Centrometal
HEATING TECHNIQUE

Centrometal d.o.o. - Glavna 12, 40306 Macinec, CROATIA, tel: +385 40 372 600, fax: +385 40 372 611
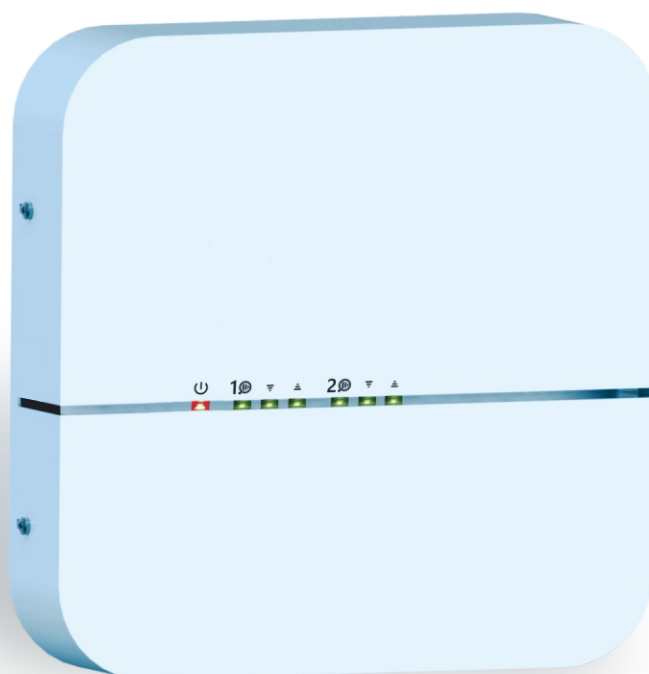
CE

Technical instructions

for installation and using the additional equipment

CM2K module for
mixing circuits / DHW / Recirculation

for connection to: PelTec, Cm Pelet-set Touch, BioTec-L
BioTec Plus. EKO-CKS P Unit, EKO-CKS Multi Plus

WiFi READY

CM2K

Content

Thank you for purchasing our product

Please read these technical instructions carefully so that you can use and adjust the CM2K module as easily as possible. After reading the instructions, place them in an appropriate place where you can easily find them if you need further information about the operation and use of the CM2K module.

Please make sure that the CM2K module has been disposed of in order to reduce environmental pollution.

CONTENT

TECHNICAL CHARACTERISTICS

Inputs	4x sensor inputs (NTC5K, 2x main flow/DHW, 1x outdoor, 1x reserve)
	2x room corrector inputs CSK
	2x digital inputs (not used)

Outputs	4x semi-conductor (triac, 2x pump, 2x mixing valve actuator)
	1x power supply 12VDC (not used)

Output power	Triacs (4x) max. 200W

Power supply	195-265V/50Hz
Max. power	
Electricity consumption	
Conductor cross section	1-1,5 mm2
IP protection	IP20 according EN
Envirometn temperature	-10 do 40°C
CM2K mass	715 g
Housing material	Flame resistant ABS (UL94V-0)
CM2K dimensions	(WxHxD) 200x40x200

Sensor technical characteristics	
Sensor type	NTC5K
Min. conductor cross section	0,5-0,75 mm2
Max. conductor length	50 m

EC Declaration
The product complies with the requirements of the current rules and is marked CE.
The EC Declaration of Conformity is available on request, contact the manufacturer.

C E

BASIC PARTS

INPUTS:
- 4x sensor input (NTC5K sensor - 2x main flow/DHW, 1x outdoor sensor, 1x reserve)
- 2x room corrector CSK input (possibility of connection with 3 or 2 wires - connection depends of boiler type and boiler firmware)
- 2x digital input (not used)

OUTPUTS:
- 2x standard (230V) - pump
- 2x standard (230V) - actuator
- 1x 12VDC - not used

- 2x UTP connector for connecting to the boiler and connection more CM2K modules or other additional equipment (WiFi box...)

DELIVERY in cardboard box:
1x CM2K module
2x NTC5K (main flow sensor / DHW sensor)
1x UTP cable 5m
3x dowel+screw
10x cable ties
1x technical instructions

DELIVERY CONTENT

CM2K 1X	UTP cable L=5m 1X	Main flow sensor / DHW sensor 2X	Installation set 1x (3 dowels, 3 screws, 10 cable ties)
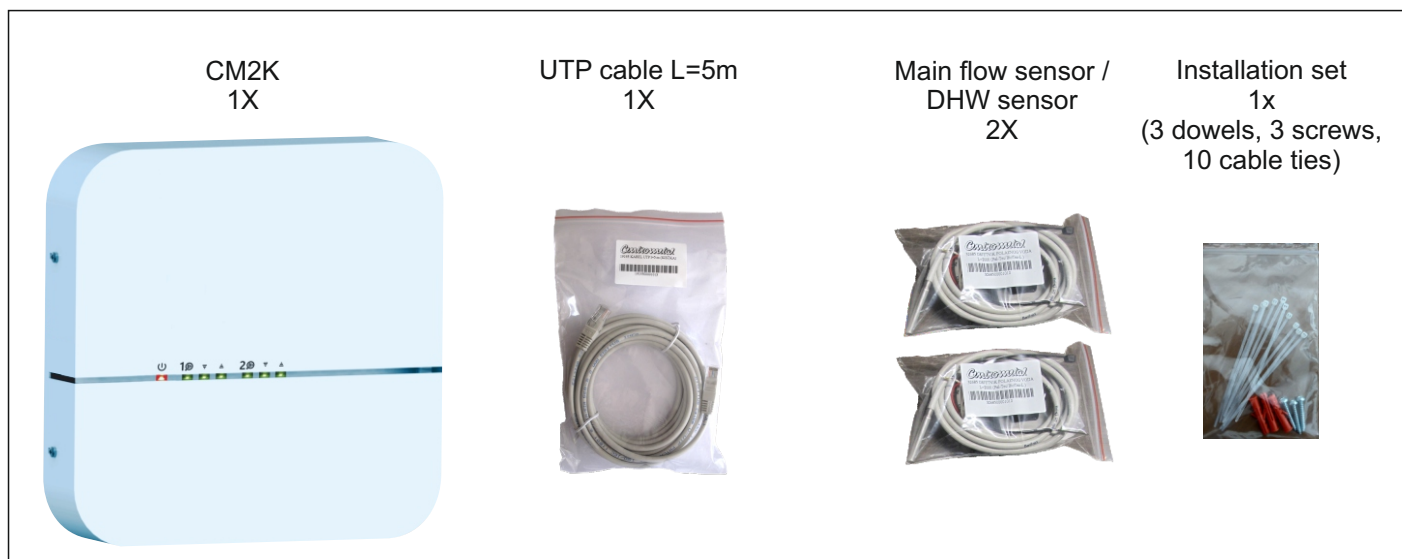
ADDITIONAL EQUIPMENT FOR CM2K

Room corrector **CSK**

Outdoor sensor **OVT**

Note:
Room corrector CSK is **NOT** in delivery package.
With CM2K module is posible to use only **CSK room corrector** from producer Centrometal.
Maximum of two room correctors can be connected, one for each circuit.

