

KC2002 – 96.110

Installation and user guide



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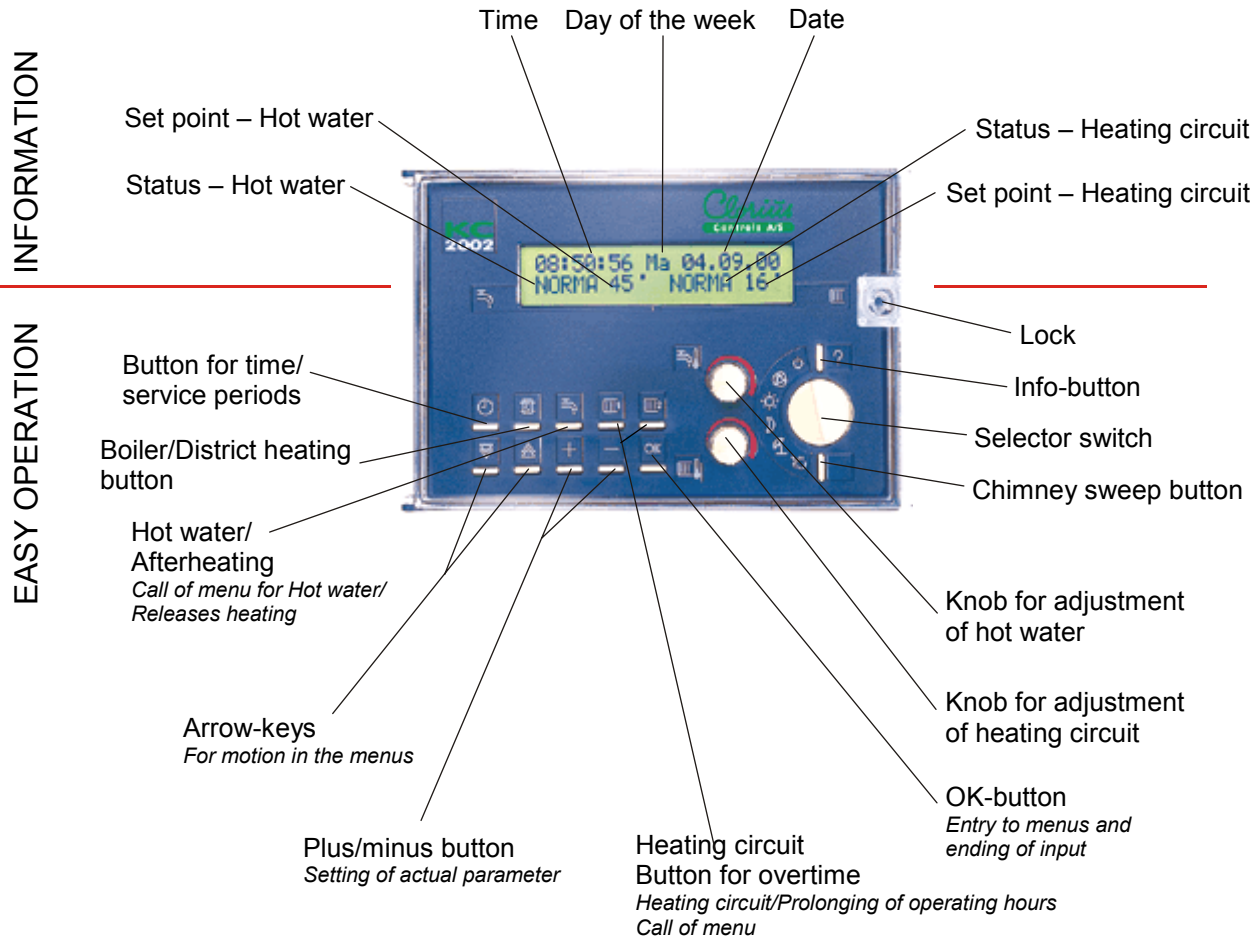
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Operation



Safety:



Warning!

Before removing the controller from the Terminal base
the Supply voltage must be switched off.

Installation and Start-up of Controller KC 2002

Mounting:

- Choose the wanted System Diagram
- Assemble wires to sensors, motors a.o. according to the terminal connections.
Please note: Sensor inputs printed in **bold**-faced types **must** be used.

