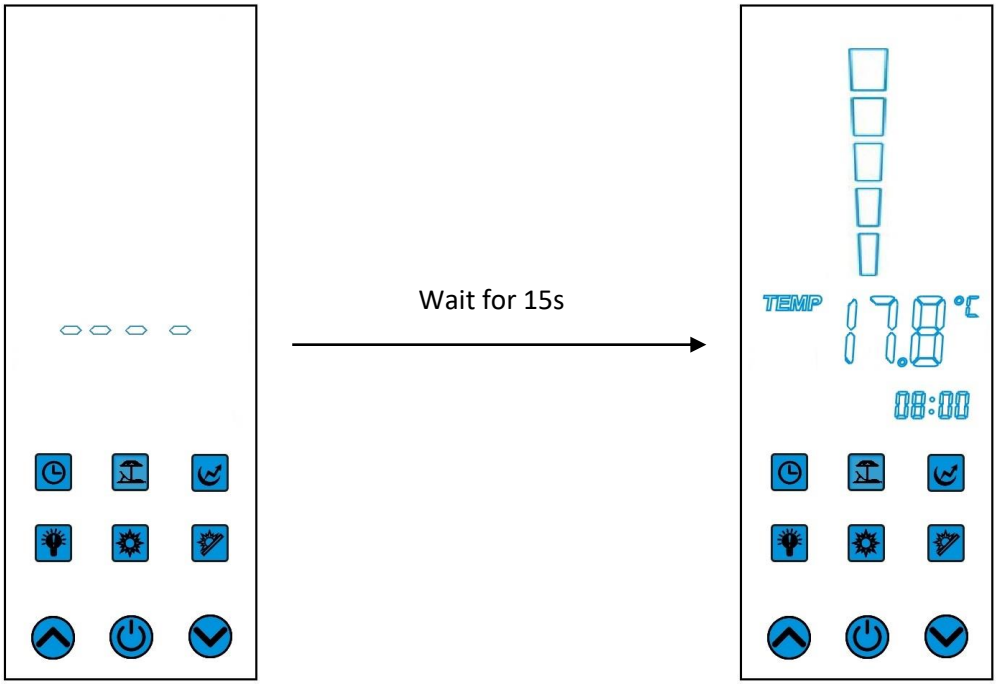
15 OPERATION INSTRUCTIONS

15.1 Preparation before running the unit

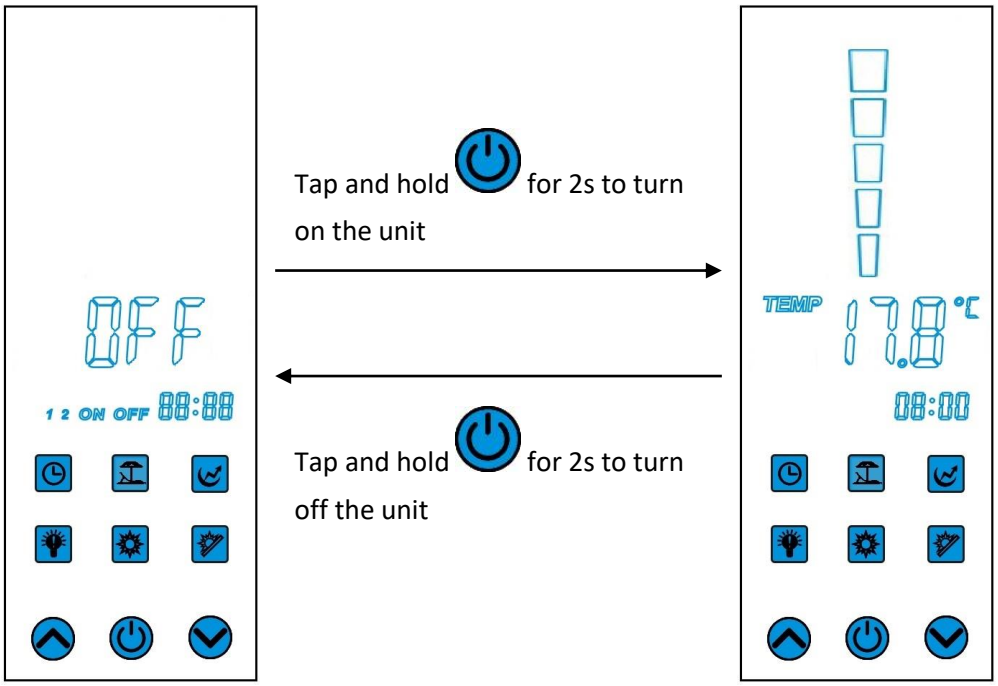
1) The controller will keep loading the parameter for 15s.

2) Ensure that the water tank is filled up with water.

3) If there is no operation for 1min, then keyboard will go dark. You can tap any key to light it up.



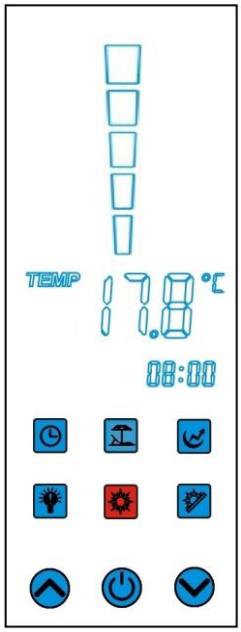
15.2 Unit ON/OFF operation



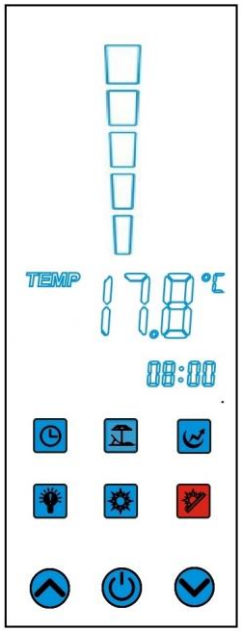
15.3 Mode selection

1) The unit has four operation modes: Heating mode, Eco-heating mode, Automatic mode and High requirement mode.

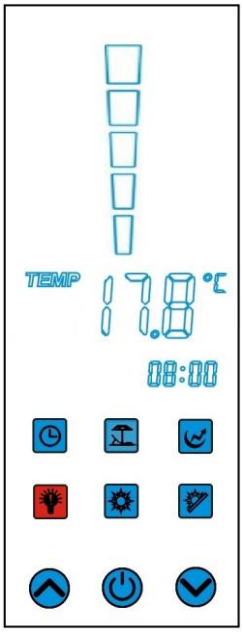
Heating mode:
Water heating will be combined with the compressor and electric heater. Electric heater will operate with delay (200min)



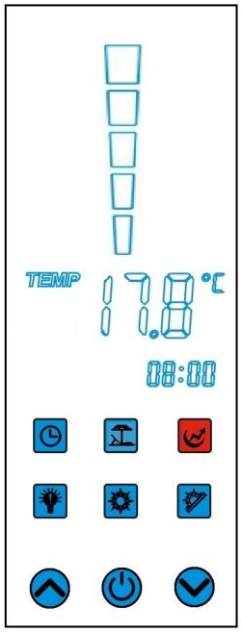
ECO heating mode
Water heating will be done only with the compressor.



Automatic mode:
The unit will switch between the compressor and electric heater, depending on the room temperature

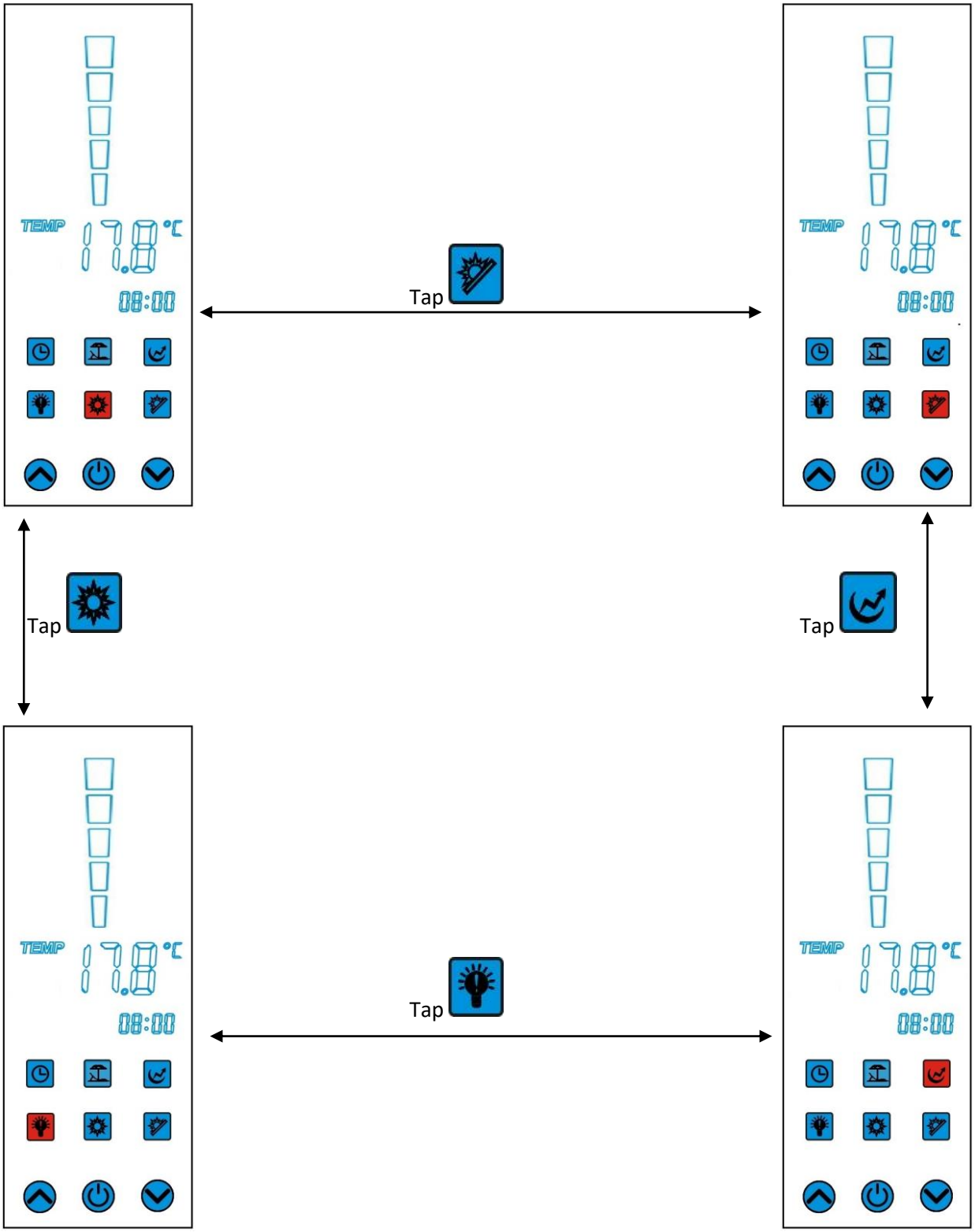


High requirement mode: Water heating will be done by both the compressor and electric heater. Electric heater will start without delay.