**Outdoor sensor OVT** is **NOT** in delivery package.
At certain boilers outdoor sensor is in standard delivery and at some boilers it must be **separately ordered.**

INSTALLATION

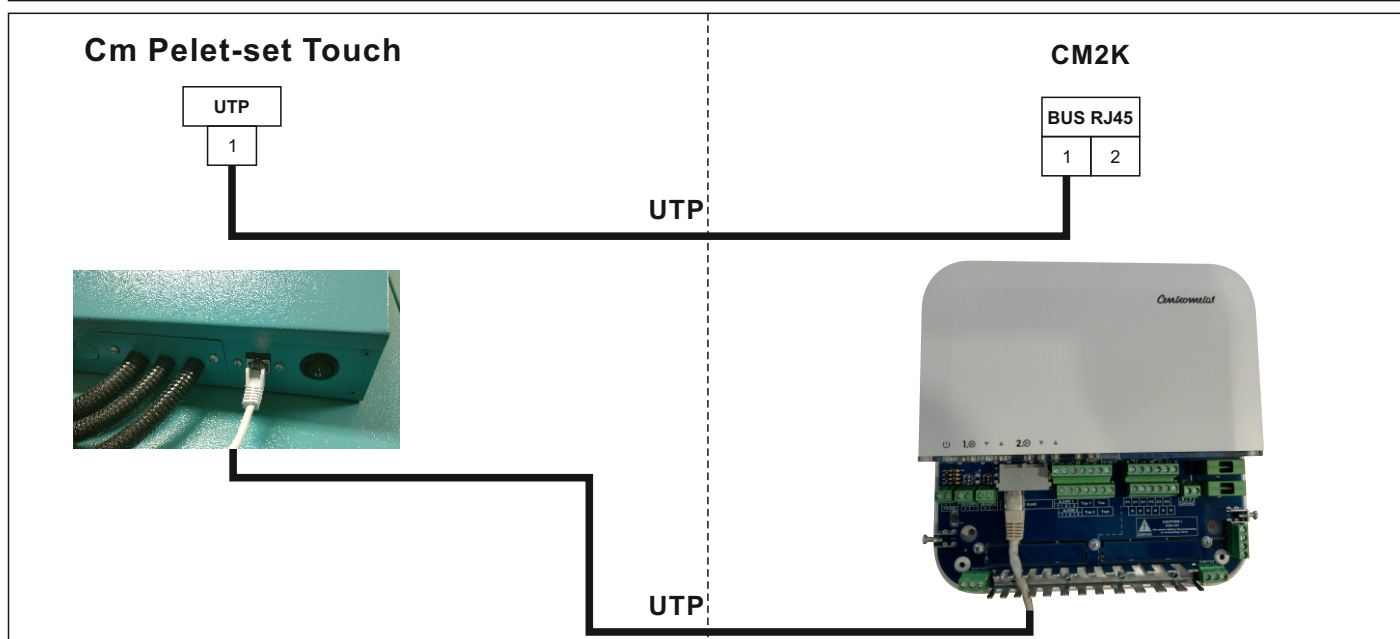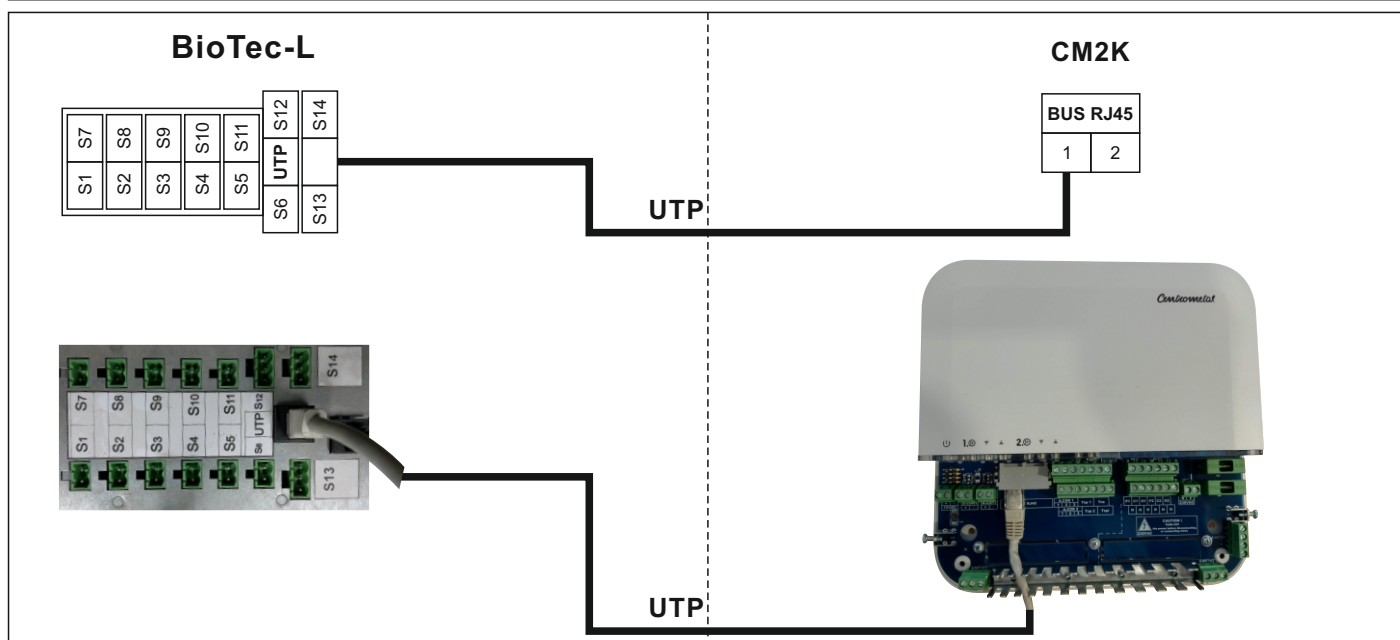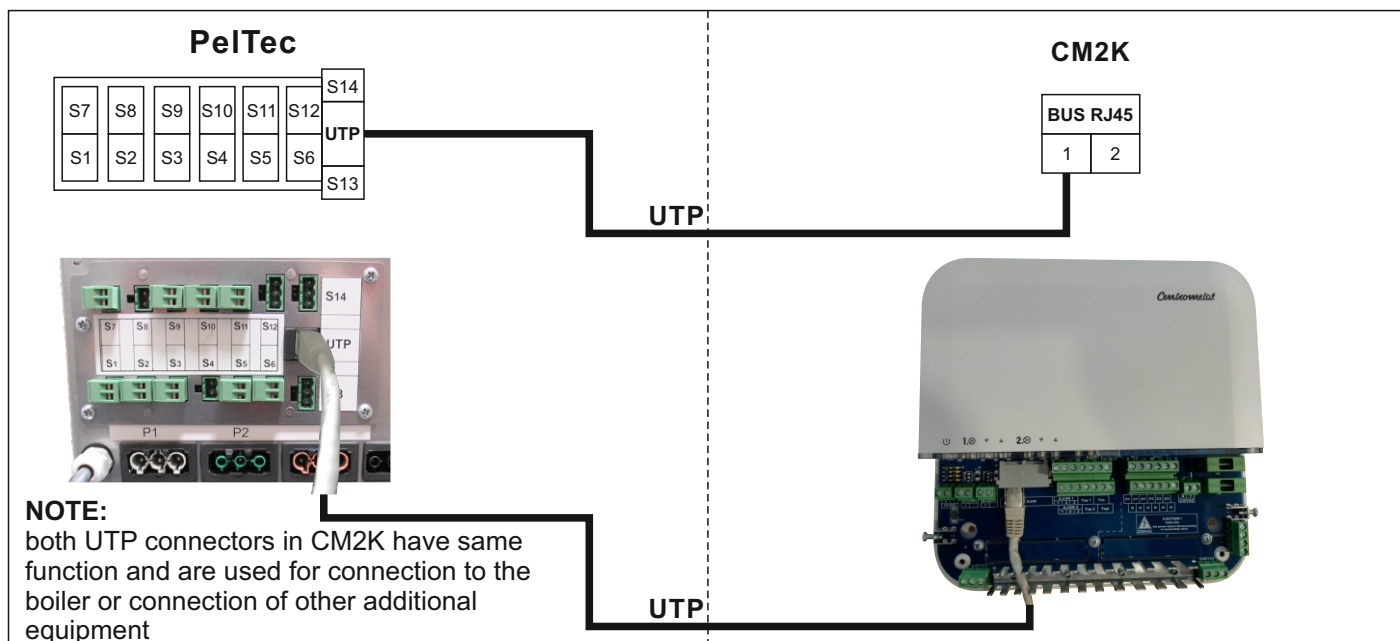CM2K module is installed on the wall or on hard surface in closed dry room.
According the picture below, drill 3 holes 6 mm x 35-45 mm.
Insert 3 dowels into drilled holes and install screw into upper dowel with ca. 4 mm discance from the wall.

