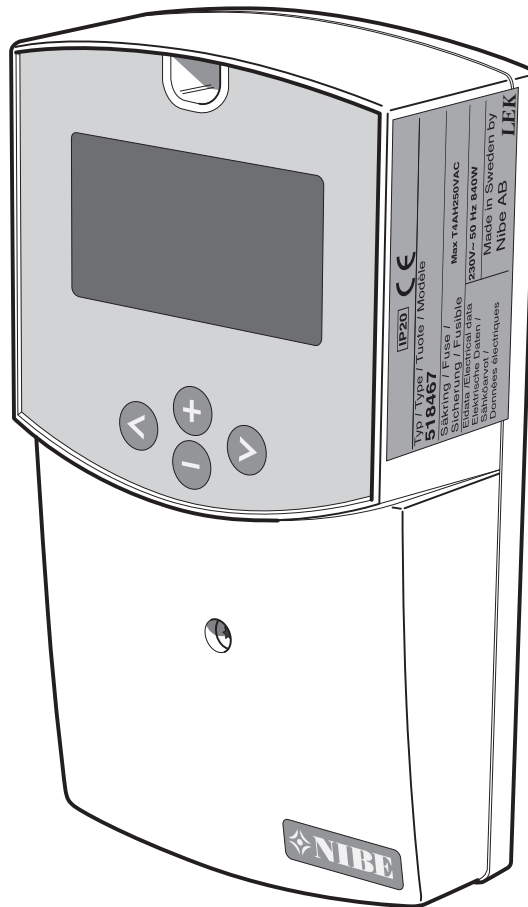




MOS GB 1227-2
SCU 10
031966

INSTALLATION AND MAINTENANCE INSTRUCTIONS

SCU 10



For Home Owners

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General

NIBE SCU 10 is a control module designed to optimally control solar heating together with other heating equipment. Rights to make any design modifications are reserved.

To be filled in when the product has been installed

<p>The serial number, must always be stated in all correspondence with NIBE.</p> <p>-----</p>			
Installation date			
Installation engineers			
System no.	Factory setting	Possible setting	Adjusted
Menu 2.1 [N] Set temp tank1	65	15–90	
Menu 2.2 [N] dTStart tank1	7	4–40	
Menu 2.3 [N] dTStop tank1	3	2–35	
Menu 2.4 [N] Set temp tank2	65	15–90	
Menu 2.5 [N] dTStart tank2	7	4–40	
Menu 2.6 [N] dTStop tank2	3	2–35	
Menu 2.7 [N] Min rev pump	60	15–95	
Menu 2.8 [N] Max temp T3 P3	57	15–95	
Menu 2.9 [N] Min temp T3 P3	15	15–95	
Menu 2.10 [N] Max temp T4 P3	15	15–95	
<p>Make any changes to the default settings here.</p>			
<p>Date _____ Signature _____</p>			

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.

Rights to make any design or technical modifications are reserved.

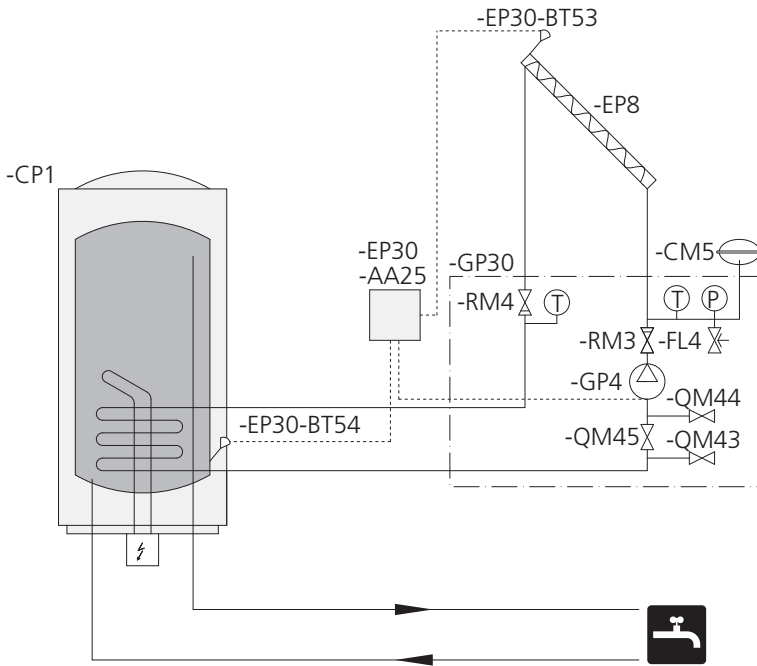
©NIBE 2012.

System description

Principle of operation

SCU 10 has been specially developed to work with NIBE's heat pumps and existing heating and hot water equipment. SCU 10 can be used with a number of different connection

options. With SCU 10 control the heat is spread from the solar panel to the heat store, i.e. the accumulator and is stored there when the sun is shining. The stored heat is then distributed and used when the need arises.



CP1 Accumulator tank

CM5 Expansion vessel, solar circuit

EP8 Solar panel

EP30 Solar control SCU 10

EP30-AA25 Control unit

EP30-BT53 Temperature sensor, solar panel T1

EP30-BT54 Temperature sensor, tank bottom T2

GP30

FL4 Safety valve, solar

GP4 Circulation pump, solar

QM43 Shut-off valve

QM44 Shut-off valve

QM45 Shut-off valve

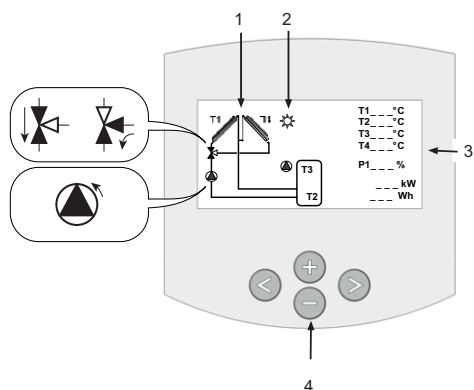
RM3 Non-return valve

RM4 Non-return valve

Pump station SPS 10 / SPS 20

Front panel

Front panel



Display explanation

Display

1. Simplified system diagram.
 - When the pump is running, the pump symbol rotates.
 - Filled in triangles in the valve indicate the direction of flow.
2. Indication that charging from the collector to tank is in progress.
3. Temperature of all connected sensors, pump speed, actual output, total energy charged to the tank.
4. Navigation buttons in menu.

Keypad



Forward button

Navigate right



Back button

Navigate left



Minus button

Navigate down in the menu or minus (-).