Start-up:

- Insertion of battery – See section 3.2, page 28.
- Key-in the chosen system diagram using the key-arrows. Confirm with OK. Wait app. 2 min, until diagram has been installed. When finished – Confirm with OK.
- Make a **Cold start** of the Controller, to secure that there is no failure in the data.
- Remove the front cover. Right to the button ? is a small button on the print board. Press the button and the two key-arrows simultaneously – Release the button on the print board again and then the key-arrows.
The text **Cold start - delete all parameters** appears in the display. Press OK. **Cold start – Access code** appears in the display – Press the code (factory setting 4444) using the +/- keys – Finish with OK every time. Wait app. 2 min until the Cold start has finished – Press OK.
If you want to change the System diagram, you also have to make a Cold start.
- To change the System diagram use following instructions:
Press the code (4444) – Finish with OK every time.
Press the "Arrow down" key and the "-" key simultaneously for short-cut to change the System diagram.
Press OK.
Change the System diagram using the +/- keys. Press OK.
After changing the System diagram, make a Cold start.
- **Setting of the clock**
Press OK – Press the code (4444) – Finish with OK every time.
Press the time-button for at least 3 sec. until **Global System Clock** appears.
Press key-arrow to **Time** and press OK.
Change hours and minutes using the +/- keys. Press OK every time.
To get back to **Global System Clock** press key-arrow up once
Press the time-button twice to get back to normal display.

The factory settings for times, heat curves a.o will now be used...

Operation times for heating circuits

Every heating circuit has a clock, where the wanted operation periods can be set in

Choose between 4 groups:

Group 0: Monday/Tuesday/Wednesday/Thursday/Friday/Saturday/Sunday
7 separated days

Group 1: Monday/Tuesday/Wednesday/Thursday/Friday/Saturday/Sunday
4 identical days / 3 separated days

Group 2: Monday/Tuesday/Wednesday/Thursday/Friday/Saturday/Sunday
5 identical days / 2 separated days

Group 3: Monday/Tuesday/Wednesday/Thursday/Friday/Saturday/Sunday
7 identical days

Maximum 4 operation times per unit, in addition to the set-back period (night set-back)
(In the heating circuit the wanted temperature has to be set for the chosen operation times in OT 1 – OT 2 – OT 3 – OT 4).

Example – Group 2 – with 1 operation time:

Press OK – Press the code (4444) – Finish with OK every time.

Press the time-button – Press the key-arrow to the wanted heating circuit – Press OK

Set point will be shown in the display – Press OK

Week-program will be shown in the display – Press OK

Group will be shown in the display – Change to the wanted group, e.g. 2, using the +/- keys.

Finish with OK.

Press key-arrow down to **Mo Beg OT 1** – Change to the wanted numbers of operation times e.g. 1

Finish with OK.

Press key-arrow down and correct start and end operation times using the +/- keys.

For every correction, finish with OK.

Monday – Tuesday – Wednesday – Thursday – Friday					
Start	Set-back	05:30	OT 1	Set-back	
End					22:30
Saturday					
Start	Set-back	06:00	OT 1	Set-back	
End					23:00
Sunday					
Start	Set-back	06:00	OT 1	Set-back	
End					22:30

Press the time-button twice to get back to normal display.

The factory setting is: Group 2 – All days start 06:00 – End 22:00

Change of temperatures

Change of set point for hot water and heating circuits is done by using the knobs on the front panel.

If the controller works with more than one operation time (maximum 4 operation times in one day, in addition to the night set-back) or if the set points generally wants to be changed, use following instruction:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit – **S/I/O** will be shown in the display.

Press key-arrow down to **Set point** – Press OK.

Press key-arrow down to **Room OT 1, Room OT 2, Room OT 3** or **Room OT 4**.

Correct to the wanted temperatures using +/- keys, e.g. OT 1 21.5°C, OT 2 21.5°C, OT 3 21°C, OT 4 20°C (hot water temperature e.g. 55°C).

Finish with OK.

Press the button for the selected heating circuit twice to get back to normal display.

Change of min - max Flow temperatures for heat exchanger and hot water circuit

Factory settings: Min. temp. 2°C – Max. temp. 85°C

For change of values, use following instructions:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the heat exchanger or hot water circuit (depending of chosen system diagram/terminal connection)

S/I/O will be shown in the display. Press key-arrow down to **Functions** – Press OK.

Regulate will be shown in the display. – Press OK.

Set point Limitation will be shown in the display. – Press OK.

minSP (hot water **maxSP**) will be shown in the display.

The min. temp can now be changed to the wanted value using the +/- keys – After changed, press OK

Press key-arrow down to **maxSP**.