~4 mm

hang

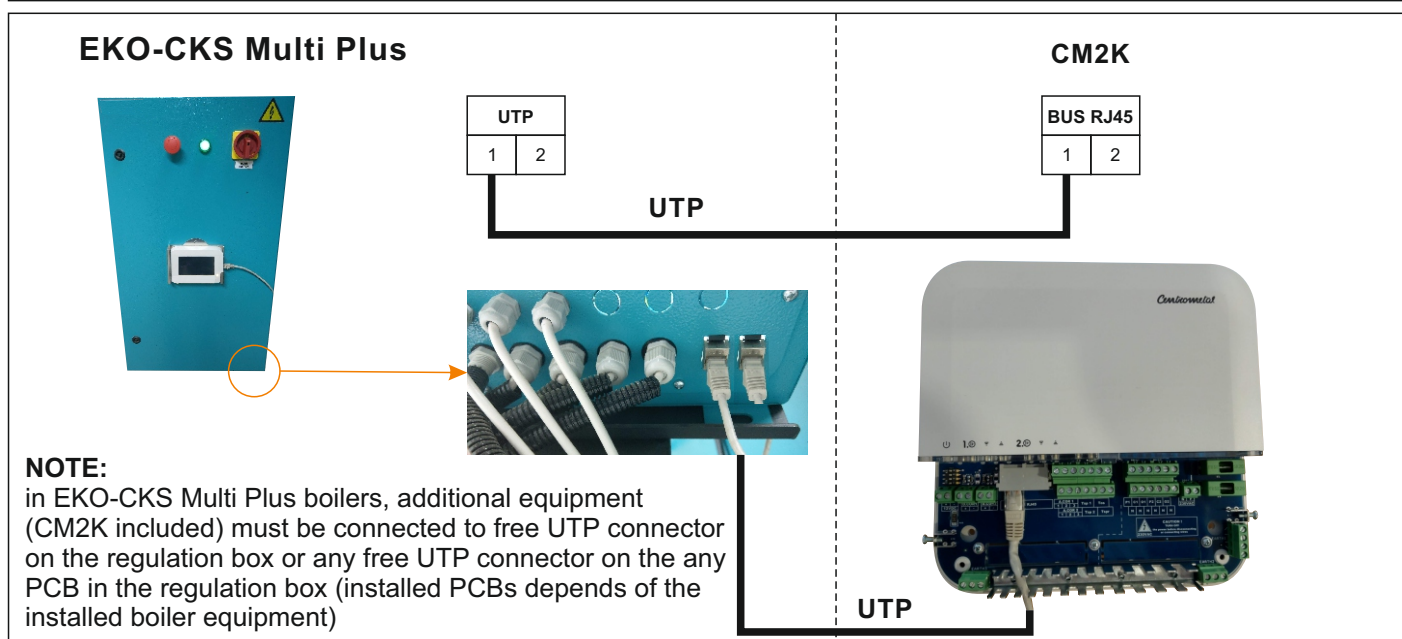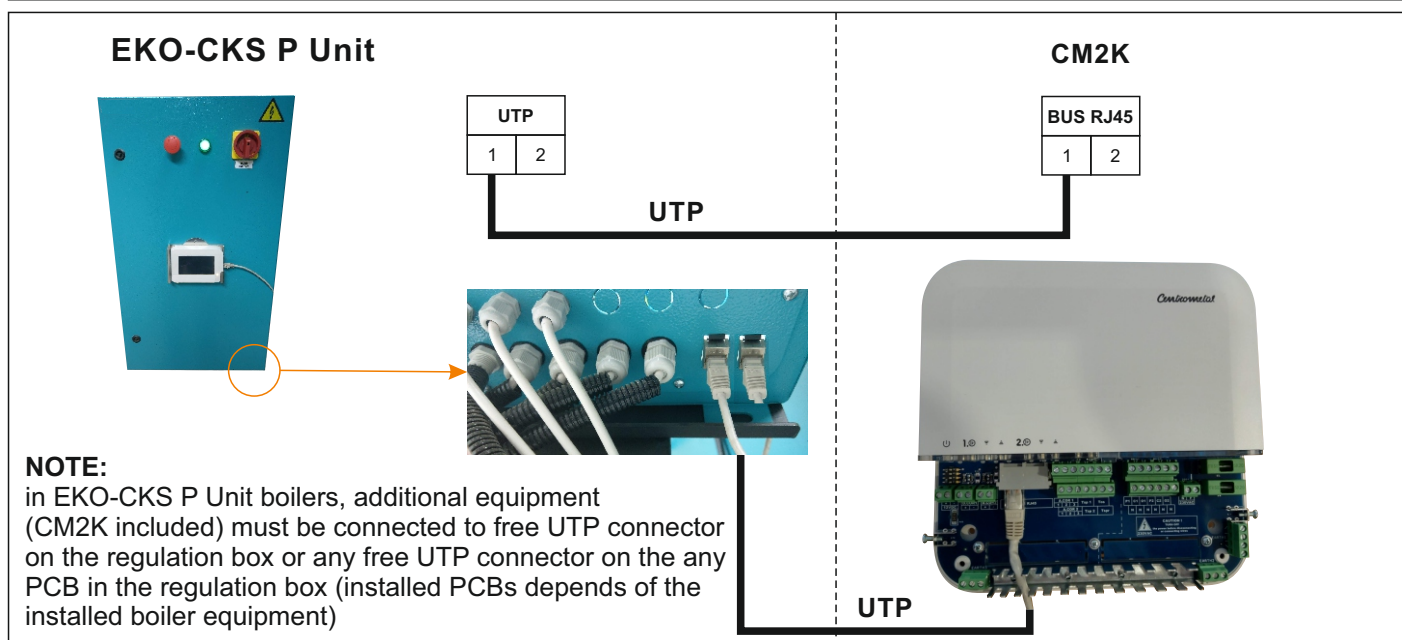152 mm