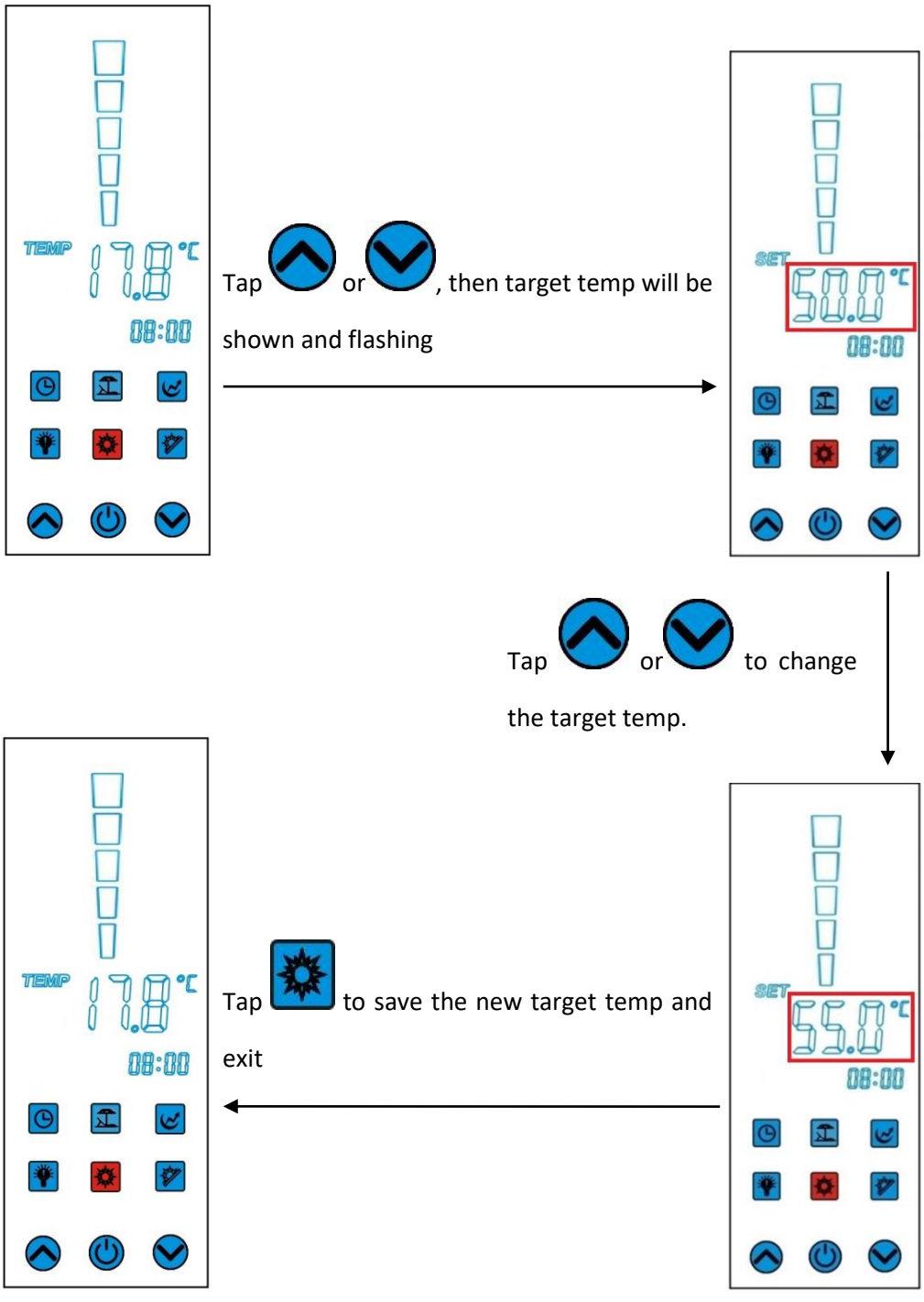
2) Operation

Just tap  or  or  or  to select the mode you want.



15.4 Target temperature setting

In the main interface, press the “UP/DOWN” key to set the target temperature.



NOTE

1) After changing the parameter value, tap the “ ” key, and the controller won’t save the new value and will return back to main interface;
2) After changing the parameter value, if there is no operation in 5 seconds, the system will save the change automatically and return back to main interface.

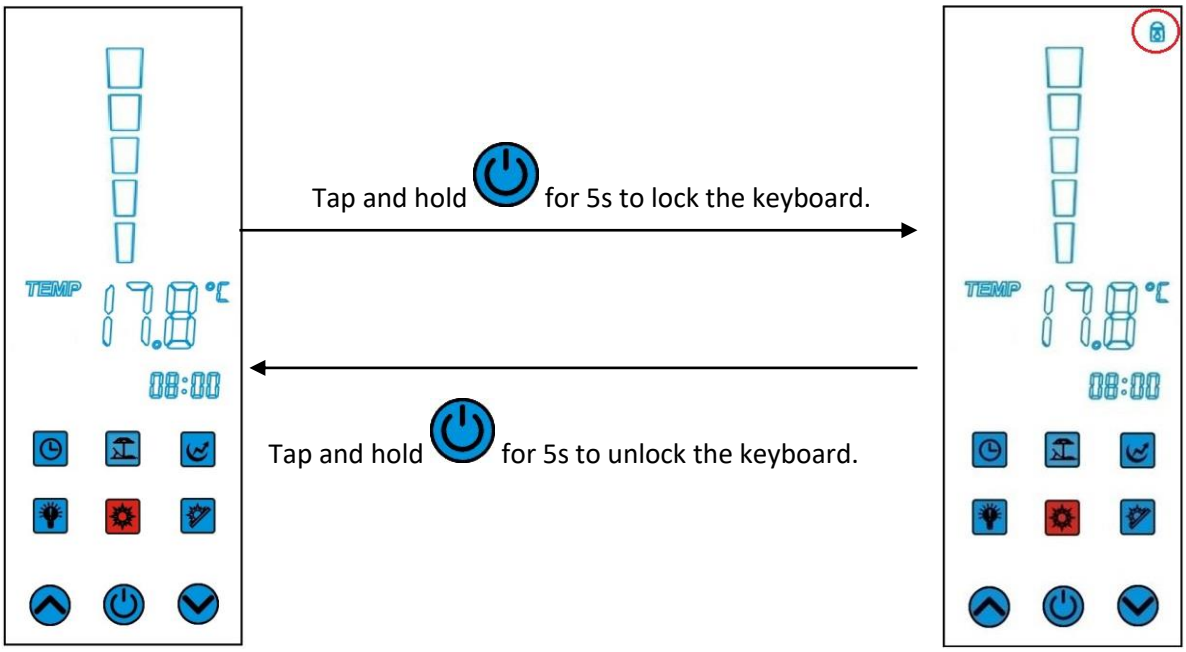
NOTE

In times of reduced hot water consumption (eg. during the night), it is recommended to set lower target temperature. This reduces heat losses, formation of limescale and consumption of electricity.

15.5 Lock and unlock keys

In the main interface, tap the “ON/OFF” key and hold it for 5s, the keyboard will be locked, and a lock icon will be shown. When the keyboard is locked, no keys can be operated.

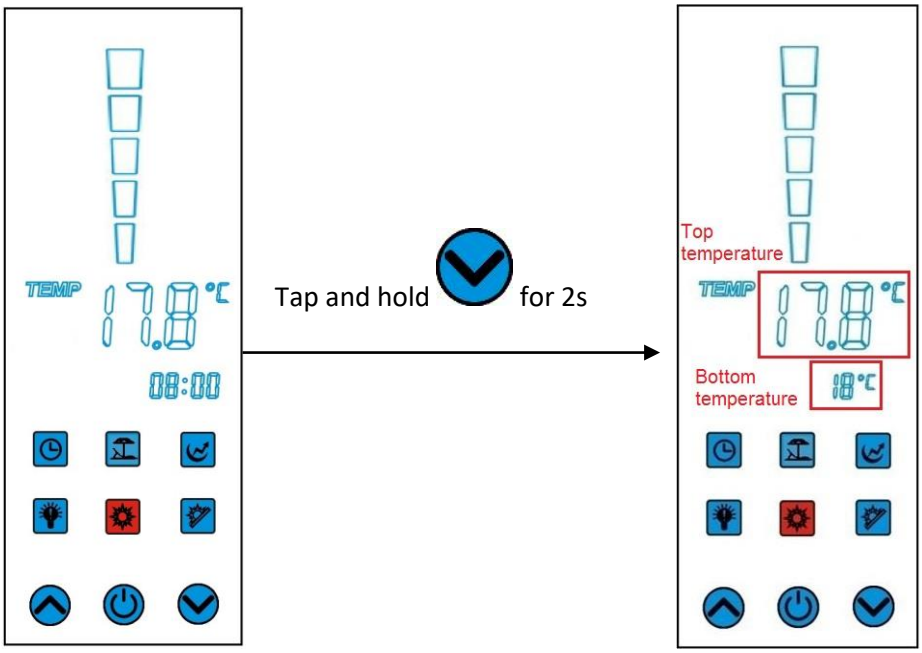
To unlock keys, tap the “ON/OFF” key and hold it for 5s, the keyboard will be unlocked.



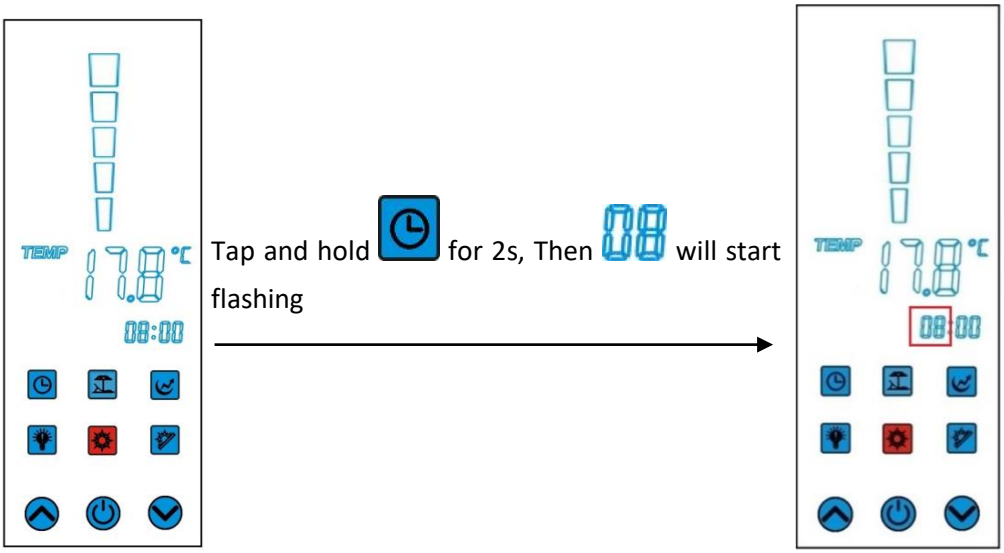
NOTE

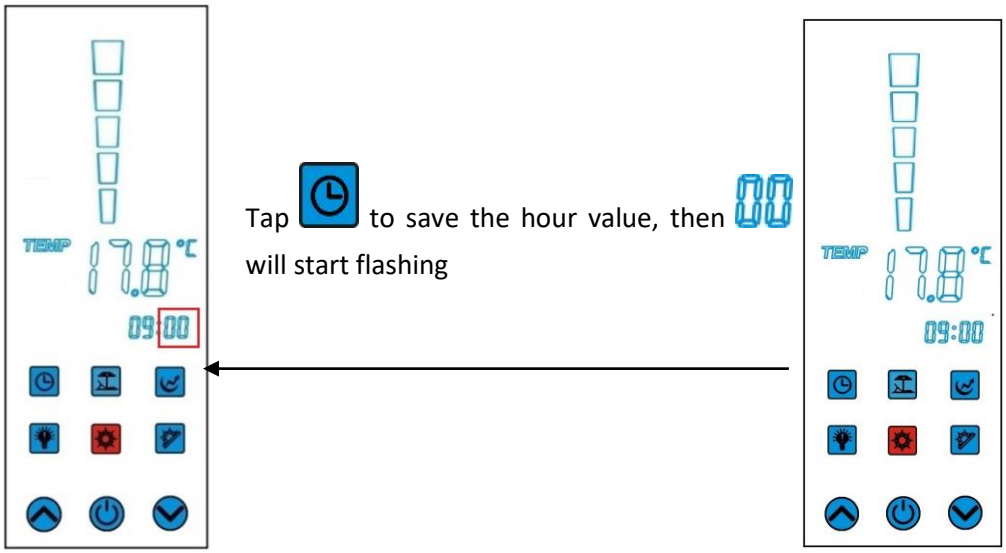
In case of an alarm, the display will unlock automatically.