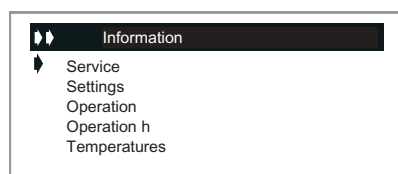


Plus button

Navigate up in the menu or plus (+).

Settings

Main menu



Press **▶** to enter the desired menu. Active menu is shown at the top with a black background.

Select sub menus by moving the cursor **⬇** with the **(+)** or **(-)** buttons, and then activate the sub menu with **▶**.

It is possible to press **◀** to go up a level in the menu system from all menus.

Control

Menu 0 [N] Information

Make overall settings such as selecting language or activating functions here.

Menu 1 [N] Service

Make overall settings such as selecting language or activating functions here.

Menu 2 [N] Settings

Set the start and stop temperatures here.

Menu 3 [N] Operation

Select the operating mode here.

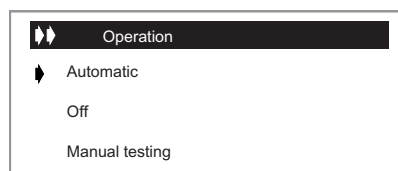
Menu 4 [N] Operation h

Different data shown as graphs can be viewed here.

Menu 5 [N] Temperatures

Here you can view different temperatures shown as graphs.

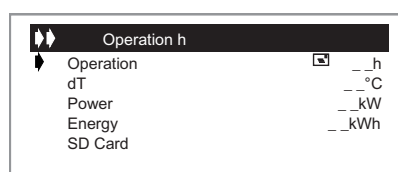
3 Menu Operation



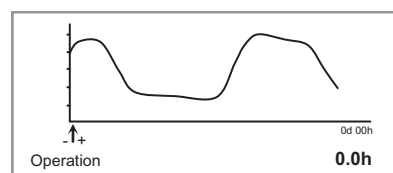
3.1 Automatic operation and Off:

- To activate automatic operation, press **(+)** or **(-)** and select the row "Automatic". Activate the choice by pressing **▶**.
- Stop operation in the same way, but on row "Off".

4 Menu Operating times

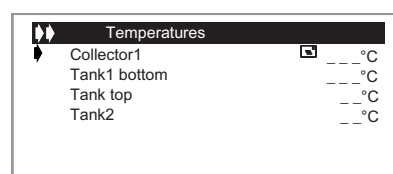


This menu shows graphs of operating time, dT, output and energy.

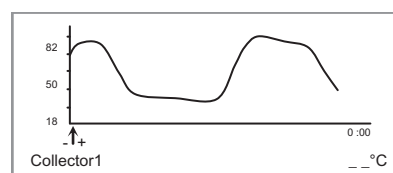


- To view the values in the entire graph, move the cursor using **(+)** or **(-)**.
- The time base in the operation graphs is changed in menu "Service". The graph shows the present and a set number of hours before.

5 Menu Temperatures



- This menu shows all current temperatures.
- Select sensor using **(+)** or **(-)** to show earlier temperature logs. When the cursor points at the sensor you want to view, press **▶**. A graph then appears showing the temperature of the selected sensor.



- You can move the cursor using **(+)** or **(-)** to view the entire logged time. The graph changes, when the end of the first window is reached, to show another 100 points.

Control

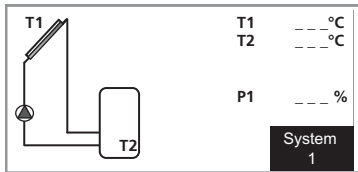
Control

System

When you have selected the row "System" press ► to enter the sub menu . There are ten different systems to choose between.

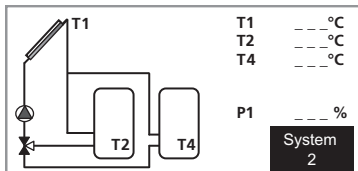
System 1

Basic system with one tank, one pump, one solar panel and two sensors. With this system you can choose to add extra functions with one or two sensors (Thermostat, Cooling or Diff. control function).



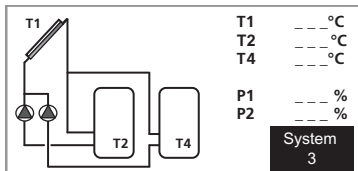
System 2

Basic system with two tanks, one pump, one reversing valve, one solar panel and three sensors.



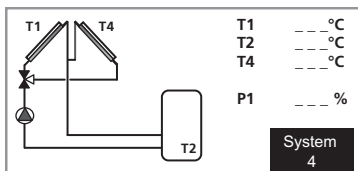
System 3

System with two tanks, two pumps, one solar panel and three sensors.



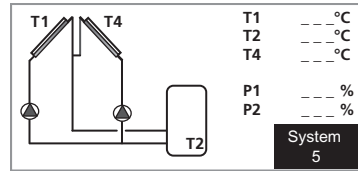
System 4

System with one tank, one pump, one reversing valve, two solar panels (east/west) and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



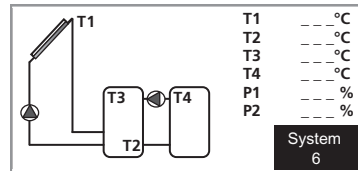
System 5

System with one tank, two pumps, two solar panels (east/west) and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



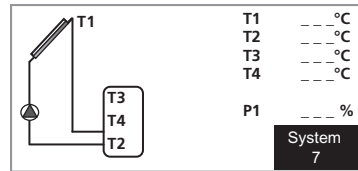
System 6

System with two tanks, two pumps, one solar panel and four sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



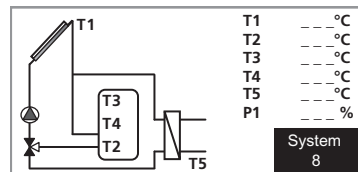
System 7

System with one tank, one pump, one solar panel and four sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



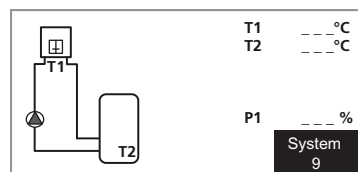
System 8

System with one tank, one pump, one solar panel, one heat exchanger, one valve and five sensors. When the max tank temperature is reached, the valve shifts to the external circuit.



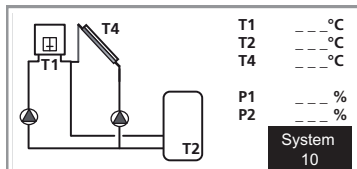
System 9

System with one water jacketed woodburning stove, one tank, one pump, one solar panel and two sensors. With this system you can choose to add extra functions with one or two sensors (Thermostat, Cooling or Diff. control function).