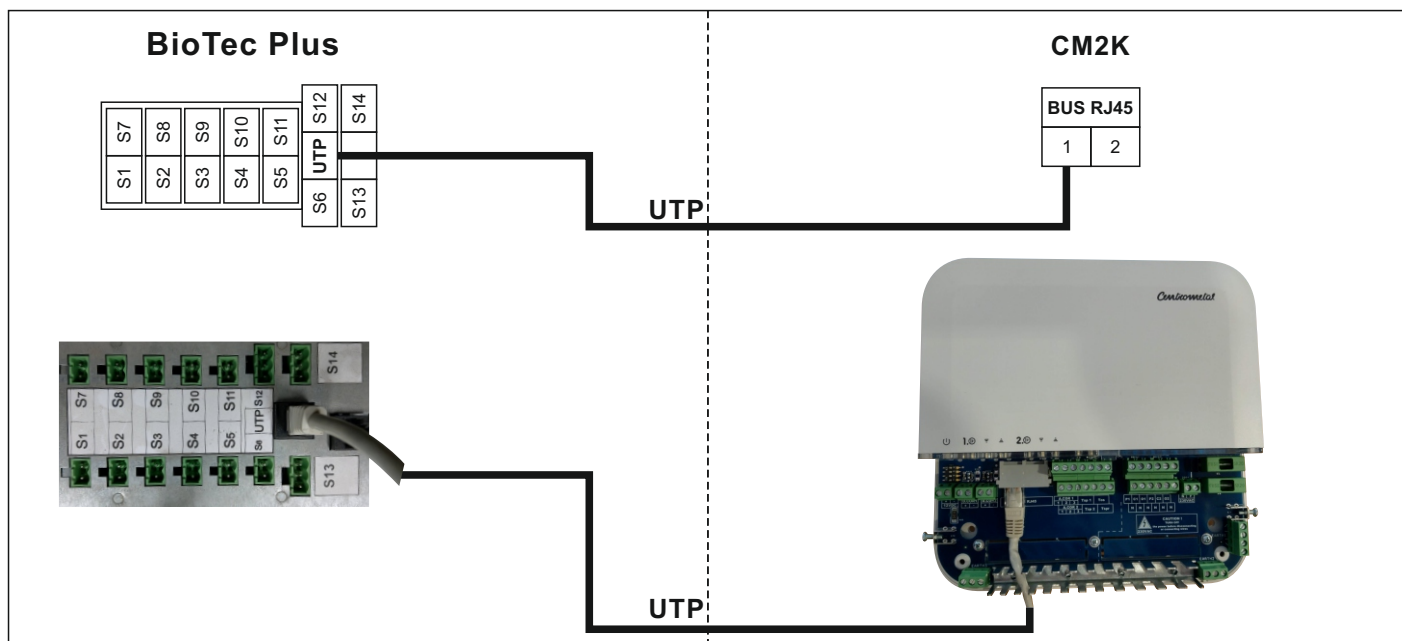170.6 mm

6 mm

155 mm
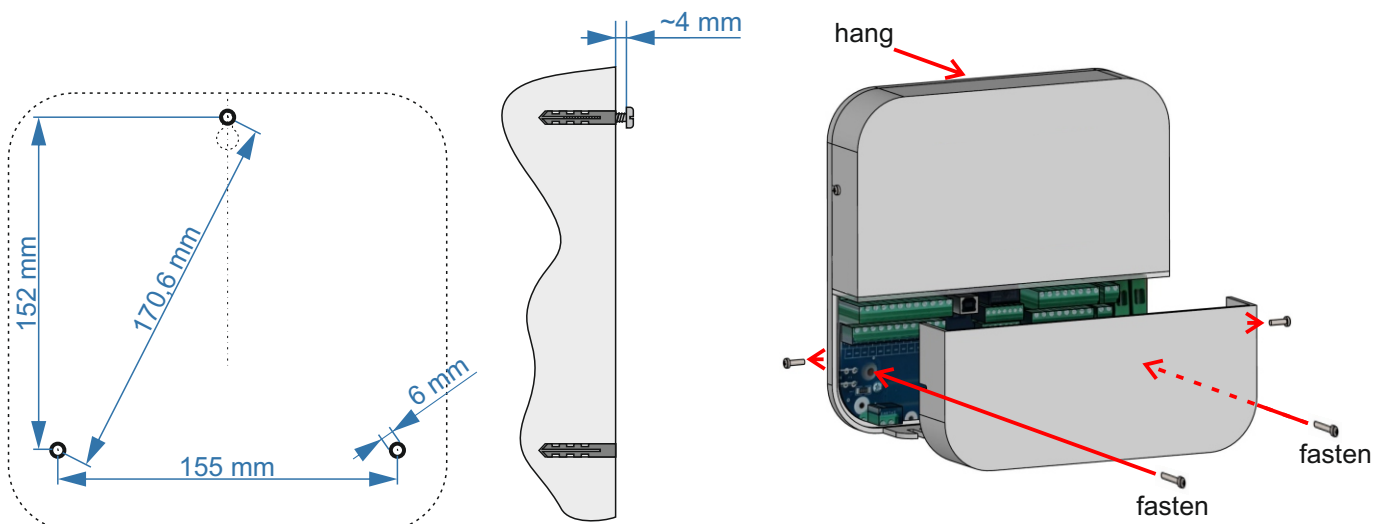
fasten

fasten

Remove lower cover, hang the module on the upper screw, install lower screws to the mounting holes in the module and in the wall. Fasten the screws to secure the module to the wall.
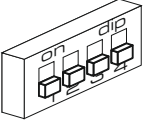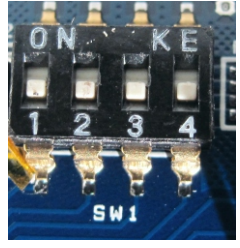
CONNECTION TO THE BOILER