The max. temp. can now be changed to the wanted value using the +/- keys – After changed, press OK

Press the button for the selected heating circuit twice to get back to normal display.

Change of return flow sensor to new value

If the controller has a return flow sensor connected (see system diagram – terminal connection Terminal 22) the value **must always** be changed in the heat exchanger circuit.

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for heat exchanger circuit. – Press OK.

S/I/O will be shown in the display. Press key-arrow down to **Functions** – Press OK.

Regulate will be shown in the display. – Press OK.

Set point Limitation will be shown in the display. – Press OK

Press key-arrow down to **Return Limitation** – Press OK.

Active 1 will be shown in the display. - Press key-arrow down to **Limit 1** – Press OK.

The temperature can now be changed to the wanted value using the +/- keys – After changed, press OK

Press the button for heat exchanger circuit twice to get back to normal display.

Change of heat curves for heating circuit

Factory setting for the heat curve is 1.3, which is normal for a building with good insulation.

The heat curve can be changed into a free definable curve.

Use following instruction to change the factory setting to a free definable curve..

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit – **S/I/O** will be shown in the display.

Press key-arrow down to **Service** – Press OK.

System data will be shown in the display. – Press OK.

RC-Type will be shown in the display.

Press key-arrow down to **Heat System Type** – Press OK.

Change the setting to "0" using the +/- keys – After changed, press OK

To change the slope of the heat curve (e.g. to 1.6), use following instruction:

Press key-arrow up to **Functions** – Press OK.

Regulate will be shown in the display. – Press OK.

Heat curve will be shown in the display. – Press OK.

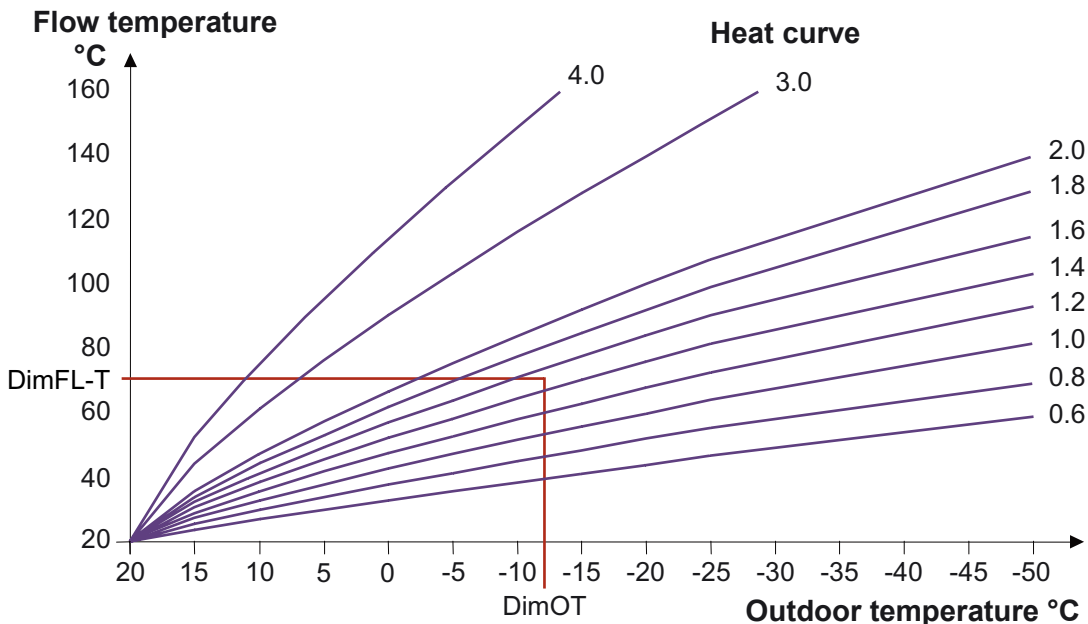
TypHCu will be shown in the display. – Press OK.

Change the setting to "2"(slope) using the +/- keys – After changed, press OK

Press key-arrow down to **HCu-slope** – Press OK.

Change the heat curve to e.g. 1.6 using the +/- keys – After changed, press OK

Press the button for the selected heating circuit twice to get back to normal display.



To change to manual setting (point by point) of the heat curve slope, use following instruction:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit – **S/I/O** will be shown in the display.

Press key-arrow down to **Service** – Press OK.

System data will be shown in the display. – Press OK.