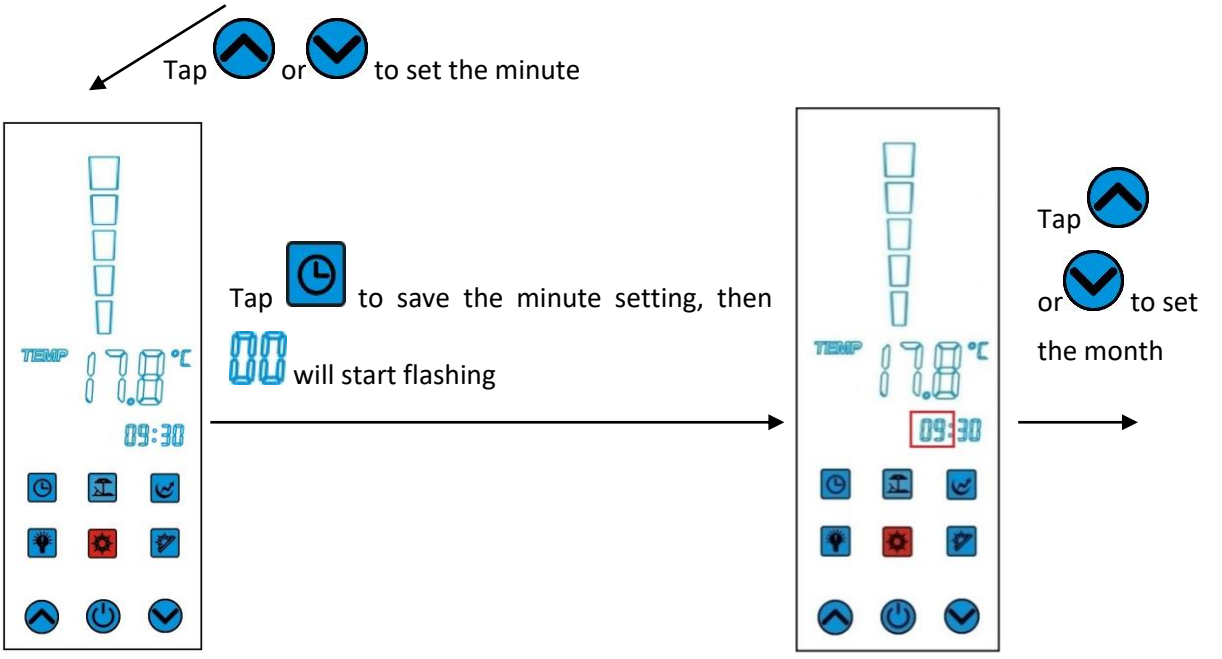
15.6 How to show the bottom temperature of the water tank