PelTec

S7	S8	S9	S10	S11	S12	S14
						UTP
S1	S2	S3	S4	S5	S6	S13

CM2K

BUS RJ45

1	2

UTP

UTP

NOTE:
both UTP connectors in CM2K have same function and are used for connection to the boiler or connection of other additional equipment

UTP

BioTec-L

S7	S8	S9	S10	S11	S12	S14
					UTP	
S1	S2	S3	S4	S5	S6	S13

CM2K

BUS RJ45

1	2

UTP

UTP

Cm Pelet-set Touch

UTP

1

CM2K

BUS RJ45

1	2

UTP

UTP

CONNECTION TO THE BOILER

BioTec Plus

CM2K

EKO-CKS P Unit

CM2K

NOTE:
in EKO-CKS P Unit boilers, additional equipment (CM2K included) must be connected to free UTP connector on the regulation box or any free UTP connector on the any PCB in the regulation box (installed PCBs depends of the installed boiler equipment)

EKO-CKS Multi Plus

CM2K

NOTE:
in EKO-CKS Multi Plus boilers, additional equipment (CM2K included) must be connected to free UTP connector on the regulation box or any free UTP connector on the any PCB in the regulation box (installed PCBs depends of the installed boiler equipment)
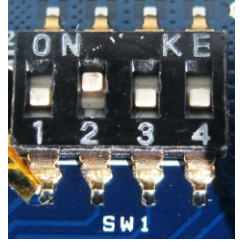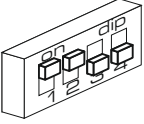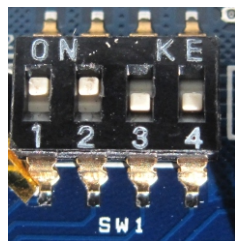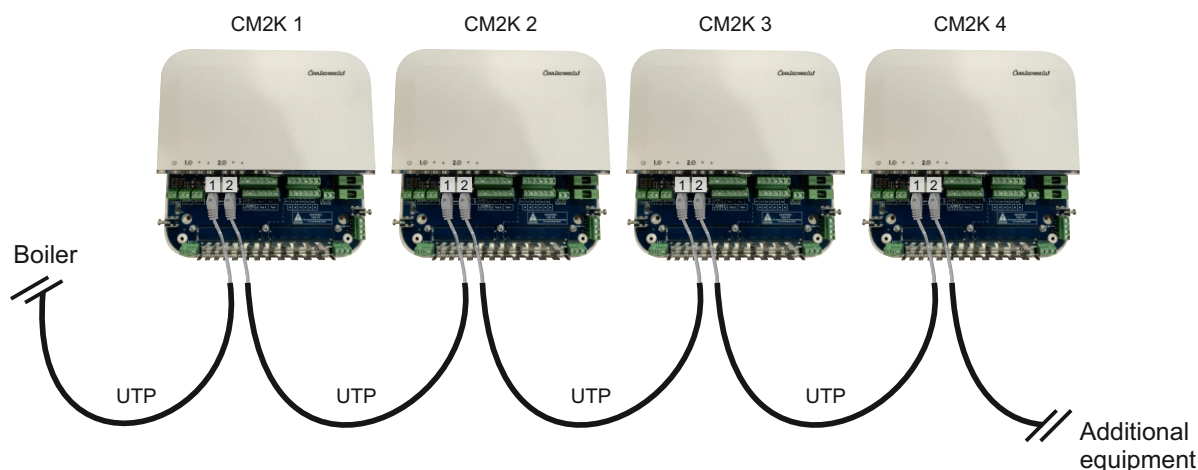
CONNECTING MORE CM2K MODULES

Maximum up to 4 modules can be connected. Connection is done by UTP cables. UTP input/output 1 or UTP input/output 2 can be used (they both have same function, free connector is used for connection of next module or for connection of other additional equipment).

If there are more than 1 CM2K installed, in every module is necessary to set device address (0-4). Address is set by SW switches on the PCB of the module (below casing cover of the connection clamps). Order of connection is not important, circuit number is defined by module address with SW switches (every module must have different address, i.e. two devices can't have same address).

Position of the SW switches

Device 1
1 - off
2 - off
3 - off
4 - off

Device 2
1 - on
2 - off
3 - off
4 - off

Device 3
1 - off
2 - on
3 - off
4 - off

Device 4
1 - on
2 - on
3 - off
4 - off

CM2K 1   CM2K 2   CM2K 3   CM2K 4

Boiler

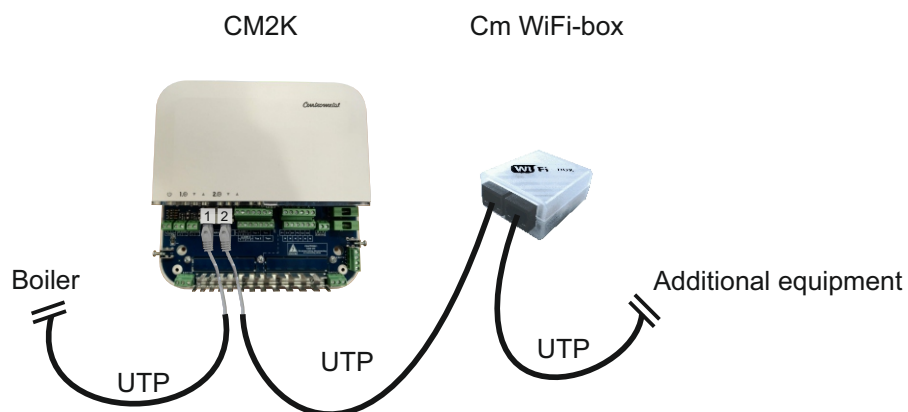UTP   UTP   UTP   UTP

Additional equipment

CONNECTION TO THE OTHER DEVICES (CM WIFI-BOX, CM-GSM, CMNET, CVT)