RC-Type will be shown in the display.

Press key-arrow down to **Heat System Type** – Press OK.

Change the setting to "0" using the +/- keys – After changed, press OK

Press key-arrow up to **Functions** – Press OK.

Regulate will be shown in the display. – Press OK.

Heat curve will be shown in the display. – Press OK.

TypHCu will be shown in the display. – Press OK.

Change the setting to "4"(manual setting) using the +/- keys – After changed, press OK

Press key-arrow down to **He+25**(outdoor temperature) – Press OK.

Change to the wanted flow temperature e.g. 25°C using the +/- keys – After changed, press OK

Continue with key-arrow down to change for temperatures **+15°C, +5°C, -5°C, -15°C, -25°C, -35°C, -45°C** using the +/- keys – For every change, press OK.

Press the button for the selected heating circuit twice to get back to normal display.

Change of night set-back for heating circuit

Factory setting for the night set-back is 15°C (corresponding to a reduction in flow temperature of 15°C) which is normal for a building with good insulation.

For change of values for night set-back, use following instructions:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit – **S/I/O** will be shown in the display.

Press key-arrow down to **Set point** – Press OK.

Press key-arrow down to **Room No** – Press OK.

Change to the wanted set-back temperature e.g. 19°C using the +/- keys – After changed, press OK

Press the button for the selected heating circuit twice to get back to normal display.

Change of min - max Flow temperatures for heating circuit

Factory settings: Min. temp. 2°C – Max. temp. 80°C

For change of values, use following instructions:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit (depending of chosen system diagram/terminal connection)

S/I/O will be shown in the display. Press key-arrow down to **Functions** – Press OK.

Regulate will be shown in the display. – Press OK.

Heat curve will be shown in the display. – Press OK

Press key-arrow down to **Flow Limitation** – Press OK

Active 1 will be shown in the display (if "**active 0**" change to "**active 1**" using the +/- keys)

Press key-arrow down to **Min FL**.

The min. flow temperature can now be changed to the wanted value using the +/- keys – After changed, press OK

Press key-arrow down to **MaxFL**.

The max. flow temperature can now be changed to the wanted value using the +/- keys – After changed, press OK

Press the button for the selected heating circuit twice to get back to normal display.

Change of temperatures for summer operation mode

In summer operation mode it is possible to adjust after which temperatures the system is opening and closing. Temperatures must be chosen both for day-operation and for night-operation. If the circulation pump is connected to the controller, it will close simultaneously with the system.

Factory settings for summer operation are:

Close at outdoor temperature: Day 22°C
Night 18°C

Open at outdoor temperature: Day 15°C
Night 11°C

For change of values, use following instructions:

Press OK – Press the code (4444) – Finish with OK every time.

Press the button for the wanted heating circuit.

S/I/O will be shown in the display. Press key-arrow down to **Functions** – Press OK.

Regulate will be shown in the display.

Press key-arrow down to **Calculate/Optimize** – Press OK.

SwitchOn-opt will be shown in the display.

Press key-arrow down to **PropMana (summer operation)** – Press OK.

Active 1 will be shown in the display (if "**active 0**" change to "**active 1**" using the +/- keys).

Press key-arrow down to **OutTempOT**.

The temperature can now be changed to the wanted value for "close – day" using the +/- keys.

After changed, press OK.

Press key-arrow down to **OutTempNO**.

The temperature can now be changed to the wanted value for "close – night" using the +/- keys.

After changed, press OK.

Press key-arrow down to **SwOnTempOT**.

The temperature can now be changed to the wanted value for "open – day" using the +/- keys.

After changed, press OK.

Press key-arrow down to **SwOnTempNO**.