System 10

System with one water jacketed woodburning stove, one tank, two pumps, one solar panel and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menus

Example menu tree for System 6.

Menu 0 [N] Information	
Menu 1 [N] Service	Menu 1.1 [N] English
	Menu 1.2 [N] Time and date
	Menu 1.2.1 [N] Day
	Menu 1.2.2 [N] Month
	Menu 1.2.3 [N] Year
	Menu 1.3 [S] System
	Menu 1.3.1 [S] System 6
	Menu 1.4 [S] Extra
	Menu 1.4.1 [S] Off
	Menu 1.4.2 [S] external heat
	Menu 1.4.3 [S] cooling
	Menu 1.4.4 [S] diffcontrol
	Menu 1.5 [S] Tube collectors
	Menu 1.6 [S] Protection func.
	Menu 1.6.1 [S] Temp boil
	Menu 1.6.2 [S] Cooling coll.
	Menu 1.6.3 [S] Cool. tank start
	Menu 1.6.4 [S] Cool. tank stop
	Menu 1.6.5 [S] Fluid
	Menu 1.7 [S] Flow meter
	Menu 1.8 [S] Flow (l/min)
	Menu 1.9 [S] Factory setting
	Menu 1.10 [N] Reset op time
	Menu 1.11 [N] Time graf temp
	Menu 1.12 [N] Time graf op
	Menu 1.13 [S] Calib sensors
	Menu 1.13.1 [S] Sensor T1
	Menu 1.13.2 [S] Sensor T2
	Menu 1.13.3 [S] Sensor T3
	Menu 1.13.4 [S] Sensor T4
	Menu 1.13.5 [S] Sensor T5
	Menu 1.14 [S] °C / °F
	Menu 1.15 [S] Pump P1
	Menu 1.16 [S] Pump P2
	Menu 1.17 [S] GDS1 NC
	Menu 1.18 [S] GDS2 NC

N Normal menus

S Service menus

Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1	
	Menu 2.2 [N] dTStart tank1	
	Menu 2.3 [N] dTStop tank1	
	Menu 2.4 [N] Set temp tank2	
	Menu 2.5 [N] dTStart tank2	
	Menu 2.6 [N] dTStop tank2	
	Menu 2.7 [N] Min rev pump	
	Menu 2.8 [N] Max temp T3 P3	
	Menu 2.9 [N] Min temp T3 P3	
	Menu 2.10 [N] Max temp T4 P3	
	Menu 2.11 [N] Min temp T4 P3	
Menu 3.0 [S] Operation	Menu 3.1 [N] Automatic	
	Menu 3.2 [N] Off	
	Menu 3.3 [S] Manual testing	Menu 3.3.1 [S] Pump 1
		Menu 3.3.2 [S] Pump 2
Menu 4.0 [N] Operation	Menu 4.1 [N] Operation	
	Menu 4.2 [N] dT	
	Menu 4.3 [N] Power	
	Menu 4.4 [N] Energy	
	Menu 4.5 [N] SD Card	
Menu 5.0 [N] Temperatures	Menu 5.1 [N] Collector1	
	Menu 5.2 [N] Tank1 bottom	
	Menu 5.3 [N] Tank top	
	Menu 5.4 [N] Tank2	

N Normal menus
S Service menus

General information for the installer

SCU 10 used when docking solar heating to your heating system. For control to start working, it must be activated in the operating menu.

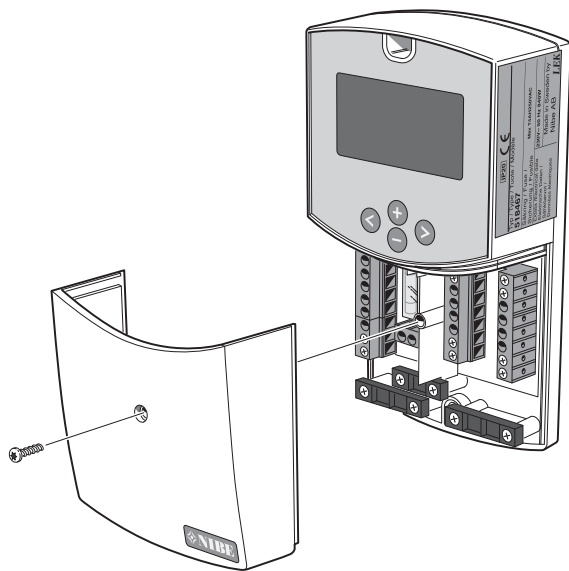
Docking

The safety equipment must be installed in accordance with current regulations for all docking options.

See www.nibe.se/docking for more docking options.

Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person and should be documented. The above applies to installations with a closed expansion vessel. If the electric boiler or the expansion vessel is replaced, the installation must be inspected again.



NOTE

Work behind panels secured by screws may only be carried out by a qualified installation engineer.

NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician.

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

NOTE

To prevent interference, sensor cables and communication cables must be separated (min 20 cm) from high voltage cable when cable routing.

Menu Settings

This menu shows all adjustable parameters in the system. Some parameters are not relevant for all systems.

Set temp tank1

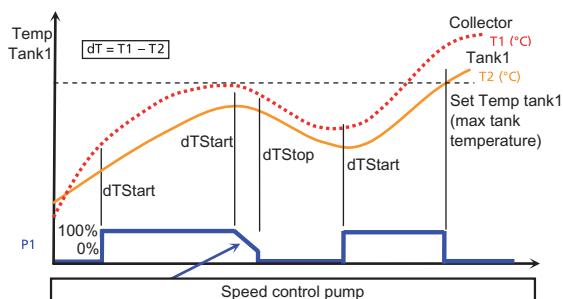
- Maximum temperature in the tank during normal operation. (Adjustable 15 °C to 90 °C with default setting 65 °C)

dTStart tank1

- Temperature difference between collector (T1) and Tank1 (T2) at which the pump starts charging to tank. (Adjustable 3 °C to 40 °C with default setting 7 °C)

dTStop tank1

- Temperature difference between collector (T1) and Tank1 (T2) at which the pump stops. (Adjustable 2 to (dTSet tank1 - 2 °C) with default setting 3 °C)

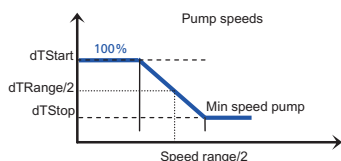


Min speed pump

Settings	
Set temp tank1	65 °C
dTStart tank1	7 °C
dTStop tank1	3 °C
Set temp tank2	65 °C
dTStart tank2	7 °C
dTStop tank2	3
Min rev pump	100 %

- To select the row "Min rev pump" press (+) or (-). Then press ► to activate the menu choice.
- Minimum speed of the pump is set with (+) and (-) (adjustable 50 % to 100 % with default value 100 %).
- For speed control using Triac, select PhAC SC.