Connection is done with UTP cables. Every additional equipment device has 2 UTP connectors (except vacuum turbine CVT). Both UTP connector have same function. Devices can be connected in any order except vacuum turbine, which must be always last in order because it has only 1 UTP connector.
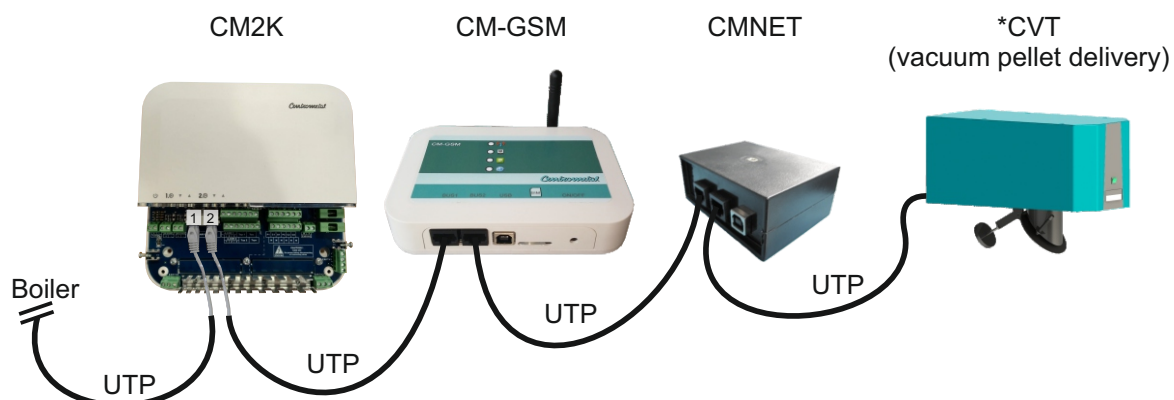
*If vacuum turbine CVT is connected, it must be connected last in order

INPUTS AND OUTPUTS CONNECTION

⑨ - F2 - fuse 1,6A - outputs 2. circuit (pump, actuator)
⑩ - F1 - fuse 1,6A - outputs 1. circuit (pump, actuator)

---

① Digital input *NOT USED

+	-	D.COR1		D.COR2	
12VDC		+	-	+	-

---

② UTP inputs/outputs

UTP1	UTP2
BUS RJ45	

Inputs/outputs for UTP cables
- one input/output is for connection to the boiler
- free input/output is used for connecting more CM2K modules or other addititonal equipment

---

③ Circuit 1 inputs

A.COR 1			Tsp 1	Tos
1	2	3		

Circuit 1 inputs
- A.COR 1- room corrector
- Tsp 1 - main flow sensor
- Tos - outdoor sensor

---

④ Circuit 2 inputs

A.COR 2			Tsp 2	Tspr
1	2	3		

Circuit 2 inputs
- A.COR 2- room corrector
- Tsp 2 - main flow sensor
- Tspr - reserve (not used)

---

⑤ Outputs

P1	C1	O1	P2	C2	O2
N	N	N	N	N	N

Outputs phase live wire (**L**)**

Outputs common null (**N**)

** P1 - circuit 1 pump
C1 - circuit 1 actuator - close
O1 - circuit 1 actuator - open
P2 - circuit 2 pump
C2 - circuit 2 actuator - close
O2 - circuit 2 actuator - open

---

⑥ Power supply

N	F
230VAC	

CM2K power supply
power supply 230V must be connected to control connected pumps and actuators

---

⑦ Earthning

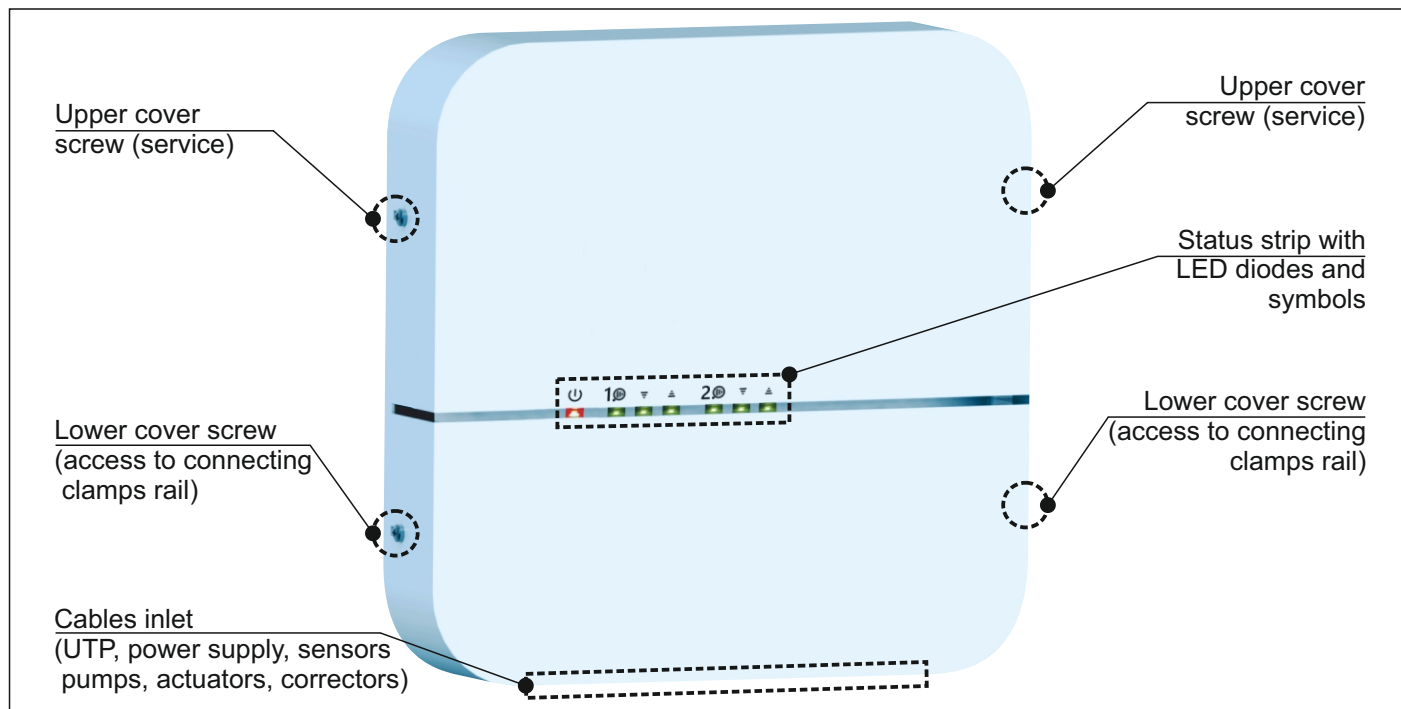| EARTH1				EARTH2			EARTH3		
1	2	3	4	1	2	3	1	2	3

Common earthning
connect earthning of the power supply and connected pumps

---

⑧ Cable connectiong rail
fasten the cables to the rail with cable ties

LED INDICATORS

Upper cover screw (service)

Upper cover screw (service)

Status strip with LED diodes and symbols

Lower cover screw (access to connecting clamps rail)

Lower cover screw (access to connecting clamps rail)

Cables inlet (UTP, power supply, sensors pumps, actuators, correctors)