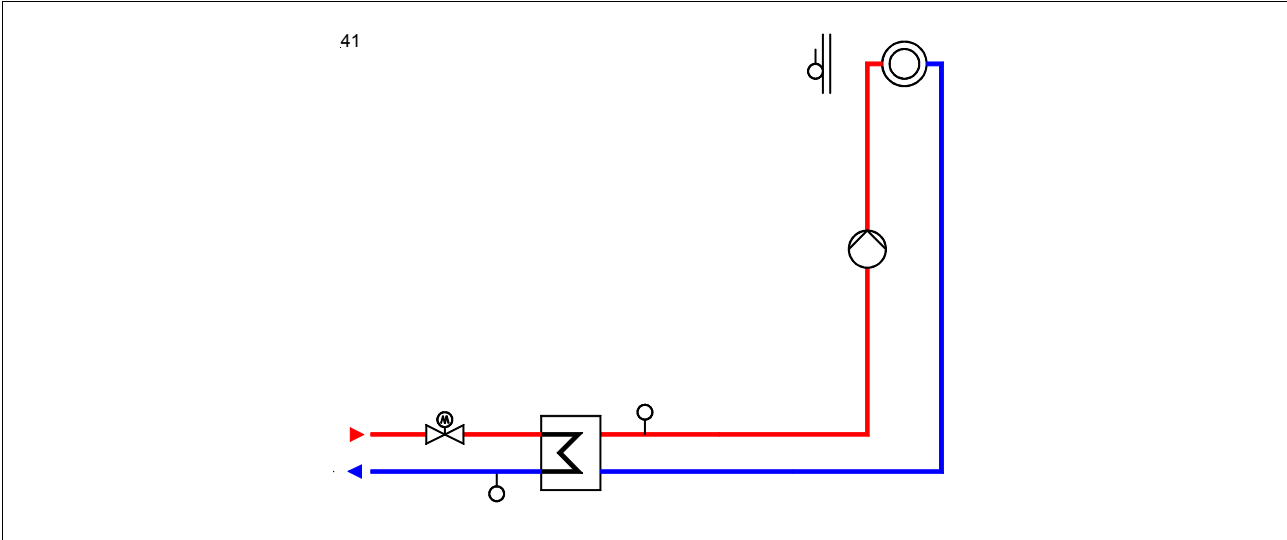
The temperature can now be changed to the wanted value for "open – night" using the +/- keys.

After changed, press OK.

Press the button for the selected heating circuit twice to get back to normal display.

System diagrams

Layout 41: 1 heat exchanger circuit, 1 heating circuit without mixing loop



Terminal connection KC2002 96.1F-110-41

Outdoor temperature	17	M-sensor	16	N
Sec. flow temperature	18	M-sensor	15	L 230 VAC
<i>not active</i>	19	M-sensor	14	Pump heating circuit
<i>not active</i>	20	M-sensor	13	<i>not active</i>
<i>not active</i>	21	M-sensor	12	<i>not active</i>
Prim-Return temperature	22	M-sensor	11	
<i>not active</i>	23	M-sensor	10	
Pump rotation lowering HC	24	OC-output	9	
Frame	25		8	
CAN-Bus *)	26	CAN-H	7	
CAN-Bus *)	27	CAN-L	6	Valve heat exchanger - closed
Counter / M-Bus **)	28	M-Bus O / C	5	
SSK ***)	29	A/TxD	4	
SSK ***)	30	B/RxD	3	Valve heat exchanger - open
Power supply Bus	31	- SVB	2	
Power supply Bus	32	+ SVB	1	<i>not active</i>

Inputs printed in **bold-faced type must** be used.

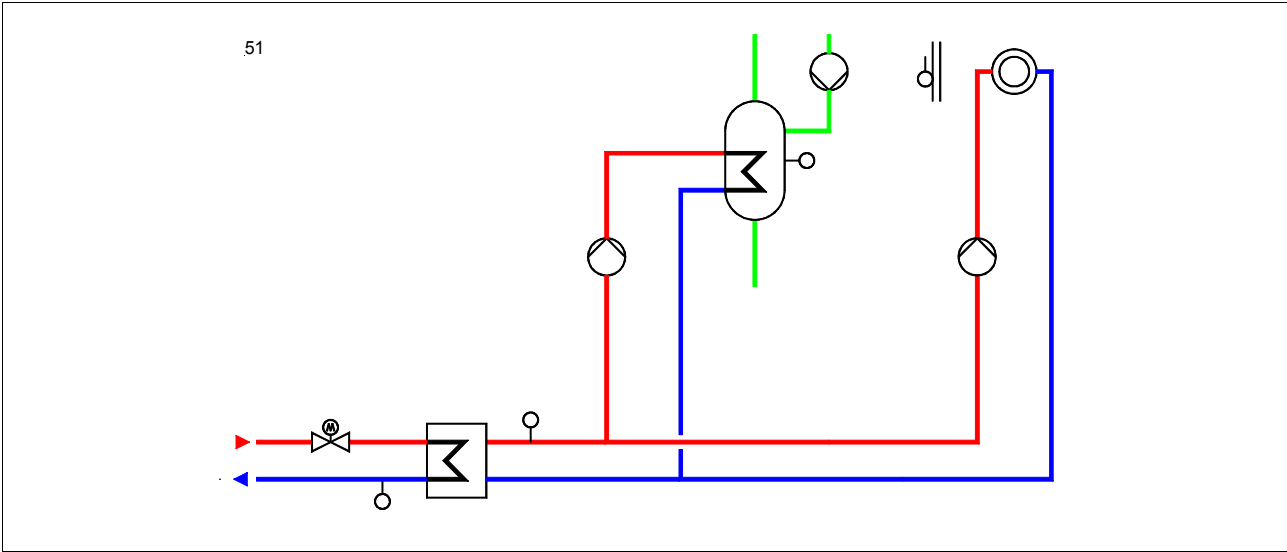
In- and outputs printed in *italics can* be used after they has been given a function and been activated.