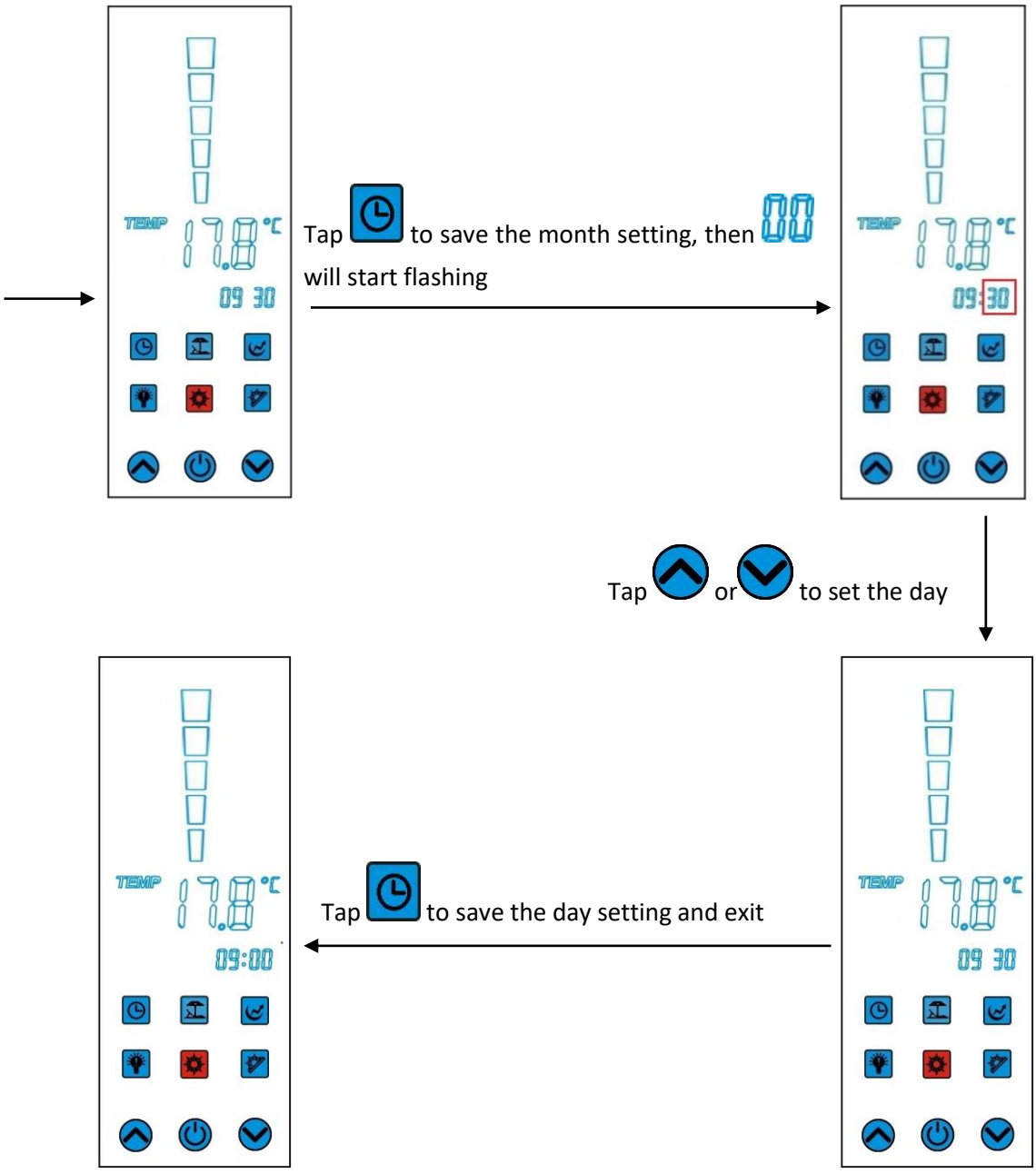


15.7 Clock and date settings

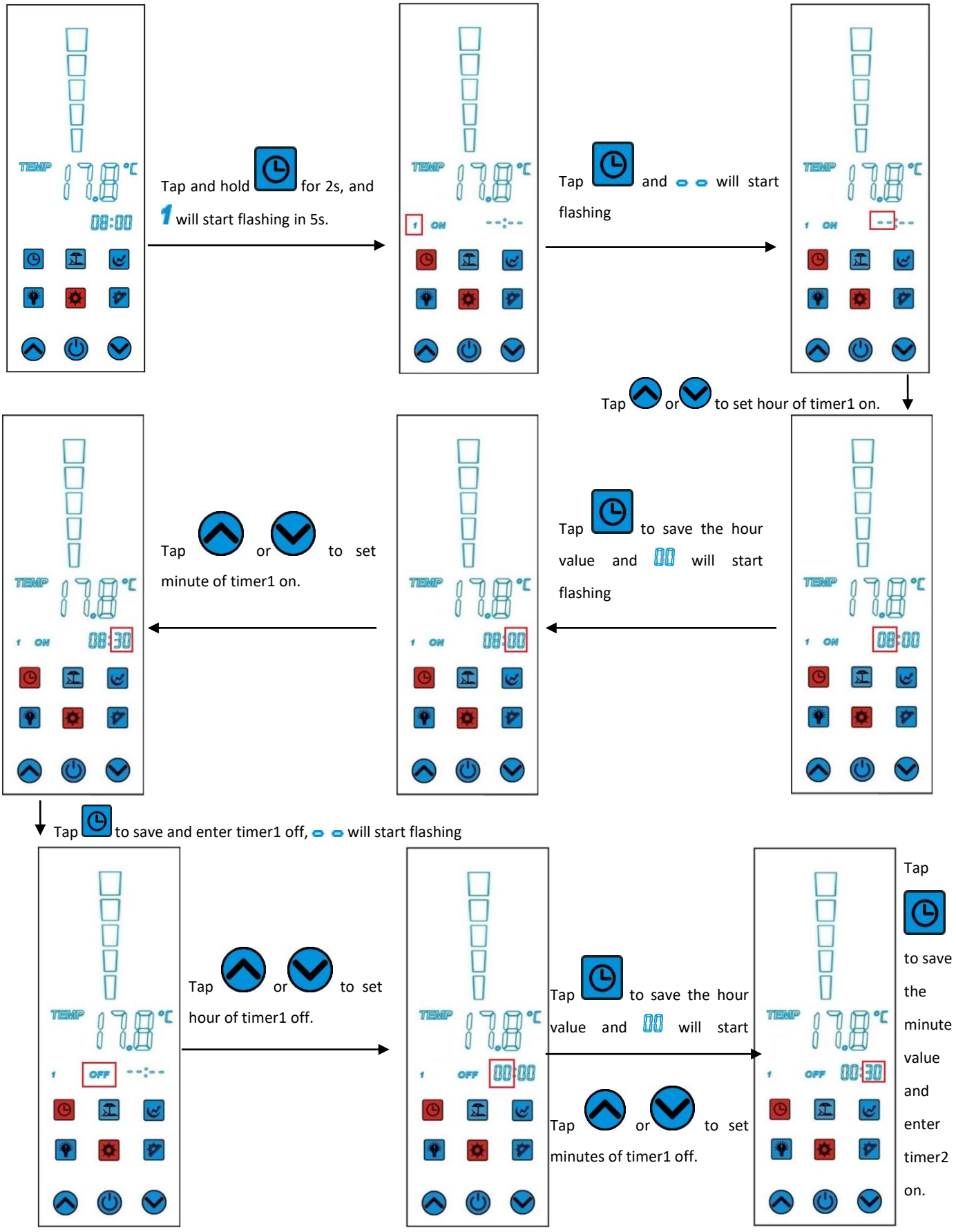






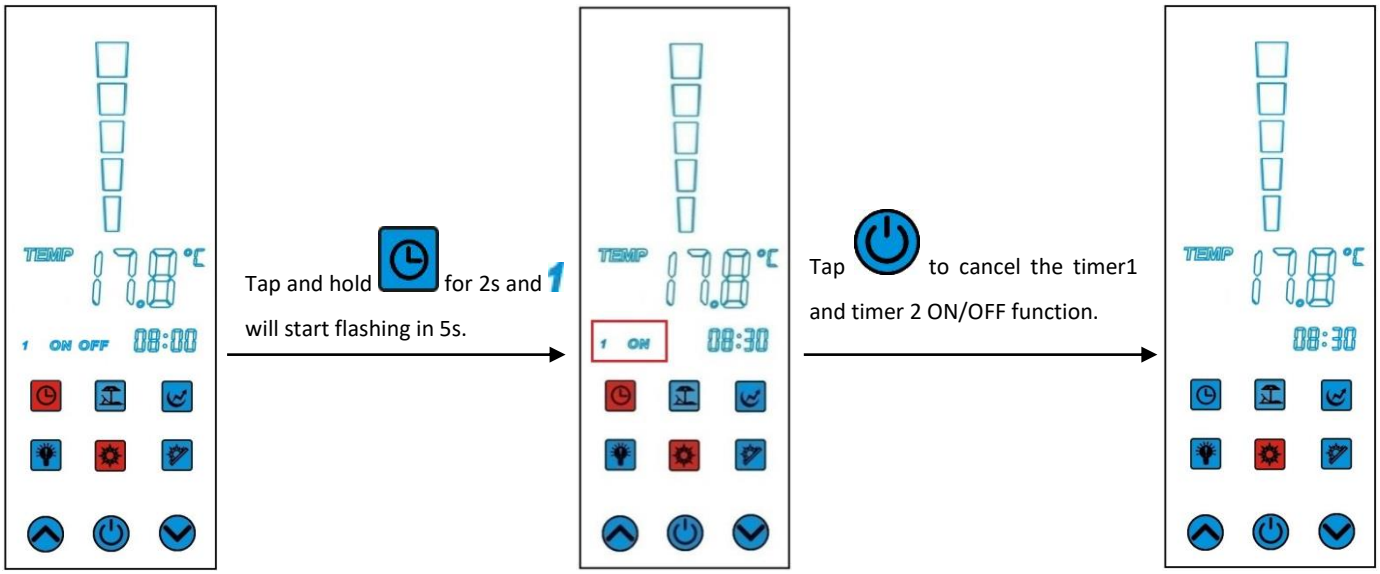

TEMP
17.8 °C
09 30
Tap to save the month setting, then 00 will start flashing
09:30
Tap or to set the day
09:00
Tap to save the day setting and exit

15.8 Timer ON/OFF settings



NOTE
The operation steps for Timer2 on/off are the same as for Timer1.

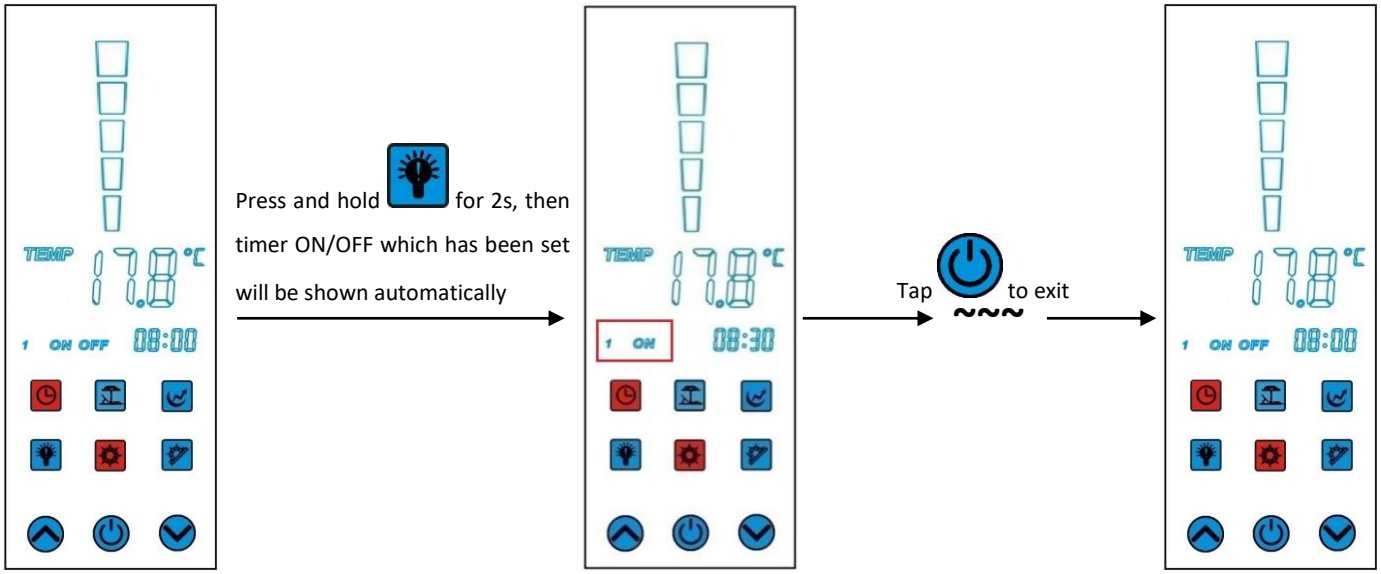
15.9 Canceling timer ON/OFF



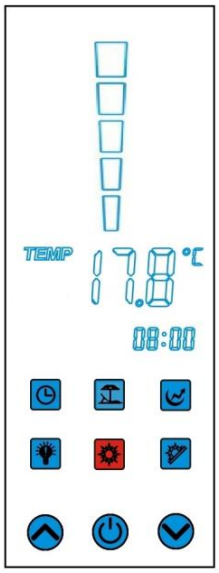
NOTE

By canceling the timer1 and timer2 ON/OFF function, the timer1 and timer2 time settings will be erased and will return to default settings. To set the timers again please follow the instructions above »12.8 Timer ON/OFF setting«

15.10 How to check timer ON/OFF

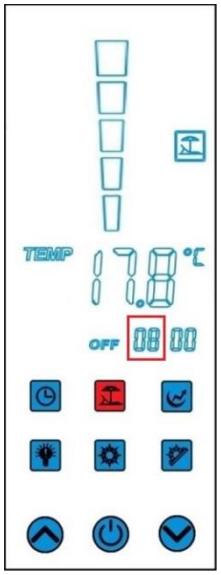


15.11 How to set the holiday mode

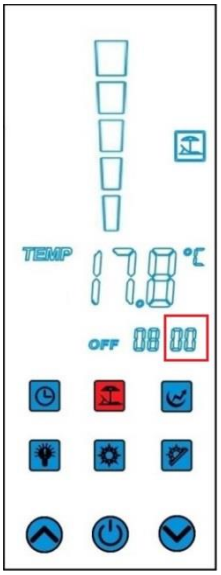


When the unit is turned on, you can set the date, on which the unit will turn off automatically.

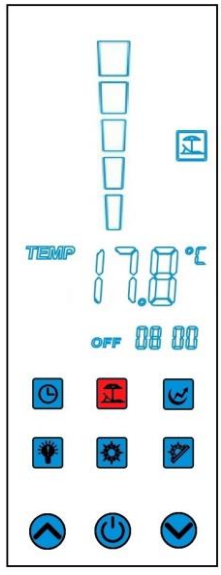
Tap , the holiday mode will become active and 00 will start flashing.



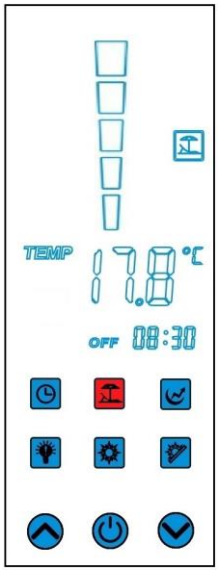
Tap or to change the month value. Tap to save the month value, 00 will start flashing



Tap or to change the day value.Tap to save the day value and exit

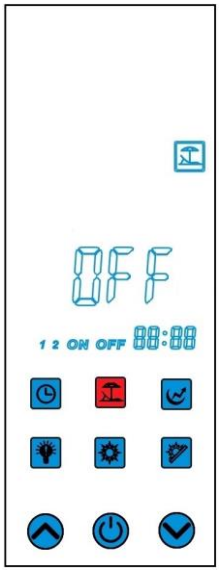


After saving the day value, the holiday function will be active. OFF will be shown next to the clock

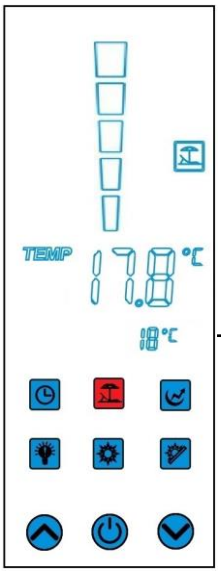


After setting the holiday function, if you turn the unit off, the unit will turn on on the set date of the holiday function.

On the main interface of the turned off unit the date of the holiday function will be show, next to the date ON will be displayed

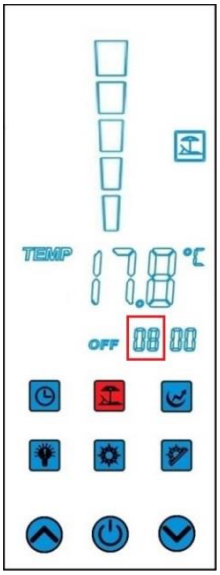


15.12 How to check the holiday mode settings and how to cancel them



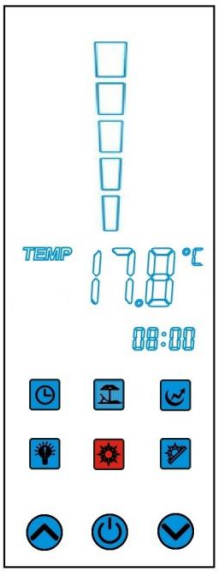
On the main interface, tab  , 00 will start to flash in 5s, the date of holiday mode will be shown.

To re-set the holiday mode , please refer to »15.11 How to set the holiday mode«. To exit tap  .