- status - indicates CM2K status; connection with the boiler is ok, boiler is connected to the power supply and main switch is on - doesn't mean that CM2K is connected to the power supply (230V)
- for pumps and actuators working CM2K power supply (230V) must be connected

- pump - indicates working of the pump (LED ON = pump works / LED OFF = pump doesn't work)

- actuator - close (LED ON = actuator closes / LED OFF = actuator doesn't work)

- actuator - open (LED ON = actuator opens / LED OFF = actuator doesn't work)

NOTE: actuator open and actuator close can't work at the same time

EXAMPLES OF LED INDICATORS

1. Circuit
All devices are off

2. Circuit
All devices are off

1. Circuit
Pump works; Mixing valve closes

2. Circuit
Pump works; Mixing valve closes

1. Circuit
Pump works; Mixing valve opens

2. Circuit
Pump works; Mixiong valve opens

CONFIGURATIONS

> ℹ️ **For configuration schemes and view on the screen look in the boiler regulation technical instructions.**

Boiler configuration must be set in the **Installation** menu (under PIN).

PelTec - CM2K can be enabled only in schemes that have accumulation tank or hydraulic crossover.

BioTec-L - CM2K can be enabled in all configurations (schemes) because all have accumulation tank.

Cm Pelet-set Touch - CM2K can be enabled in all configurations (schemes) because all have accumulation tank, hydraulic crossover or 4-way mixing valve.

BioTec Plus - CM2K can be enabled in all configurations (schemes) because all have accumulation tank.

EKO-CKS P Unit - CM2K can be enabled in all configurations (schemes) because all have accumulation tank or hydraulic crossover.

EKO-CKS Multi Plus - CM2K can be enabled in all configurations (schemes) because all have accumulation tank.

Example of scheme selecting: **PelTec**
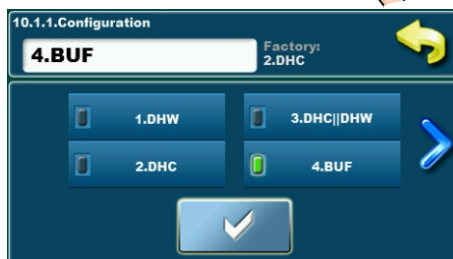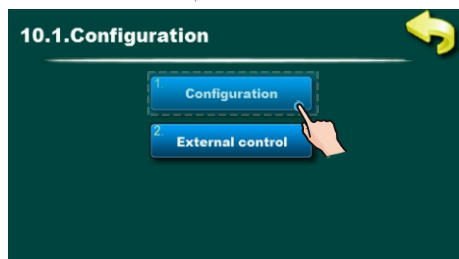
ENABLING CM2K

CM2K can be enabled only by authorized serviceman in **Installation** menu (PIN). By selecting number of CM2K modules, module is enabled (every module can control 2 circuits). By selecting number of CM2K modules, option REGULATOR/ CM2K is enabled (activated) and in the main menu Regulator/CM2K menu icon will be displayed. User can use this menu to monitor and adjust some of the parameters.

> ℹ️ **Display order and ordinal numbers in regulation don't have to match exactly to this instructions. They depend of the configuration, firmware version and setting of the regulation.**

NOTE: after enabling any of CM2K modules (2 circuits), for each circuit, heating type must be set / selected. After selecting the heating type, it is enabled and settings for it are displayed.

Example of enabling CM2K: **PelTec (1xCM2K - 2 circuits)**

CM2K enabled

Example of enabling CM2K: **BioTec-L (2xCM2K - 4 circuits)**
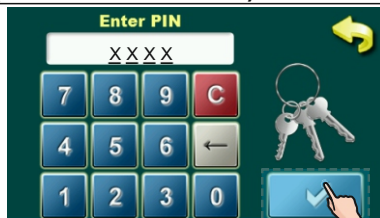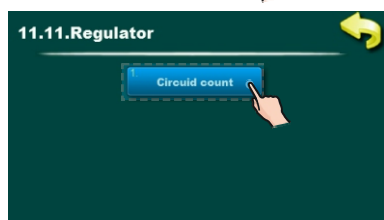

CM2K enabled

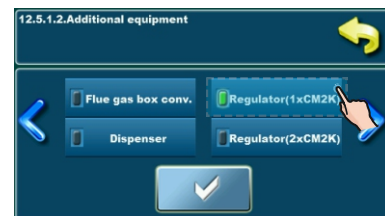Example of enabling CM2K: **Cm Pelet-set Touch (1xCM2K - 2 circuits)**
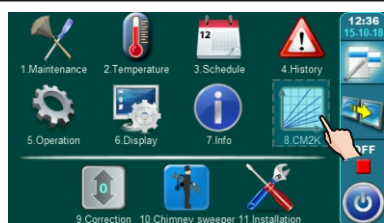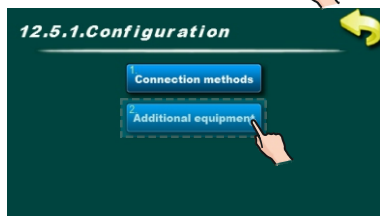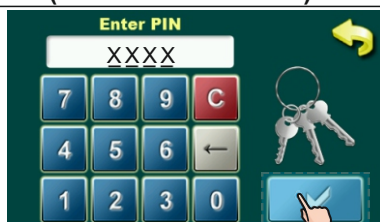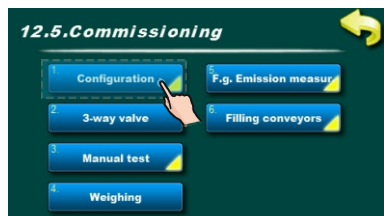
CM2K enabled

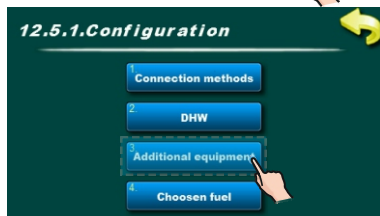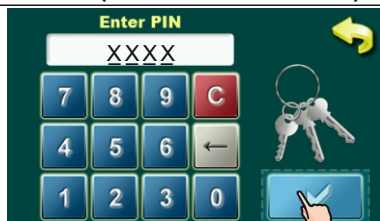Example of enabling CM2K: **BioTec Plus (1xCM2K - 2 circuits)**
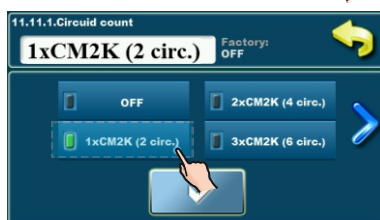
CM2K enabled