*) only for controllers with CAN-interface

**) only for controllers with M-Bus-interface

***) only for controllers with interface for PC, Modem, Bus

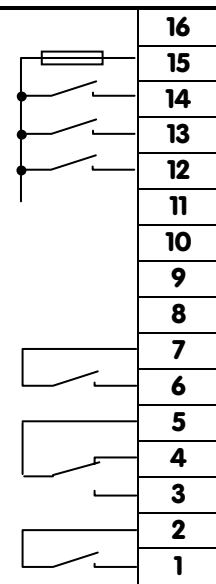
Layout 51: 1 heat exchanger circuit, 1 hot water circuit, 1 heating circuit without mixing loop



Terminal connection KC2002 96.1F-110-51

Outdoor temperature
Sec. flow temperature
<i>not active</i>
Hot water temperature
<i>not active</i>
Prim-Return temperature
<i>not active</i>
Pump rotation lowering HC
Frame
CAN-Bus *)
CAN-Bus *)
Counter / M-Bus **)
SSK ***)
SSK ***)
Power supply Bus
Power supply Bus

17	M-sensor
18	M-sensor
19	M-sensor
20	M-sensor
21	M-sensor
22	M-sensor
23	M-sensor
24	OC-output
25	
26	CAN-H
27	CAN-L
28	M-Bus O / C
29	A/TxD
30	B/RxD
31	- SVB
32	+ SVB

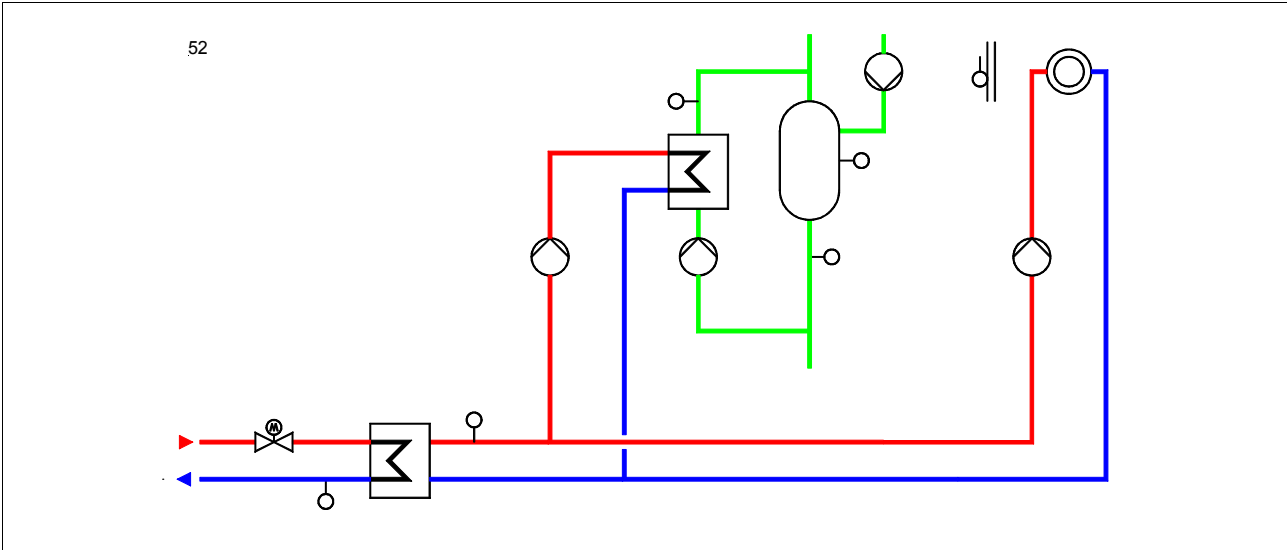


N
L
230 VAC
Pump heating circuit
<i>not active</i>
Hot water pump
Valve heat exchanger - closed
Valve heat exchanger - open
Circulation pump