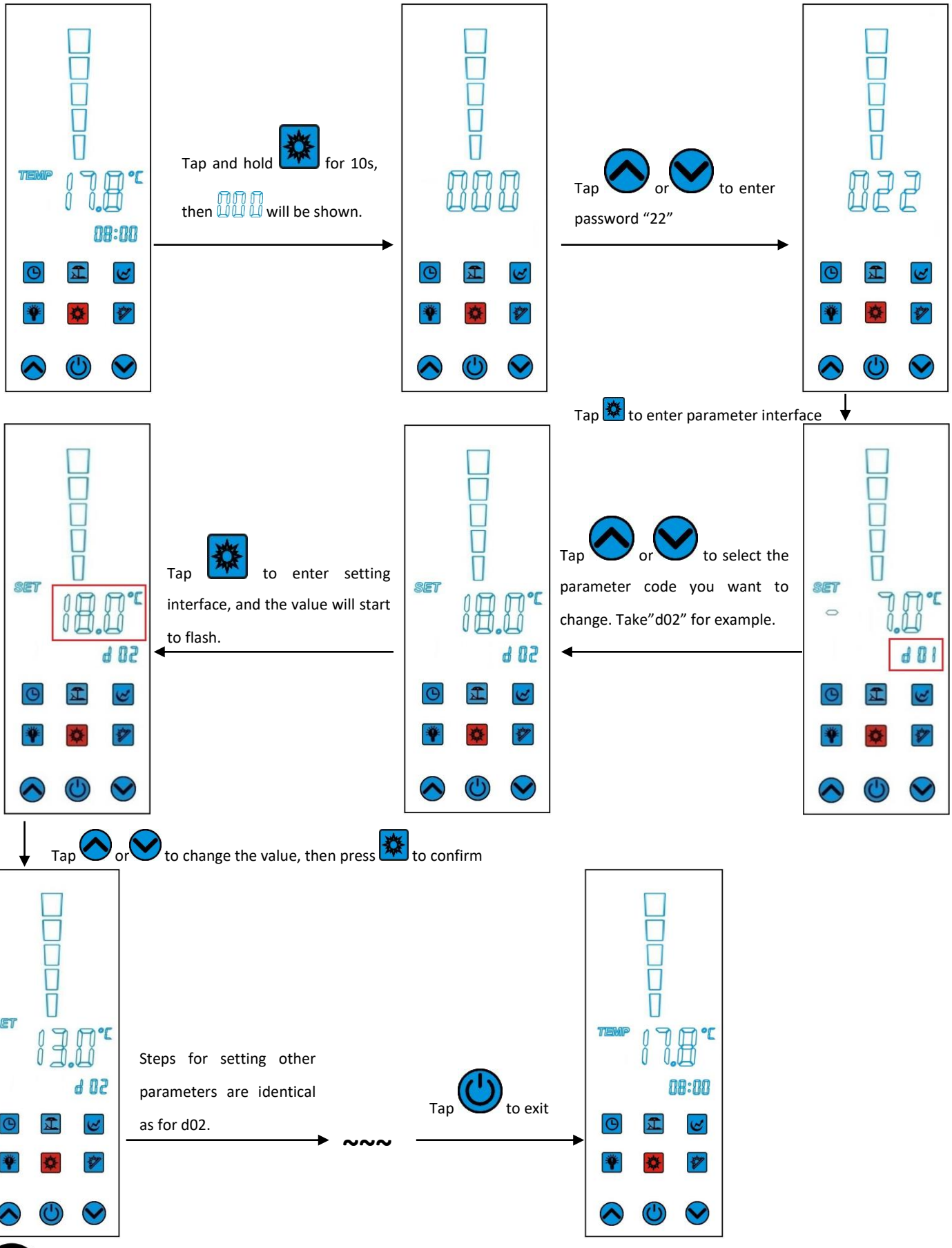


To cancel the holiday mode, tab any of the operation mode buttons. (for more information please refer to »15.3 Mode selection«)

After tabing any of the operation mode buttons, the holiday mode icon will disappear.