When dT is below dTMax and the set "Min rev pump" is used at dTmin the speed of the pump decreases.



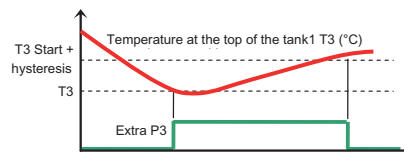
NOTE

Speed control is performed through phase control with Triac. Check before changing min speed:

- that the pump can use this type of speed control.
- the minimum pump speed.
- that the speed selector on the pump is set to maximum speed.

Extra heating

(Thermostat function is only available if extra function "external heat" is selected in menu "Extra".)



Start

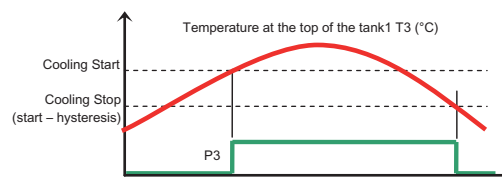
- Temperature level at the top of the tank (T3) at which the thermostat function activates pump (P3) to heat the top of the tank. (Adjustable 20 °C to 90 °C with default value 40 °C.)

Hysteresis

- Setting hysteresis for final heating of the top of the tank. (Adjustable 2 °C to 30 °C with default value 10 °C.)

Extra cooling

(Only available if extra function "cooling" is selected in menu "Extra".)



Cooling start

- Temperature level at the top of the tank (T3) to start cooling the tank through circulation with extra pump (P3) to another heating layer. (Adjustable 20 °C to 90 °C with default value 40 °C.)

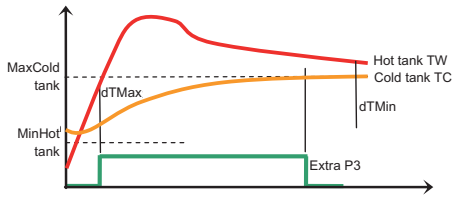
Cooling hysteresis

- Setting of hysteresis to stop cooling function. Cooling is stopped when the temperature at the top of the tank (T3) is below "Cooling start" minus "Hysteresis". (Adjustable 1 °C to 30 °C with default value 10 °C.)

Menu Settings

Difference control Function (Diff. controls)

(Only available if extra function "diffcontrol" is selected in menu "Extra")



Max cold tank

- Maximum temperature in the cold tank. If (T3 = TC) exceeds this value, the function stops. (Adjustable 15 °C to 95 °C with default value 65 °C.)

Min hot tank

Minimum temperature in the hot tank. If (T4 = TW) falls below this value, the function stops. (Adjustable 0 °C to 95 °C with default value 15 °C.)

dTMax

Temperature difference between the hot and cold tank when pump (P3) starts. (Adjustable 3°C to 40 °C with default value 10 °C.)

dTMin

Temperature difference between the hot and cold tank when pump (P3) stops. (Adjustable 2 °C to 30 °C with default value 5 °C.)

Protection functions

Temp boil

Stops the charge pump at set value on the solar panel. This is to prevent steam build up in the solar circuit.

Default value 140 °C.

Cooling coll.

If the temperature in the solar panel exceeds the set value, the charge pump starts to cool the collector, even if the target temperature (set temp) in the tank is achieved. This continues until the tank temperature reaches 95 °C.

Cool. tank start/Cool. tank stop

If the tank temperature has reached the target temperature (set temp) and the solar panel has reached above "cooling collector", the heat in the tank will be transferred to the collector again, when the collector temperature then falls again below the set value "Cooling start". This continues until the tank temperature goes down to "Cooling stop".

Service

Service	
English	
Time and date	
System	
Extra	
Tube collectors	no
Protection func.	
Flow meter	no

Language

- To select the row "English" press (+) or (-). Then press ► to activate the menu row.
- You can now switch language by pressing (+) or (-). Available languages are English, Deutsch, Français, Svenska, Español, Dansk, Suomi.

System

When you have selected the row "System", press ► to enter the sub menu. There are five different systems to choose between, with different options for adding extra functions.

- In the "Service" menu you can change the time base on the graph.

Service	
Tube collectors	no
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no
Reset op time	no
Time graf temp	5 m

- Press (+) or (-) and select row "Time graf temp". Then press ► to activate the menu choice.
- The time base is changed using (+) and (-). (Adjustable 1 to 60 minutes with default value 5 minutes.)
- To return to the main menu press ◀ a few times.
- The menu "Service" changes the time base in the operation graphs.

Service	
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no
Reset op time	no
Time graf temp	5 m
Time graf op	1 h

- To select the row "Time graf op" press (+) or (-). Then press ► to activate the menu choice.
- The time base is changed using (+) and (-). (Adjustable 1 to 48 hours with default value 1 hour)
- Press ◀ a few times to return to the main menu.

Manual test

Manual testing					
▶ Pump 1		0 %			
▶ Pump 2		0 %			
T1	--°C	T2	--°C		
T3	--°C	T4	--°C	T5	--°C

- In manual testing, it is possible to test the outputs that are active with the choice of system and extra functions that are made. All temperature values are also displayed. For sensors that are not connected, the maximum value is shown.
- To activate an output select row with (+) or (-). Press ▶ to activate the selection. Now press (+) or (-) to activate the output.
- Speed controlled pumps start at the lowest set speed, set in the menu "Settings" and increases up to 100% in increments of 5% using (+).

Manual testing					
▶ Pump 1		90 %			
▶ Pump 2		0 %			
T1	--°C	T2	--°C		
T3	°C	T4	°C	T5	°C

NOTE

When the menu is exited, the outputs return to the relevant mode automatically.

- Press ◀ a few times to return to the main menu.

Extra

When you have selected the row "Extra", press ▶ to enter the menu selection.

There are three extra functions to choose from.

(All extra functions are not available for all systems, see previous pages)

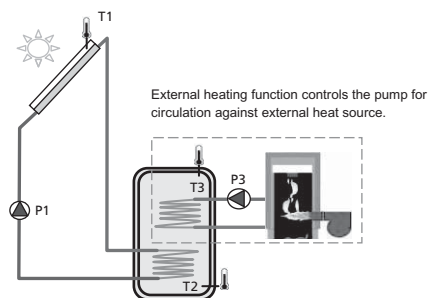
Default setting means that the extra functions are deactivated.

External heating

The function is designed to heat up the tank when solar energy is insufficient.

- External boiler
- Immersion heater (NOTE must not be powered directly from the output relay, but via contactor that is controlled by the relay.)