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 ***) only for controllers with interface for PC, Modem, Bus

Layout 52: 1 heat exchanger circuit, 1 hot water circuit, 1 heating circuit without mixing loop



Terminal connection KC2002 96.1F-110-52

Outdoor temperature	17	M-sensor		16	N
Sec. flow temperature	18	M-sensor		15	L
<i>not active</i>	19	M-sensor		14	Pump heating circuit
Hot water temperature	20	M-sensor		13	Pump hot water tank
Hot water temperature 2	21	M-sensor		12	Pump heat exchanger
Prim-Return temperature	22	M-sensor		11	
Flow temperature – hot water	23	M-sensor		10	
Pump rotation lowering HC	24	OC-output		9	
Frame	25			8	
CAN-Bus *)	26	CAN-H		7	
CAN-Bus *)	27	CAN-L	6	Valve heat exchanger - closed	
Counter / M-Bus **)	28	M-Bus O / C	5		
SSK ***)	29	A/TxD	4		
SSK ***)	30	B/RxD	3	Valve heat exchanger - open	
Power supply Bus	31	- SVB	2		
Power supply Bus	32	+ SVB	1	Circulation pump – hot water	

Inputs printed in **bold-faced type must** be used.

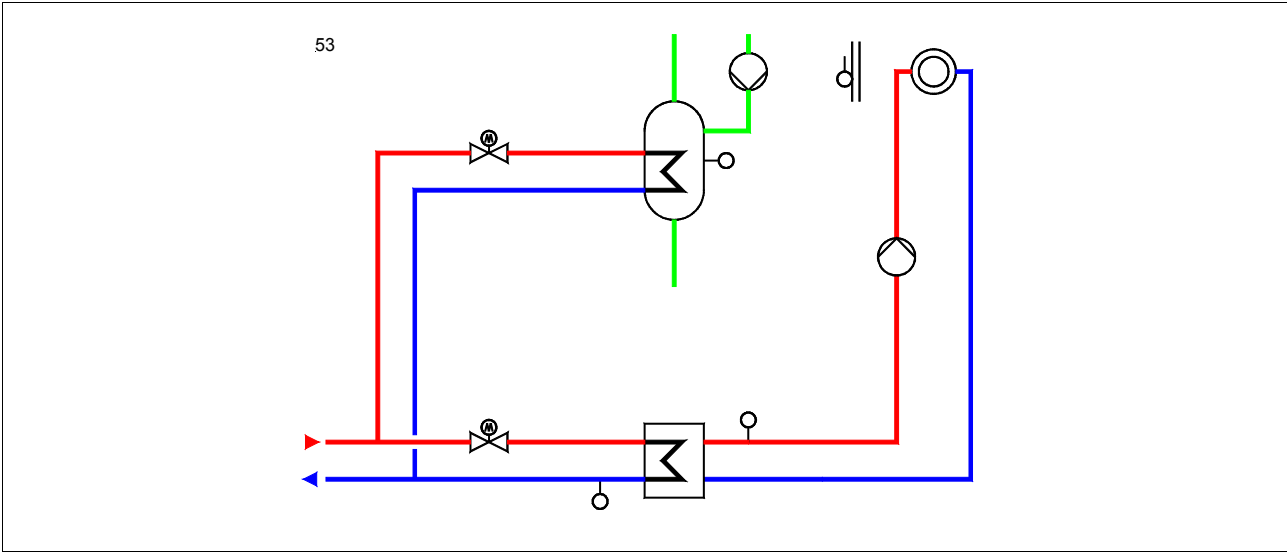
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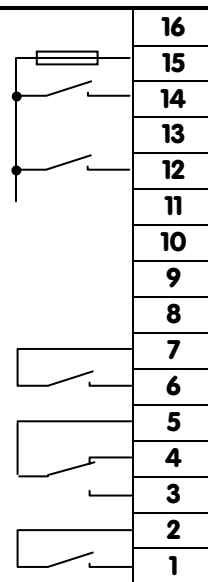
Layout 53: 1 heat exchanger circuit, 1 hot water circuit, 1 heating circuit without mixing loop