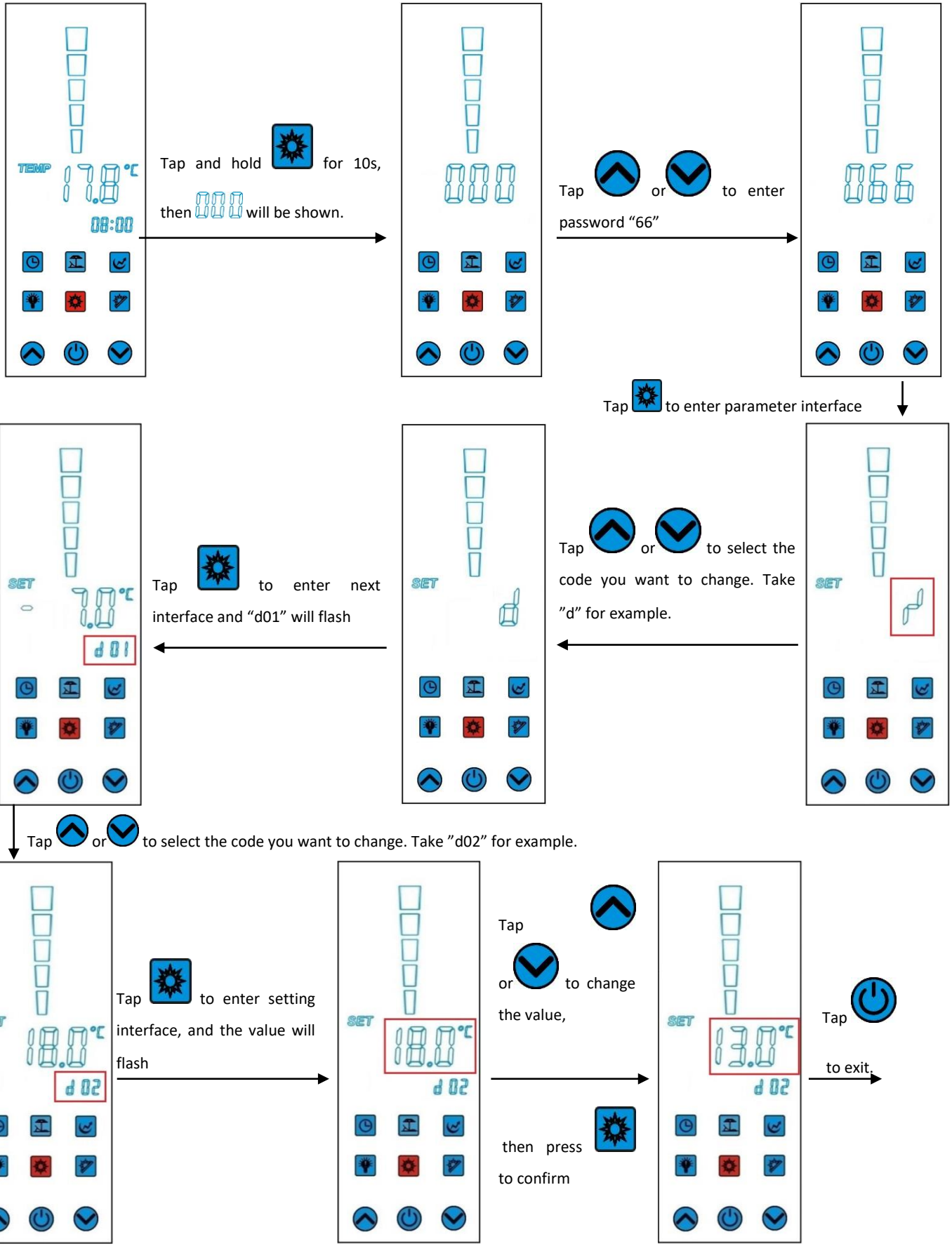
15.13 User parameter settings



NOTE

User parameters are: d01 / d02/ d03/ d04/ g02/ g03/ g04/ E01/ E03/ n10/ r06

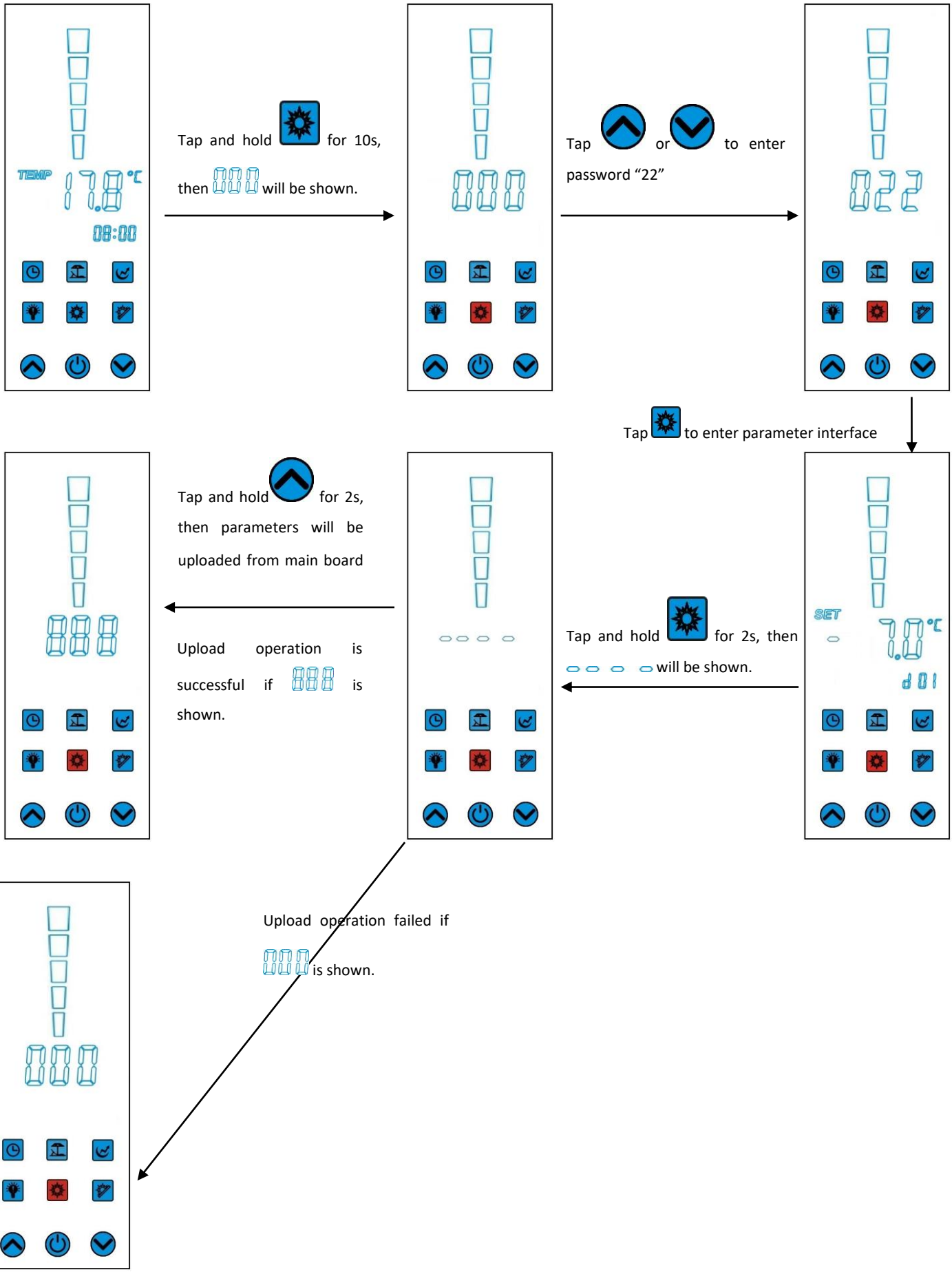
15.14 Factory parameter settings



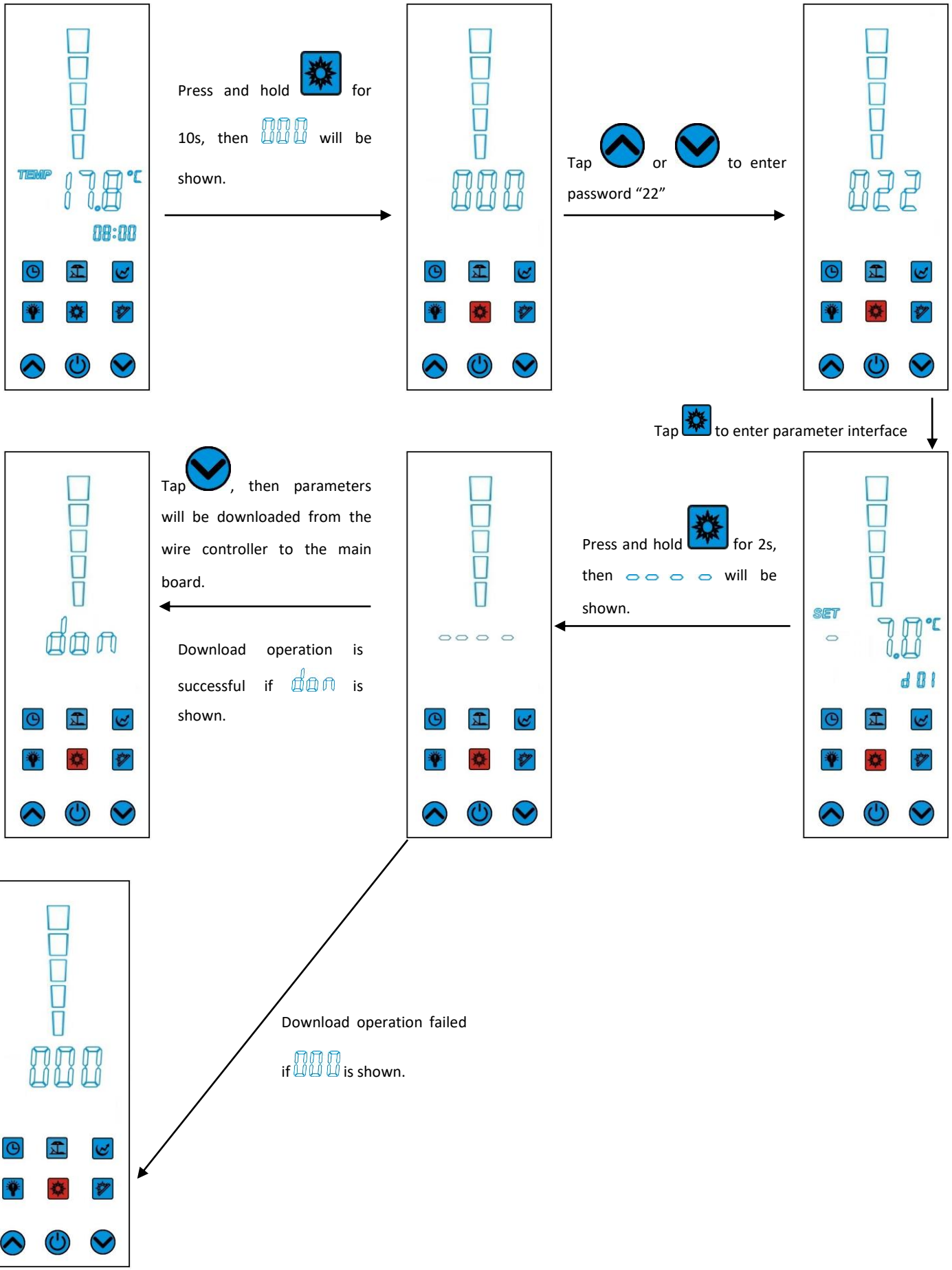
NOTE

The steps of other parameter setting are the same as that of d02..

15.15 Parameter upload setting

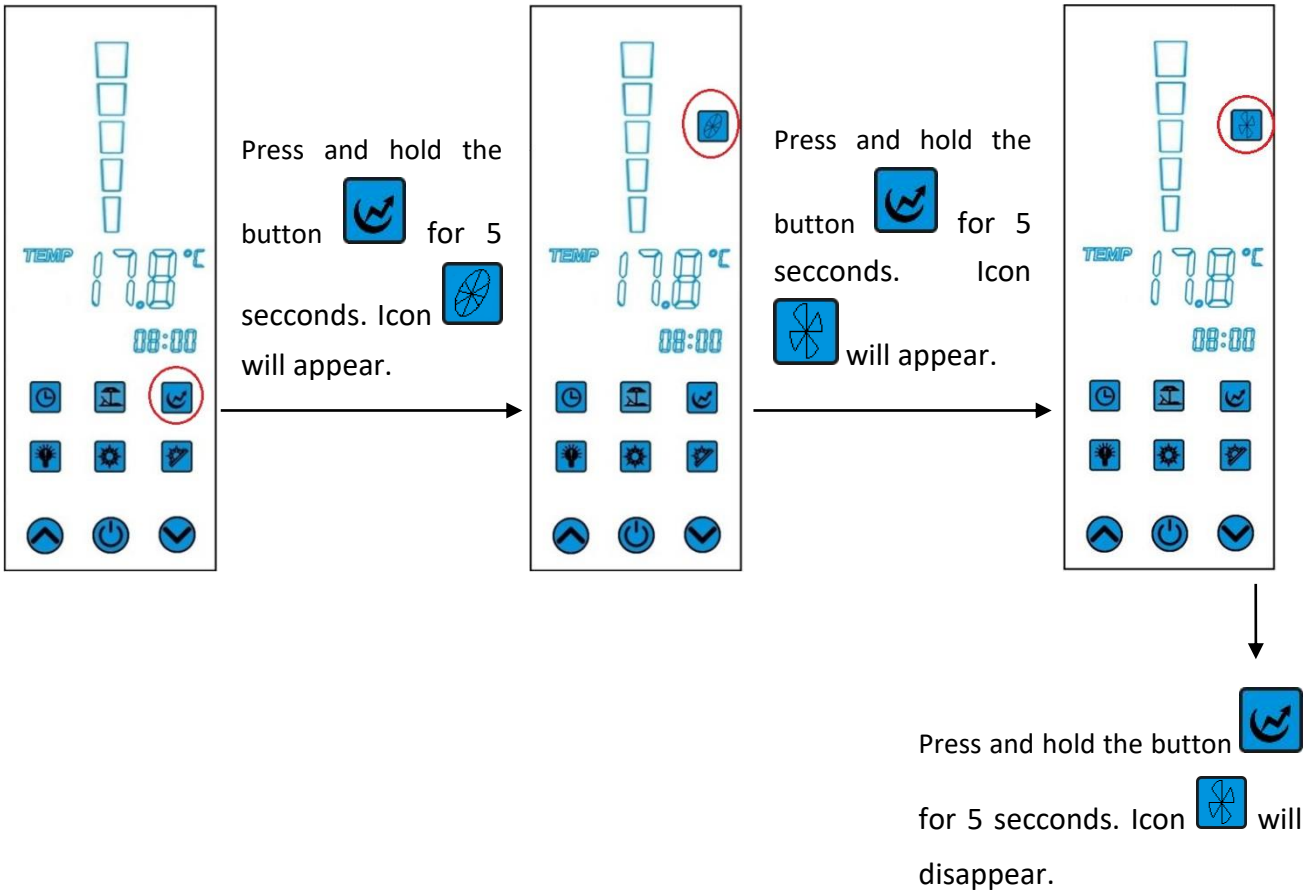


15.16 Parameter download setting



15.17 Ventilation settings

Different ventilation settings allow us to use reduced fan power. We can choose from full fan power and half fan power. Ventilation mode allows us to power the fan, even though the heat pump has heated sanitary water to desired temperature and compressor is not running.



NOTE
In case of half fan power usage, the parameter /01 must be set to 0. In case of external heat source usage (i.e. solar system), the option to run the ventilator at half speed is lost.

16 PARAMETERS

- Service Parameter

NO	Meaning	Code	Para.	Value	Range
1	To set the use of /005 (OUT5) port	/	/01	2	0 – low fan 1 – circulate pump 2 – solar pump 3 – recovery valve 4 – cooling output
2	To set the use of /006 (CN6) port		/02	3	0 – run indicator 1 – circulate pump 2 – solar pump 3 – drainage valve
3	Whether enable ambient temperature compensation	C	C01	0	0-No/1-Yes
4	Maximum offset of compensation		C02	5	1~10℃
5	Compensating factor		C03	-1	-5~5℃
6	The ambient temperature of starting compensation		C04	5	-30~30℃
7	Start defrost temperature	d	d01	-3℃	-30~0℃
8	End defrost temperature		d02	13℃	2~30℃
9	Delay time between 2 defrosting cycle		d03	45min	30~90min
10	Max. duration time of defrosting		d04	8min	1~12min
11	Min. duration of economic defrosting		d05	3min	1~10min
12	Defrosting mode		d06	0	0~2
13	Ambient temperature of converting defrosting mode		d07	4℃	-10~20℃
14	Disinfect setting temperature per week	g	g01	60℃	30~70℃
15	Disinfect running time		g02	0min	0~90min
16	The time to start high-temperature disinfection		g03	0h	0~23h
17	The cycle time of high-temperature disinfection		g04	99D	7~99D
16	Electronic expansion valve mode	E	E01	1	0-Manual/1-Auto
18	Superheat temperature target		E02	5	-20~20℃
19	Expansion valve initial position		E03	350	0~500
20	Expansion valve minimum position		E04	60	0~500
21	Expansion valve position during defrosting		E05	480	0~500
22	Ambient temperature to fix the Expansion valve position		E06	-10	-30~30℃
23	Expansion valve position(fixed)		E07	100	0~500
24	Automatic restarting	H	H01	1	0-No/1-Yes
25	Whether enable kitchen mode (reserved)		H02	0	0-No/1-Yes
26	The unit heat source (reserved)		H03	0	0-Air/1-water
27	The advance time of water pump starting up		H04	1	1-30min
28	Whether enable independent cooling (reserved)		H05	0	0-No/1-Yes
29	The duration time of independent cooling (reserved)		H06	1h	1.0~5.0h
30	The temperature unit		H07	0	0-℃/1-℉
31	Displayed water temp. on main screen		H99	0	0 – real top temp. 1 – up to set temp.
32	Which sensor is used to control solar mode	n	n01	0	0-bottom/ 1-top
33	The minimum running time of solar water pump		n02	15min	1-30min
34	Temperature differential of solar water pump starting		n03	5℃	0~20℃
35	Whether enable the mode of temperature drop at night		n04	0	0-No/1-Yes
36	The time to start temperature drop at night		n05	00h	00~23h
37	The time to end temperature drop at night		n06	06h	00~23h
38	The start value of temperature drop at night		n07	70℃	40~90℃
39	The end differential of temperature drop at night		n08	10℃	1~40℃
40	The set point of solar drainage valve		n09	80℃	50~90℃
41	The stop point of solar water pump		n10	84℃	50~90℃
42	Whether enable solar water pump operate independently		n11	0	0-No/1-Yes
43	Inlet water temperature set point	r	r01	45℃	10~60℃
44	The set point of kitchen mode (reserved)		r02	45℃	40~48℃
45	The temperature differential in heating mode		r03	5℃	1~20℃
46	Whether enable set point of electric heater		r04	1	0-No/1-Yes
47	The set point of electrical heater		r05	55℃	30~90℃
48	The delay time of starting up the electrical heater		r06	200min	0~450min
49	Whether enable electrical-heater replace compressor		r07	1	0-No/1-Yes

50	The ambient temperature when electrical-heater replace compressor	r	r08	-10℃	-20~10℃
51	The ambient temperature of electrical heater start without delay		r09	10℃	0~30℃
52	The ambient temperature of electrical heater start with delay		r10	25℃	10~40℃
54	The running time of circulate pump		r11	60s	0~255s
55	The ambient temperature of compressor stopped by force		r12	-10℃	-5~-30℃
56	Kitchen mode heating limit (reserved)		r13	56℃	50~65℃
57	The set temperature for PV function		r14	60°C	30~65℃
58	Remote ON/OFF switch status	S	S01	/	CL/OP
59	OHP switch (Over heat protection) status		S02	/	CL/OP
60	System low pressure switch status		S03	/	CL/OP
61	System high pressure switch status		S04	/	CL/OP
62	Electrical heater time test switch status		S05	/	CL/OP
63	Water flow switch status		S06	/	CL/OP
64	Ambient temperature	t	t01	/	-9~99℃
65	Bottom temperature of the tank		t02	/	-9~99℃
66	Top temperature of the tank		t03	/	-9~99℃
67	Coil temperature		t04	/	-9~99℃
68	Suction temperature		t05	/	-9~99℃
69	Solar tank temperature		t06	/	-9~99℃
70	Compressor	O	O01	/	ON/OFF
71	Electrical heater		O02	/	ON/OFF
72	4-way valve		O03	/	ON/OFF
73	Fan high speed		O04	/	ON/OFF
74	Fan high speed/ circulate pump/ solar pump		O05	/	ON/OFF
75	Running indicator light/ circulate pump/ solar pump		O06	/	ON/OFF
76	EEV position		O07	/	0~500

Attention: The above parameters are used for non-solar water heater.