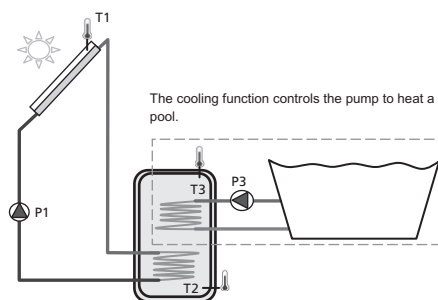
Example



Cooling

The cooling function is used to cool the tank down in the event of high solar radiation. The function also allows the transfer of heat to other heat storage (e.g. pool).

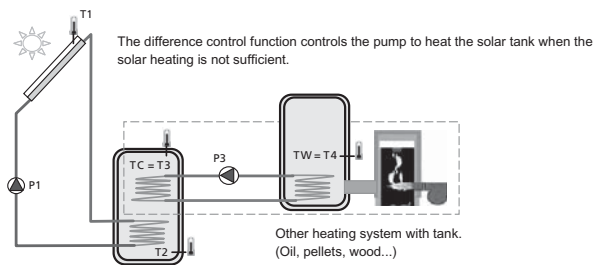
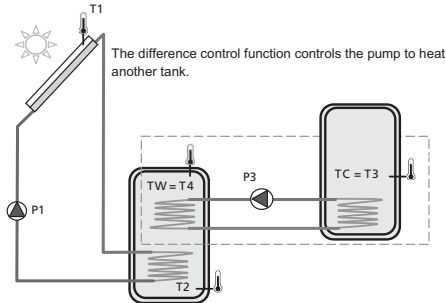
Example



Menu Settings

Difference control function

Difference control function is used to transfer heat between tanks regardless of solar charging. The temperature in both tanks is measured and the control transfers heat from the "hot tank" to the "cold tank", when possible according to the set parameters.



Vacuum pipe

Service	
English	
Time and date	
System	
Extra	
▶ Tube collectors	no
Protection func.	
Flow meter	no

Select the row "Tube collectors" and activate by pressing ▶

- To use solar panel of the vacuum pipe type, press (+) to select "yes".
- This function is used to detect a temperature increase on the sensor even when it is not mounted directly where the temperature increase occurs. The function runs the pump for 30 seconds every 30 minutes to detect whether solar radiation is sufficient to start charging.
- This function only needs to be activated when the solar panel sensor is not directly located on the solar panel collector.

Protection functions

Service	
English	
Time and date	
System	
Extra	
▶ Tube collectors	no
▶ Protection func.	
Flow meter	no

- Select the row "Service" and activate by pressing ▶.

Protection func.	
Temp boil	140 °C
▶ Cooling coll.	115 °C
Cool. tank start	45 °C
Cool. tank stop	56 °C
Fluid	Glycol

Max temp (temp boil)

- Temperature level in the solar panel to activate the overheating protection. (Adjustable 100 °C to 180 °C with default value 140 °C.)

Overheating protection for solar panel. The protection means that the pump stops the circulation when the solar panel temperature is above "Temp boil".

Cooling (cooling coll)

- When the "Cooling coll." function is activated it is possible to activate the function "Cool. tank start".

Protection func.	
Temp boil	140 °C
▶ Cooling coll.	115 °C
Cool. tank start	Från 45 °C
Cool. tank stop	Från 56 °C
Fluid	glycol

Cooling is used to protect the liquid in the solar panel and works as follows: Pump P1 or P2 starts if the temperature in solar panel (T1) or (T2) exceeds the "Cooling coll." setting, even if the set maximum temperature in the tank has been reached. Circulation stops when the temperature in the solar panel has dropped 10 °C. (Circulation stops if the temperature in the tank reaches 95 °C.)

Re-cooling

The pump is activated to cool the tank down through the solar panel, if the temperature in the tank is above the set maximum level and the temperature in the solar panel is 10 °C lower.

The pump stops when the temperature in the tank has dropped to the set maximum level or the temperature difference between the tank and solar panel is less than 2 °C.

Freeze protection (liquid)

If anti freeze is selected, the temperature in the solar panels (T1) and (T2) is maintained above the anti freeze temperature (see below) by activating pump P1 or P2.

If the system is frost protected by for example glycol, this function should not be used.

If liquid water is selected the frost protection is activated.

This function can be used to remove snow from the solar panel and thereby increase efficiency. The liquid in the solar coil is protected against freezing.

NOTE

You should not use this type of anti freeze where it is regularly cold or cold for long periods.

Protection func.	
Temp boil	140 °C
Cooling coll.	115 °C
Cool. tank start	80 °C
Cool. tank stop	70 °C
Fluid	glycol

- Activate anti freeze by pressing (+) or (-). Select row "Fluid". Press ► to activate the menu choice and then (+) to activate the function.
- Now you can set the anti freeze temperature. (Adjustable -20 °C to + 7 °C with default value 3 °C).

Flow meter

The flow meter is used for measuring energy and monitoring.

- If a flow meter is not installed (default setting), you must set the flow (l/min) in the menu using (+) and (-). Information about the flow can normally be found on the pump. (Adjustable 1 to 100 l/min with default value 10 l/min.)

Service	
Time and date	
System	
Extra	
Tube collectors	no
Protection func.	
Flow meter	no
Flow (l/min)	10

- If a pulsing flow meter is installed (input T6), select "pulse". Then the flow meter pulse value in litre/pulse must be set using (+) or (-). (Adjustable 1 to 25 l/pulse with default value 10 l/pulse.)
- If a pulse flow meter is used for energy measurement, you should install a T5 sensor on the return to the collector, to obtain a more accurate energy measurement.

Service	
Time and date	
System	
Extra	
Tube collectors	no
Protection func.	
Flow meter	Pulse
Flow (l/min)	10

- If analogue Grundfos (type VFS) flow meter is installed (T5 & T6) select "GSD". The actual value of the flow can be found under "Manual testing" in the operations menu. (See 3.2)
- See installation instructions for information about connection.

Service	
Time and date	
System	
Extra	
Tube collectors	no
Protection func.	
Flow meter	GSD
Flow (l/min)	-

Monitoring the flow

The flow in the system is also monitored if a flow meter is not installed. The temperature difference between the solar panel and the tank is used to indicate flow problems. If the difference is greater than 60 °C, for longer than 30 minutes, this is interpreted as a flow error. If a flow meter is installed and a flow has not been measured for ten minutes after the pump has started, a flow error is indicated. If the 60 °C/30 minimum criteria occurs, control stops and an error message appears in the display. But if the flow meter indicates an error this is only indicated in the display and control continues.