Terminal connection KC2002 96.1F-110-53

Outdoor temperature
Sec. flow temperature
<i>Not active</i>
Hot water temperature
<i>Not active</i>
Prim-return temperature
<i>Not active</i>
Pump rotation lowering HC
Frame
CAN-Bus *)
CAN-Bus *)
Counter / M-Bus **)
SSK ***)
SSK ***)
Power supply Bus
Power supply Bus

17	M-sensor
18	M-sensor
19	M-sensor
20	M-sensor
21	M-sensor
22	M-sensor
23	M-sensor
24	OC-output
25	
26	CAN-H
27	CAN-L
28	M-Bus O / C
29	A/TxD
30	B/RxD
31	- SVB
32	+ SVB

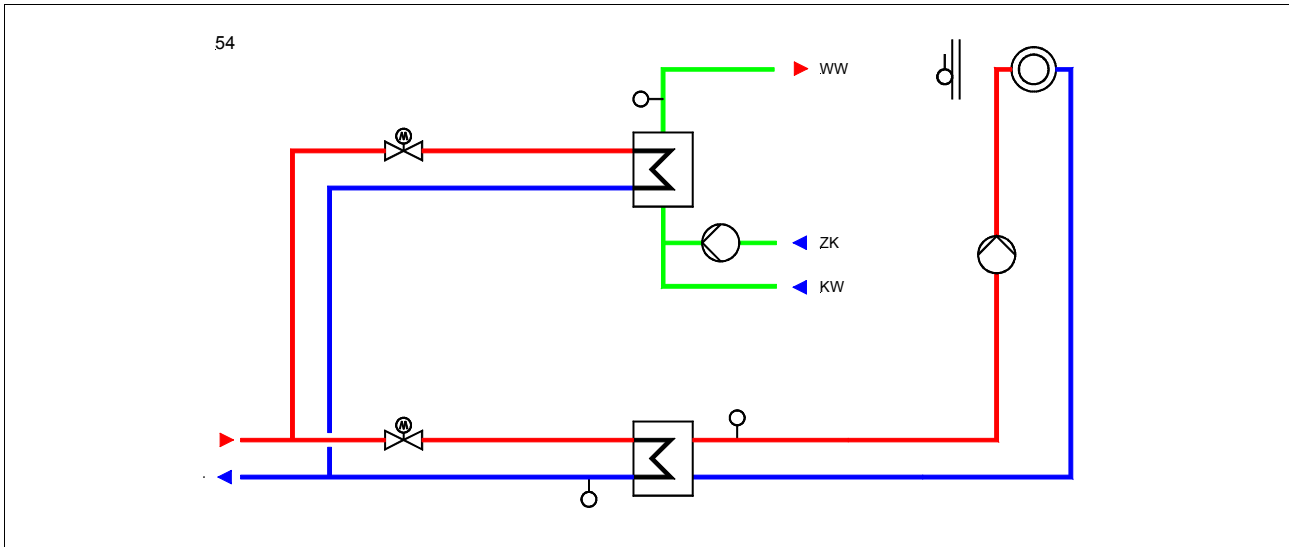


N	230 VAC
L	
	Pump heating circuit
	Valve hot water - open
	Valve hot water - closed
	Valve heat exchanger - closed
	Valve heat exchanger - open
	Circulation pump – hot water

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Layout 54: 1 heat exchanger circuit, 1 hot water circuit, 1 heating circuit without mixing loop



Terminal connection KC2002 96.1F-110-54

Outdoor temperature	17	M-sensor		16	N
Sec. flow temperature	18	M-sensor		15	L 230 VAC
<i>not active</i>	19	M-sensor		14	Pump heating circuit
<i>not active</i>	20	M-sensor		13	Valve hot water - open
<i>not active</i>	21	M-sensor		12	Valve hot water - closed
Prim-Return temperature	22	M-sensor		11	
Flow temperature – hot water	23	M-sensor		10	
Pump rotation lowering HC	24	OC-output		9	
Frame	25	••		8	
CAN-Bus *)	26	CAN-H		7	
CAN-Bus *)	27	CAN-L		6	Valve heat exchanger - closed
Counter / M-Bus **)	28	M-Bus O / C		5	
SSK ***)	29	A/TxD		4	
SSK ***)	30	B/RxD		3	Valve heat exchanger - open
Power supply Bus	31	- SVB		2	
Power supply Bus	32	+ SVB		1	Circulation pump – hot water

Inputs printed in **bold-faced type must** be used.

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