- User Parameter

NO.	Meaning	Parameter	Value	Range
1	Start defrost temperature	d01	-3℃	-30~0℃
2	End defrost temperature	d02	13℃	2~30℃
3	Delay time between 2 defrosting cycle	d03	45min	30~90min
4	Max. duration time of defrosting	d04	8min	1~12min
5	Disinfect running time	g02	0min	0~90min
6	The time to start high-temperature disinfection	g03	0h	0~23h
7	The cycle time of high-temperature disinfection	g04	7D	7~99D
8	Electric expansion valve mode	e01	1	0-Manual/1-Auto
9	Expansion valve initiation position	e03	350	0~500
10	The end point of solar water pump	n10	84℃	50~90℃
11	The delay time of electrical heater starting up	r06	200min	0~450min

NOTE

The fact is is that the heat pump will work best and cheapest if it will not always need to heat to the maximum permissible temperature of the water in the reservoir. The lower the temperature in water container is set, the lower the costs for water heating will be. Therefore it is recommended to set parameter »r01« somewhat lower than factory setting, eg. to 45°C.

NOTE

UniQube Heat Pump model have not installed electric heater.

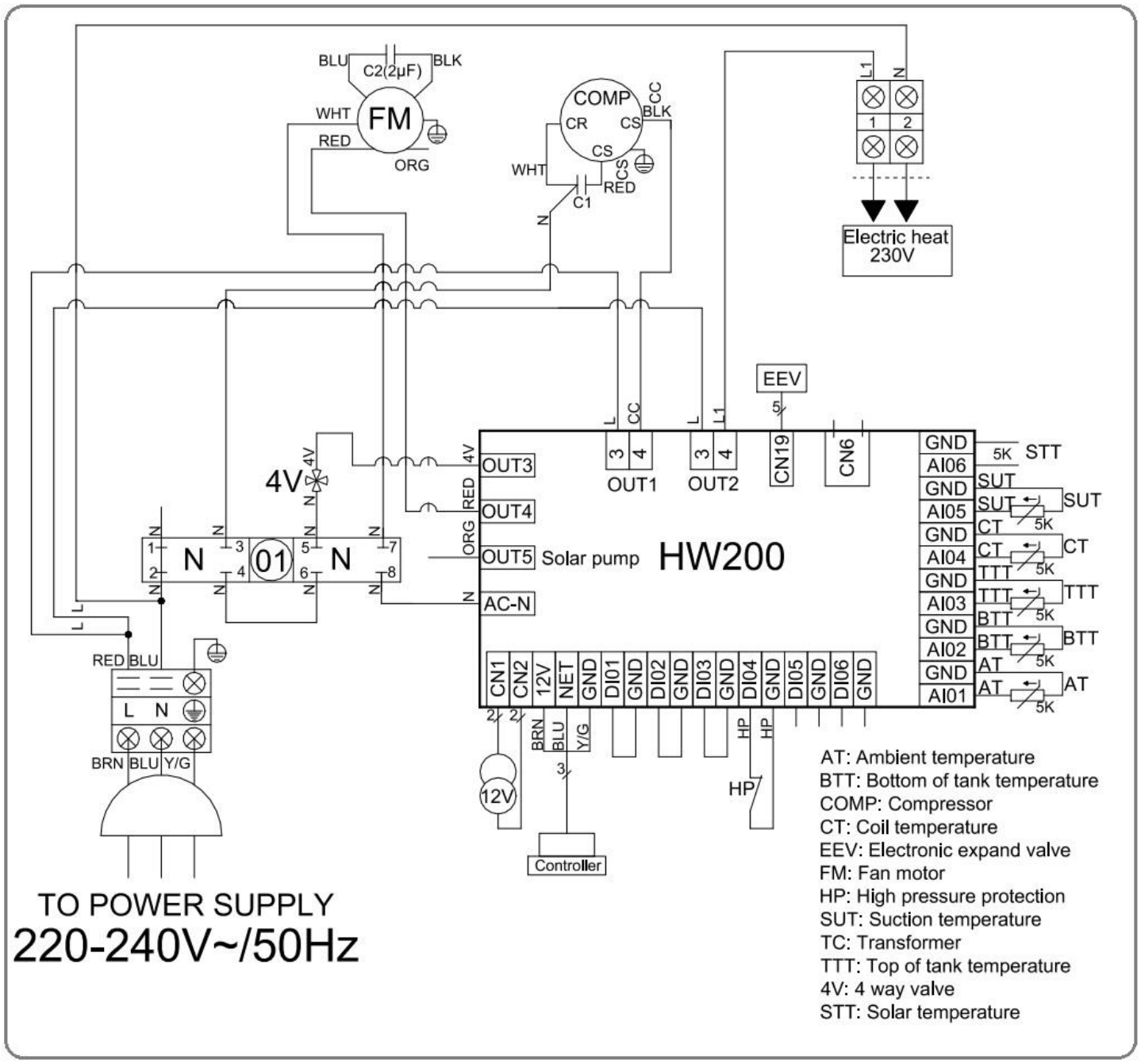
16.1 Description of the parameters

d01: Start defrost temperature
When coil temperature < parameter d01, the unit will enter defrost.
d02: End defrost temperature
When coil temperature > parameter d02, the unit will exit defrost.
d03: Delay time between 2 defrosting cycle
After the previous defrosting, the next defrost will start after a certain time (parameter d03).
d04: Max. Duration time of defrosting
If the defrost lasted for a certain time (parameter d04), no matter what the coil temperature is the unit will exit defrost.
g02: Disinfect running time
This parameter is to set the running time of disinfection
g03: The time to start high-temperature disinfection
This parameter is to set the time of disinfection.
g04: The cycle time of high-temperature disinfection
This parameter is to set cycle period between disinfections.
E01: Electronic expansive valve mode
E01=0, when the unit is in heating mode, electronic expansion position is regulated manually;
E01=1, when the unit is in heating mode, electronic expansion position is regulated automatically;
E03: Expansive valve initiation position
Parameter E03 is determined by experiments
n10: The end point of solar water pump
If bottom or top tank temperature T02/ T01 (depend on n01) reach the value of parameter n10, the solar water pump will stop.
r06: The delay time of starting up the electric heater
When compressor has been running for parameter ro6, and the top tank temperature is 0still less than the target temperature, then the electric heater will start up.

17 TROUBLESHOOTING

Code	Failure	Reason	Solution
P01	Bottom sensor failure	The temp. sensor is open or short circuit	Check or change the bottom temp. sensor
P02	Top sensor failure	The temp. sensor is open or short circuit	Check or change the top temp. sensor
P04	Ambient sensor failure	The temp. sensor is open or short circuit	Check or change the ambient temp. sensor
P034	Solar sensor failure	The temp. sensor is open or short circuit	Check or change the ambient temp. sensor
P05	Pipe sensor failure	The temp. sensor is open or short circuit	Check or change the pipe temp. sensor
P07	Suction sensor failure	The temp. sensor is open or short circuit	Check or change the suction temp. sensor
E01	High pressure protection	The exhaust pressure is high , high pressure switch action	Check high pressure switch and system circuit
E02	Low pressure protection	The suction pressure is low, low pressure switch action	Check low pressure switch and system circuit
E03	Over heat protection	Water flow volume not enough; electrical heating working without water	Check the flow volume
E08	Communication failure	Communication failure between remote wire controller and main board	Check the wire connection between remote wire controller and main board

18 ELECTRIC SCHEME

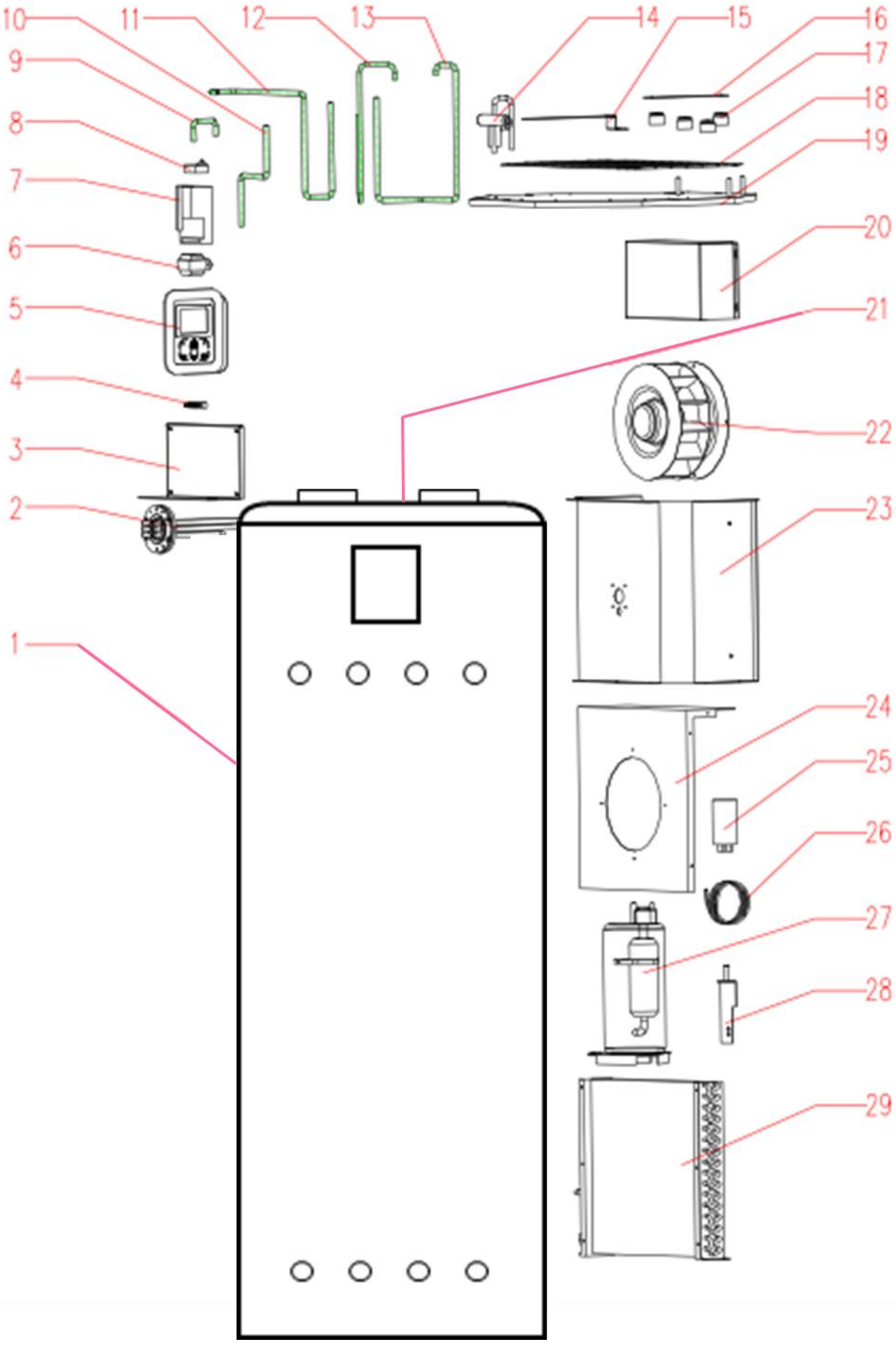


DI06 –GND: some units have the option of using energy form a PV system (photo-voltaic system). When GND and DI06 are connected, the unit will try to heat the water in the tank up to temperature set under parameter r14. If contacts are not connected, unit will work in normal operation regime.