Factory setting

Service	
System	
Extra	
Tube collectors	no
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no

- If you wish to return to the default settings, select row "Factory setting" and press ► to activate the row. Then select "yes" with (+).
- To return to the main menu press ◀ a few times.

Menu Settings

Reset operating time

Service	
Extra	
Tube collectors	no
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no
Reset op time	no

- If you wish to reset operating times, press ► to activate the row. Then select "yes" with (+).
- To return to the main menu press ◀ a few times.

NOTE

This function resets all total operating times.

NOTE

Check the temperature with a calibrated thermometer before adjustment.

(Calibration range -3 °C to +3 °C with default value 0 °C)

Time graph temp

Service	
Tube collectors	no
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no
Reset op time	no
Time graf temp	5 m

- To select the row "Time graf temp" press (+) or (-). Then press ► to activate the menu choice.
- Use (+) and (-) to change the time base. (Adjustable 1 to 60 minutes with default setting 5 minutes.)
- To return to the main menu press ◀ a few times.

Time graph operation

Service	
Protection func.	
Flow meter	yes
Flow (l/min)	10
Factory setting	no
Reset op time	no
Time graf temp	5 m
Time graf op	1 h

- To select the row "Time graf op" press (+) or (-). Then press ► to activate the menu choice.
- Use (+) and (-) to change the time base. (Adjustable 1 to 48 hours with default setting 1 hour)
- To return to the main menu press ◀ a few times.

Sensor calibration

Calib sensors	
Sensor T1	0 °C
Sensor T2	0 °C
Sensor T3	0 °C
Sensor T4	0 °C
Sensor T5	0 °C

In this sub menu it is possible to calibrate all temperature sensors in the system.

Prioritised Tank

(Only available in systems with two tanks (2 and 3))

- In this menu you can select which tank is to be prioritised in a two tank system, 1 or 2. If charging starts towards the non-prioritised tank (if it is colder) charging switches over to the prioritised tank when the non-prioritised tank reaches the same temperature as the prioritised one. When the prioritised tank reaches the maximum temperature (according to the setting) charging switches back to fully charge the non-prioritised tank.

Control

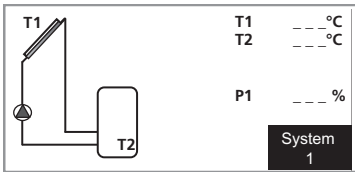
System

When you have selected the row "System" press ► to enter the sub menu . There are ten different systems to choose between.

System selection can occur during 15 minutes after SCU 10 has been powered. It is not possible to change the system, until the voltage is switched off and on it again.

System 1

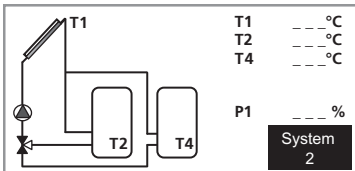
Basic system with one tank, one pump, one solar panel and two sensors. With this system you can choose to add extra functions with one or two sensors (Thermostat, Cooling or Diff. control function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 1	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1

System 2

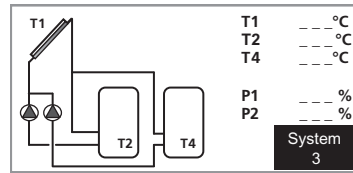
Basic system with two tanks, one pump, one reversing valve, one solar panel and three sensors.



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 2	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1
	Menu 2.4 [N] Set temp tank2
	Menu 2.5 [N] dTStart tank2
	Menu 2.6 [N] dTStop tank2
	Menu 2.7 [N] Min rev pump
	Menu 2.8 [N] Mintemp prio tank

System 3

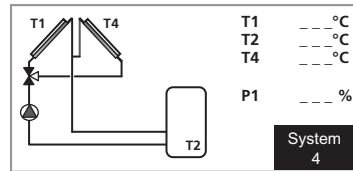
System with two tanks, two pumps, one solar panel and three sensors.



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 3	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1
	Menu 2.4 [N] Set temp tank2
	Menu 2.5 [N] dTStart tank2
	Menu 2.6 [N] dTStop tank2
	Menu 2.7 [N] Min rev pump
	Menu 2.8 [N] Mintemp prio tank

System 4

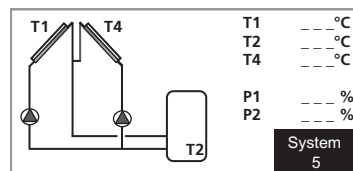
System with one tank, one pump, one reversing valve, two solar panels (east/west) and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 4	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1

System 5

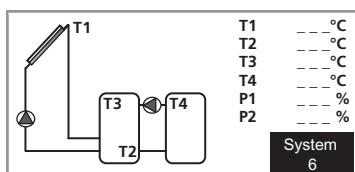
System with one tank, two pumps, two solar panels (east/west) and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 5	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1

System 6

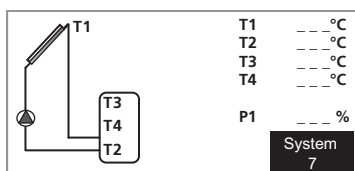
System with two tanks, two pumps, one solar panel and four sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 6	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1
	Menu 2.4 [N] Set temp tank2
	Menu 2.5 [N] dTStart tank2
	Menu 2.6 [N] dTStop tank2
	Menu 2.7 [N] Min rev pump
	Menu 2.8 [N] Mintemp prio tank
	Menu 2.9 [N] Min temp T3 P3
Menu 2.10 [N] Max temp T4 P3	
Menu 2.11 [N] Min temp T4 P3	

System 7

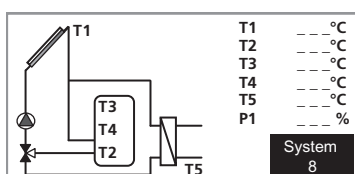
System with one tank, one pump, one solar panel and four sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 7	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1
	Menu 2.4 [N] Legionella protection

System 8

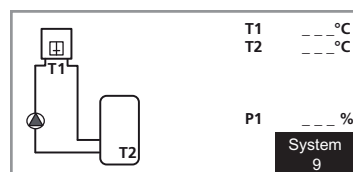
System with one tank, one pump, one solar panel, one heat exchanger, one valve and five sensors. When the max tank temperature is reached, the valve shifts to the external circuit.



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 8	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1
	Menu 2.4 [N] Legionella protection

System 9

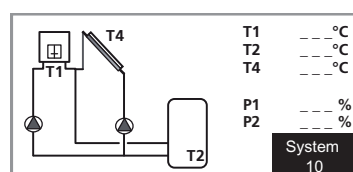
System with one water jacketed woodburning stove, one tank, one pump, one solar panel and two sensors. With this system you can choose to add extra functions with one or two sensors (Thermostat, Cooling or Diff. control function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 9	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1

System 10

System with one water jacketed woodburning stove, one tank, two pumps, one solar panel and three sensors. With this system you can use extra functions with one sensor (Thermostat or Cooling function).



Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1
System 10	Menu 2.2 [N] dTStart tank1
	Menu 2.3 [N] dTStop tank1

Menus

Example menu tree for System 6.

Menu 0 [N] Information	
Menu 1 [N] Service	Menu 1.1 [N] English
	Menu 1.2 [N] Time and date
	Menu 1.2.1 [N] Day
	Menu 1.2.2 [N] Month
	Menu 1.2.3 [N] Year
	Menu 1.3 [S] System
	Menu 1.3.1 [S] System 6
	Menu 1.4 [S] Extra
	Menu 1.4.1 [S] Off
	Menu 1.4.2 [S] external heat
	Menu 1.4.3 [S] cooling
	Menu 1.4.4 [S] diffcontrol
	Menu 1.5 [S] Tube collectors
	Menu 1.6 [S] Protection func.
	Menu 1.6.1 [S] Temp boil
	Menu 1.6.2 [S] Cooling coll.
	Menu 1.6.3 [S] Cool. tank start
	Menu 1.6.4 [S] Cool. tank stop
	Menu 1.6.5 [S] Fluid
	Menu 1.7 [S] Flow meter
	Menu 1.8 [S] Flow (l/min)
	Menu 1.9 [S] Factory setting
	Menu 1.10 [N] Reset op time
	Menu 1.11 [N] Time graf temp
	Menu 1.12 [N] Time graf op
	Menu 1.13 [S] Calib sensors
	Menu 1.13.1 [S] Sensor T1
	Menu 1.13.2 [S] Sensor T2
	Menu 1.13.3 [S] Sensor T3
	Menu 1.13.4 [S] Sensor T4
	Menu 1.13.5 [S] Sensor T5
	Menu 1.14 [S] °C / °F
	Menu 1.15 [S] Pump P1
	Menu 1.16 [S] Pump P2
	Menu 1.17 [S] GDS1 NC
	Menu 1.18 [S] GDS2 NC

N Normal menus

S Service menus

Menu 2.0 [S] Settings	Menu 2.1 [N] Set temp tank1	
	Menu 2.2 [N] dTStart tank1	
	Menu 2.3 [N] dTStop tank1	
	Menu 2.4 [N] Set temp tank2	
	Menu 2.5 [N] dTStart tank2	
	Menu 2.6 [N] dTStop tank2	
	Menu 2.7 [N] Min rev pump	
	Menu 2.8 [N] Max temp T3 P3	
	Menu 2.9 [N] Min temp T3 P3	
	Menu 2.10 [N] Max temp T4 P3	
	Menu 2.11 [N] Min temp T4 P3	
Menu 3.0 [S] Operation	Menu 3.1 [N] Automatic	
	Menu 3.2 [N] Off	
	Menu 3.3 [S] Manual testing	Menu 3.3.1 [S] Pump 1
		Menu 3.3.2 [S] Pump 2
Menu 4.0 [N] Operation	Menu 4.1 [N] Operation	
	Menu 4.2 [N] dT	
	Menu 4.3 [N] Power	
	Menu 4.4 [N] Energy	
	Menu 4.5 [N] SD Card	
Menu 5.0 [N] Temperatures	Menu 5.1 [N] Collector1	
	Menu 5.2 [N] Tank1 bottom	
	Menu 5.3 [N] Tank top	
	Menu 5.4 [N] Tank2	

N Normal menus

S Service menus

Dealing with malfunctions

NOTE

Servicing must be done under the supervision of a qualified electrician.

Cut the current before working on the installation.

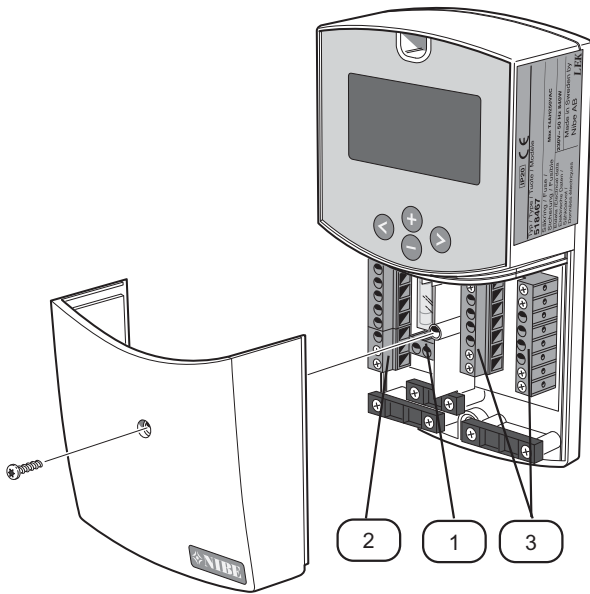
Troubleshooting

If the operational interference is not shown in the display the following tips can be used:

- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- SCU 10 fuse.