18.1 Temperature sensor resistance

T (℃)	R (KΩ)	T (℃)	R (KΩ)	T (℃)	R (KΩ)
-30.0	63.7306	14.0	7.7643	58.0	1.5636
-29.0	60.3223	15.0	7.4506	59.0	1.5142
-28.0	57.1180	16.0	7.1513	60.0	1.4666
-27.0	54.1043	17.0	6.8658	61.0	1.4206
-26.0	51.2686	18.0	6.5934	62.0	1.3763
-25.0	48.5994	19.0	6.3333	63.0	1.3336
-24.0	46.0860	20.0	6.0850	64.0	1.2923
-23.0	43.7182	21.0	5.8479	65.0	1.2526
-22.0	41.4868	22.0	5.6213	66.0	1.2142
-21.0	39.3832	23.0	5.4048	67.0	1.1771
-20.0	37.3992	24.0	5.1978	68.0	1.1413
-19.0	35.5274	25.0	5.0000	69.0	1.1068
-18.0	33.7607	26.0	4.8108	70.0	1.0734
-17.0	32.0927	27.0	4.6298	71.0	1.0412
-16.0	30.5172	28.0	4.4566	72.0	1.0100
-15.0	29.0286	29.0	4.2909	73.0	0.9800
-14.0	27.6216	30.0	4.1323	74.0	0.9509
-13.0	26.2913	31.0	3.9804	75.0	0.9228
-12.0	25.0330	32.0	3.8349	76.0	0.8957
-11.0	23.8424	33.0	3.6955	77.0	0.8695
-10.0	22.7155	34.0	3.5620	78.0	0.8441
-9.0	21.6486	35.0	3.4340	79.0	0.8196
-8.0	20.6380	36.0	3.3113	80.0	0.7959
-7.0	19.6806	37.0	3.1937	81.0	0.7730
-6.0	18.7732	38.0	3.0809	82.0	0.7508
-5.0	17.9129	39.0	2.9727	83.0	0.7293
-4.0	17.0970	40.0	2.8688	84.0	0.7086
-3.0	16.3230	41.0	2.7692	85.0	0.6885
-2.0	15.5886	42.0	2.6735	86.0	0.6690
-1.0	14.8913	43.0	2.5816	87.0	0.6502
0.0	14.2293	44.0	2.4934	88.0	0.6320
1.0	13.6017	45.0	2.4087	89.0	0.6144
2.0	13.0057	46.0	2.3273	90.0	0.5973
3.0	12.4393	47.0	2.2491	91.0	0.5808
4.0	11.9011	48.0	2.1739	92.0	0.5647
5.0	11.3894	49.0	2.1016	93.0	0.5492
6.0	10.9028	50.0	2.0321	94.0	0.5342
7.0	10.4399	51.0	1.9656	95.0	0.5196
8.0	9.9995	52.0	1.9015	96.0	0.5055
9.0	9.5802	53.0	1.8399	97.0	0.4919
10.0	9.1810	54.0	1.7804	98.0	0.4786
11.0	8.8008	55.0	1.7232	99.0	0.4658
12.0	8.4385	56.0	1.6680	100.0	0.4533
13.0	8.0934	57.0	1.6149		

19 UNIT



No.	Name	Product code
1	Water storage tank 310L	
2**	Electric heater 1800W	
3	PCB holder	
4	Connector	
5*	Display	
6*	Transformer	
7*	Main control board (PCB)	
8*	Fan capacitor	
9	Condenser pipe outlet	
10	Condenser pipe inlet	
11	Evaporator inlet pipe	
12	Gas inlet pipe	
13	Gas outlet pipe	
14*	4 – way valve	
15	Compressor holder	
16	Strengthen holder	
17	Compressor rubber dampers	
18	Compressor plate	
19	Condensate plate	
20	PCB cover	
21	Main cover	
22*	Centrifugal fan with motor	
23	Evaporator holder	
24	Fan holder	
25*	Compressor capacitor	
26*	Expansion valve	
27*	Compressor	
28	Compressor holder	
29*	Evaporator	
*	High pressure switch	
*	Low pressure switch	
*	Temp. sensor (all)	
*	Power cord	

* All positions marked with star are available as spare parts.

** UniQube Heat Pump model is not supplied with electric heater

20 MAINTENANCE, MALFUNCTION AND SOLUTIONS

20.1 Maintenance by the user

Taking into account the instructions for installation and use, the unit will operate without any major disruption, major service intervention and additional maintenance.
If the unit will not be used for an extended period of time (unit will be turned off), you must turn on the unit periodically (every 14 days) and let it run for at least 30 minutes.
In certain periods (especially during winter) and in specific conditions in area (temperature, humidity) where the unit is installed, the amount of condensate will vary. At times there will be a lot of condensate, sometimes none at all. **This does not mean that unit is malfunctioning**. Amount of condensate is dependant of relative humidity and time of unit operation.
The user is obliged to follow the following maintenance instructions. **Proper and adequate maintenance of the equipment is a prerequisite for the recognition of warranty.**

WARNING!
Periodically check (monthly) connection for condensate drain. In case of clogging clean it appropriately.

WARNING!
Ensure clean heat pump working environment. Periodically inspect and if necessary clean the area, where the heat pump is located. This way you decrease the frequency of evaporator cleaning and ensure smooth and optimal perfomance of your heat pump.

WARNING!
In so far as the indended place of installation is in room where there is much dust or ash, possibility of leakage of volatile and flammable or other unwanted substances, wood or pellet stove, arrange heat pump air intake from another room. Dust and ash are deposited on heat pump evaporator and inside the heat pump, which can lead to operation disruptions or heat pump malfunctions. Leakeage of explosive substances can lead to explosion or fire.

WARNING!
Periodically (every 6 months) check the connections (power, water, refrigerant) to the heat pump. Pay attention to possible water or refrigerant leaks. Inspect the dirt trap aswell (monthly). In case of dirt trap not being cleaned regularly, it can get clogged. Periodically (monthly) inspect non-return valve on cold water line; gently press the valve lever, to drain the water.

WARNING!
In case of pipe clogging or freezing of certain parts, turn off the unit, disconnect it from the power supply and immediately contact customer service.

WARNING!
In case of odor or unusual sounds, immediately turn off the unit and contact customer service.

WARNING!
If the unit is located in room, where temperature can fall below freezing point (0°C) and heat pump will not be used for an extended period of time, the unit must be emptied. Otherwise damage to water container or electrical heating can occur.

WARNING!
Regular cleaning of water container is required only if there is frequent water refilling in the heating system.

WARNING!
In case of malfunction contact authorized customer service. Faulty parts can be only replaced with original parts. **NEVER FIX THE DEVICE YOURSELF**! In case of unauthorized acces to the unit or replacement of faulty parts with unoriganal parts, the manufacturer will not be be liable.

WARNING!

USER IS OBLIGED TO FOLLOW ABOVE INSTRUCTIONS FOR MAINTENANCE. IN CASE OF DEVICE MALFUNCTION OR INJURIES DUE TO IMPROPER OR INSUFFICIENT MAINTENANCE BY THE USER, THE MANUFACTURER WILL NOT BE LIABLE FOR THE CAUSED DAMAGE OR CONSEQUENCES.

20.2 Regular annual maintenance

To ensure optimal operation and long service life of the device, regular yearly maintenance must be performed. When purchasing the unit, user agrees to allow regular maintenance from the authorized customer service. Some of the main items which include regular annual service are:

- Pipe and wire device connections
- Expansion vessel pressure inpection
- Condensate draining pipes cleaning
- Cold water inlet filter cleaning
- Refrigerant pressure in the system
- Functional test and device inspection
- Operation control of electronic elements (compressor, ventilator, circulating pump, overflow valve, diverter valve…)
- Additional training of the user to ensure smooth operation of the device.

20.3 Malfunctions and resolutions

Malfunctions	Causes	Resolutions
Units doesn`t work	1. Power supply failure 2. Power supply connection failure 3. Power supply fuse failure	1. Cut down the power supply switch and check power supply. 2. Check out the reason and recover it. 3. Renew the fuse after check.
High pressure side of the compressor higher than normal	1. Too much refrigerant 2. Poor heat on evaporator	1. Contact your local service. Discharge over-charged refrigerant. 2. Clean the evaporator.
Low pressure side of the compressor lower than the normal value	1. Not enough refrigerant. 2. The filter or the capillary is blocked	1. Contact your local service. Check if the system is leaking and fill the system with refrigerant. 2. Contact your local service. Change the capillary or filter
No hot water comes out of the outlet.	1. Tap water has been closed 2. Water pressure is too low 3. Inlet valve has been closed	1. It'll return to normal after tap water is supplied. 2. Run the unit when the water pressure is higher. 3. Open the inlet water valve.

Warranty statement

We hereby declare that:

- Device will work properly in warranty period if you will use it in accordance with its purpose and instructions for use,
- we will on your request if it is made within the warranty period, on our own expense take care to remove the defects and shortcomings of the device, which cause non proper operation of unit within 45 days from the date of notification of failure.
- Warranty applies only for components installed and enclosed to delivered device, for components that are subject of installation: (filter, safety valve, expansion vessel, circulating pump, ...), warranty need to be assured directly from supplier of this components and not supplier of heat pump (seller or installer of the additional equipment).

The device, that will not be repaired within the period of 45 days, at your request, we will replace it with a new one.
Warranty begins on the date of retail sale, which can prove with a valid invoice or confirmed warranty certificate (name, seat, seal, signature of vendor and installer and date of the sale and installation).
Warranty is valid in EU. **Regular yearly service in warranty term is mandatory**, after and of warranty it is recommended. **In case of not performed regular yearly service warranty on the unit is no longer valid. Proof of performed regular yearly services is bill of performed service and confirmed warranty certificate.**

Warranty terms:

- 2 years on complete unit (if on invoice of unit is not written some other term)
- 30 years on plastic-composite water tank
- 10 years on heat exchangers

This warranty does not apply in the following cases:

- Unit was not used in accordance with enclosed manuals
- Installation and/or first start of unit was not performed by authorized person
- Repairs were performed by non-authorized person
- Negligent handling with device
- Damage caused by mechanical shock from buyer or a third party
- If, during the warranty period, regular yearly services were not performed
- If changes has been made to the original equipment, or if the device has been used for other purposes than those specified by the manufacturer
- If in the device were installed non-original parts
- On circulation pump if magnetic filter was not installed on heating system return and was damaged because of metal parts in heating system
- If Magnesium anode was not replaced every two years. Warranty does not include filters, seals, magnesium anode, other consumables and annual service which is chargeable.

Repair during the warranty period:
For repairs within the warranty period customer need to propose confirmed warranty certificate, original bill of unit purchase and its installation. When reporting faults on the unit, customer needs to give next information: device model, failure, serial number of product and purchase date.

Time of ensuring service:
This is the time period in which we provide service, supplies and spare parts. It shall be counted from the date of purchase. Time of ensuring service is a warranty period plus 3 years. In the event of a change of the unit model, we provide spare parts in the same color two years and with similar color for 3 years after the expiration of the warranty period.

The buyer has the right to obtain warranty after its completion, if it turns out that it was a hidden defect in the product which caused the damage.

DEVICE:

TYPE:_____SERIAL NR.: _____

TYPE:_____SERIAL NR.: _____

TYPE:_____SERIAL NR.: _____

SELLER: STAMP:

INSTALLER: (installer fills out) STAMP:

_____

(Company name)

_____

(Company address)

Date of install: _____

SERVICE BOOK:

1. Service inspection:

Date: _____, Company:_____, STAMP

2. Service inspection:

Date: _____, Company:_____, STAMP

3. Service inspection:

Date: _____, Company:_____, STAMP

4. Service inspection:

Date: _____, Company:_____, STAMP

5. Service inspection:

Date: _____, Company:_____, STAMP

Solarico®