Components

Component positions

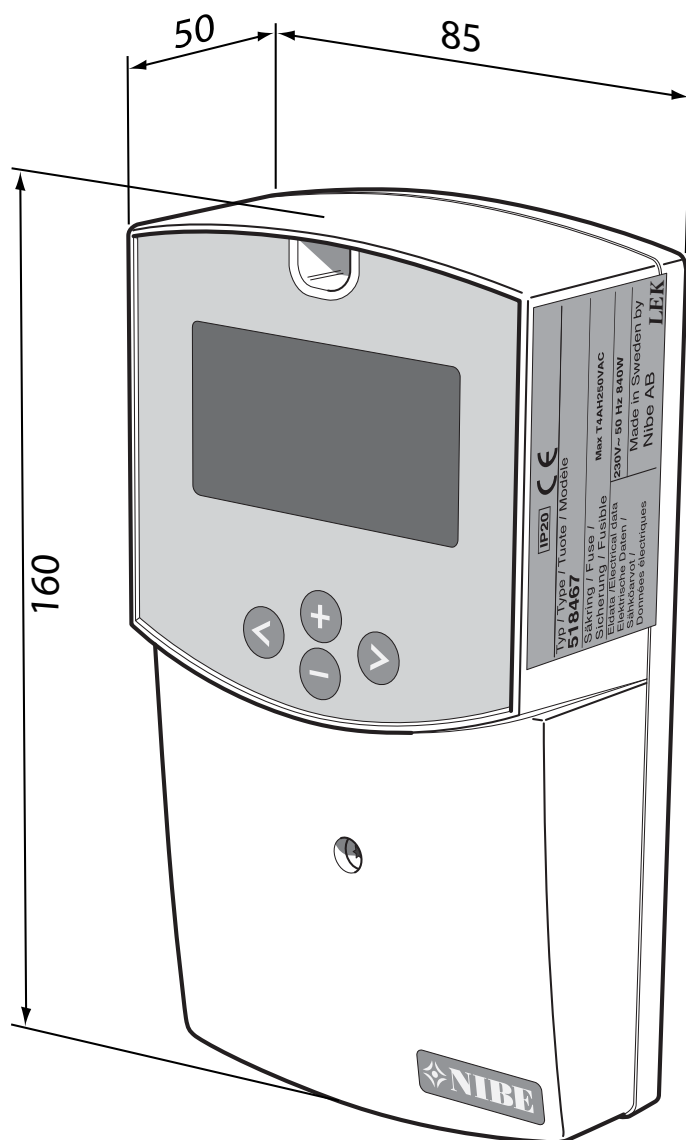


List of components

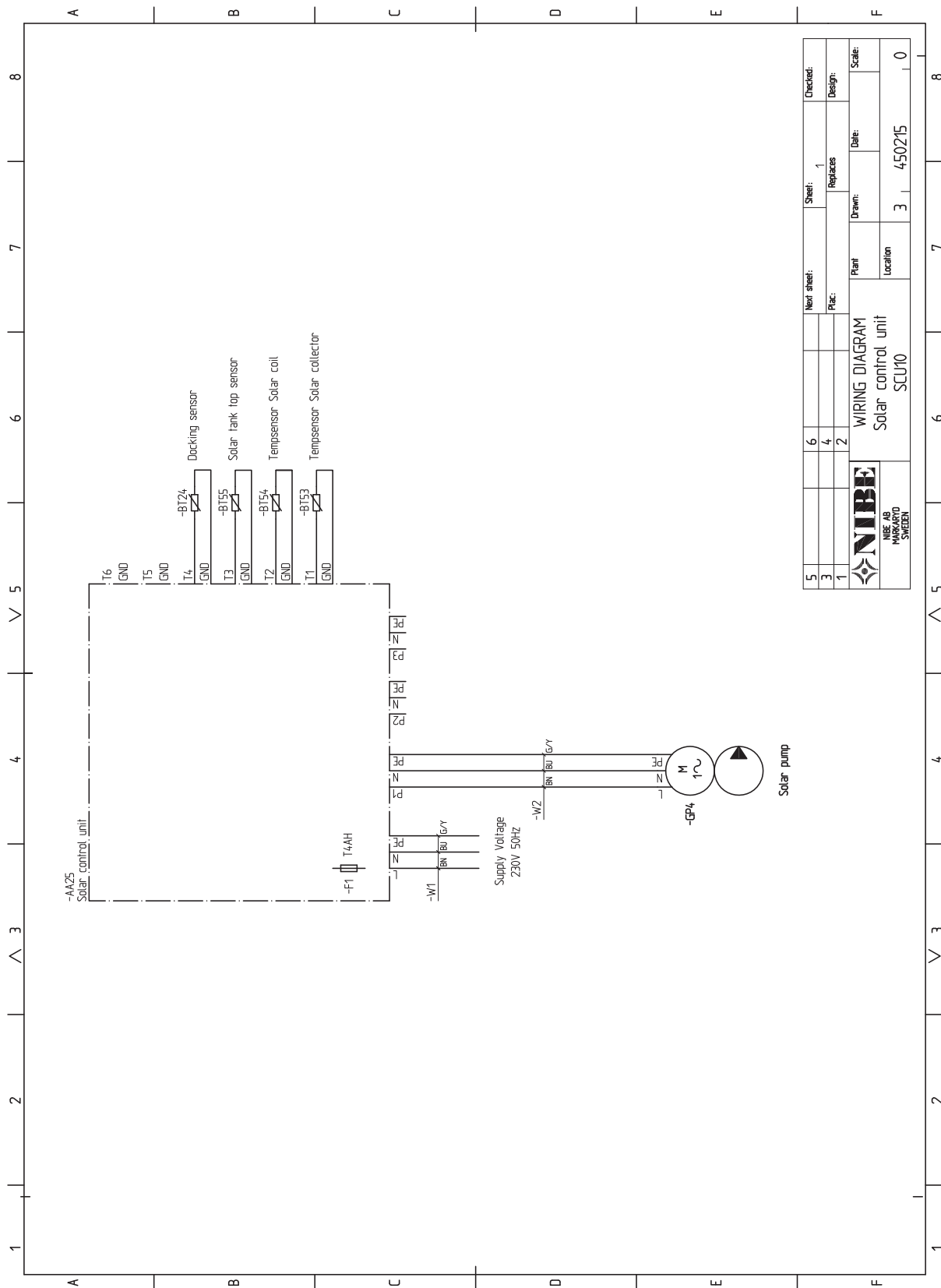
- 1 Terminal block, power supply
- 2 Terminal block, pumps
- 3 Terminal blocks, sensors

Dimensions

Dimensions SCU 10



Electrical circuit diagram



Technical specifications

Ambient temperature	0 °C - 50 °C
Enclosure class	IP 20
Fuse	4A 250 VAC (5x20 mm)
Mains voltage	230 VAC +/-10 % 50 Hz
Outputs	
P1 (Pump with speed control):	Triac 0.5A 230 VAC
P2 (Valve or speed controlled pump depending on selected system):	Triac 0.5A 230 VAC
P3 (Extra, additional heating, cooling...)	Relay 0.5A 230 VAC
Inputs	
T1 (Collector 1)	Pt1000
T2 (Tank 1)	Pt1000
T3 (Control extra function)	Pt1000
T4 (Extra function, Tank 2, Collector 2)	Pt1000, Pt1000
T5 (Collector return)	Impulse type
T6 (Flow meter for energy measurement)	Grundfos (VTS)
Supplied sensors	
1 Collector sensor	Pt1000 (1.5 m 180 °C)
3 Tank sensor	Pt1000 (3 m 105 °C)
Software version	Displayed on starting.

Resistance value of Pt1000 sensor: (measured with ohmmeter with the sensor disconnected)

-10 °C	960 ohm	60 °C	1232 ohm
0 °C	1000 ohm	70 °C	1271 ohm
10 °C	1039 ohm	80 °C	1309 ohm
20 °C	1077 ohm	90 °C	1347 ohm
30 °C	1116 ohm	100 °C	1385 ohm
40 °C	1155 ohm	120 °C	1461 ohm
50 °C	1194 ohm	140 °C	1535 ohm

Enclosed kit

Temperature sensor

1 x high temperature sensor (red)

3 x low temperature sensor (grey)





031966

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