Example of enabling CM2K: **EKO-CKS P Unit (1xCM2K - 2 circuits)**

CM2K enabled

Example of enabling CM2K: **EKO-CKS Multi Plus (1xCM2K - 2 circuits)**
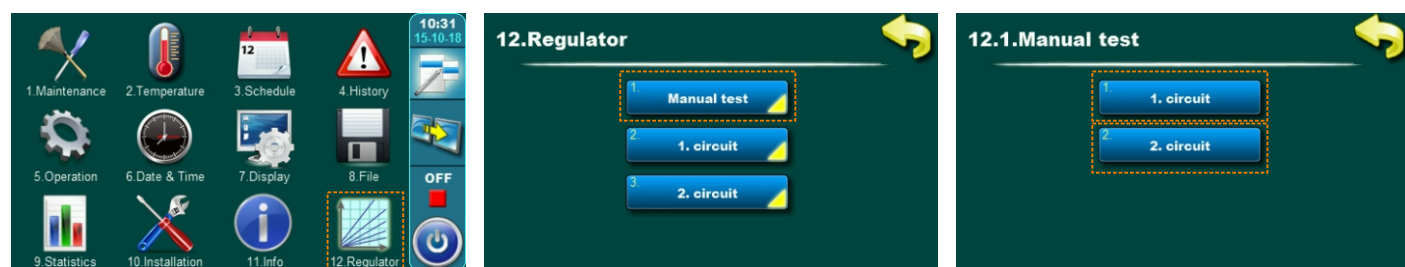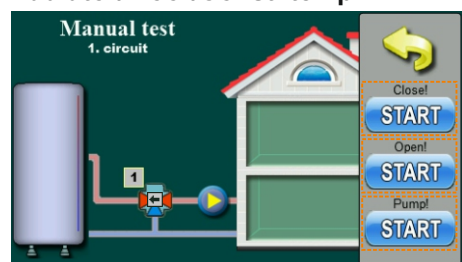
CM2K enabled

MANUAL TEST

In this menu all outputs to the connected devices /(pumps/actuators) can be manually tested. Every circuit can be separately tested. Depending of the number of enabled circuits, manual test for each circuit is shown.
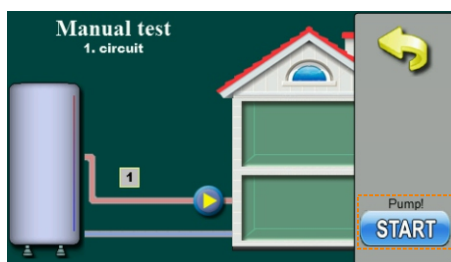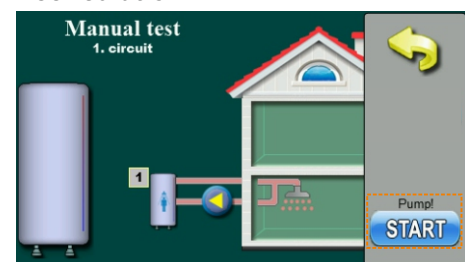
Example of manual test menu:

Example:
Radiator/Floor/Const. temp.

Example:
DHW

Example:
Recirculation

Example:
DHW + Recirculation
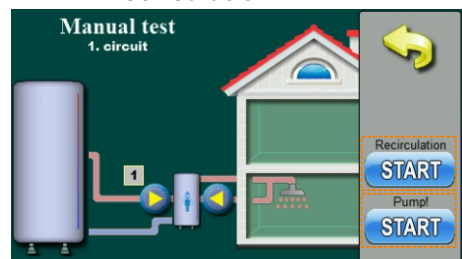
NOTE:
- By pressing the button START, pump or valve actuator opening/closing is started and this button becomes STOP
- by pressing the button STOP, pump or valve actuator opening/closing is stoped and this button becomes START

- with this options, demand for work of output/connected device is manually started, but is neccesary to check if outputs is actualy activated and device is actualy working.

CM2K VIEW SELECTION

Example: **PelTec**
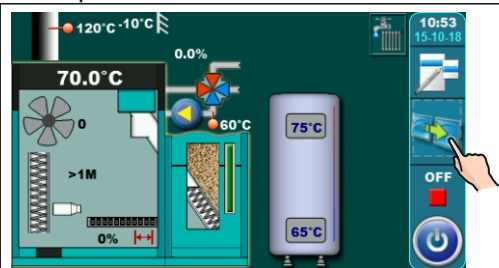
Example: **BioTec-L**
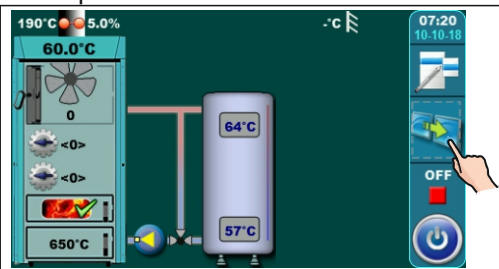
Example: **Cm Pelet-set Touch**

Example: **BioTec Plus**

Example: **EKO-CKS P Unit**
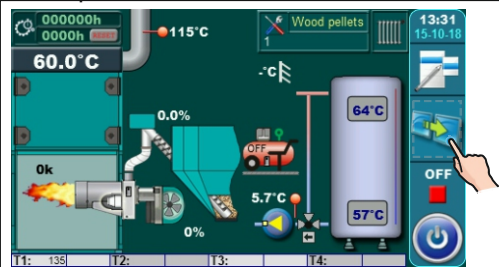
Example: **EKO-CKS Multi Plus**
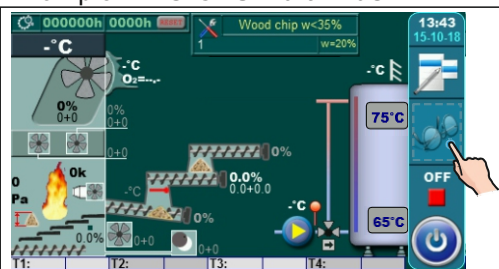
CM2K VIEW

Enabled circuits and their settings can be monitored (circuit type: Radiators / Floor / Const. temp. / DHW / Recirculation / DHW+Recirculation; set temperatures; measured temperatures; pumps working; actuator working; schedules; working mode...).
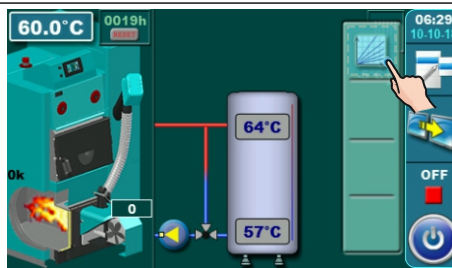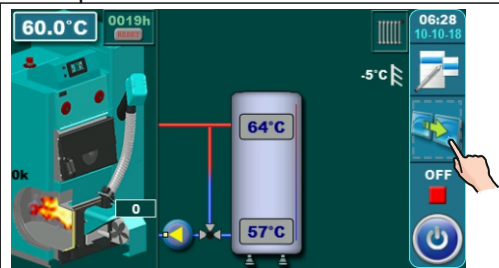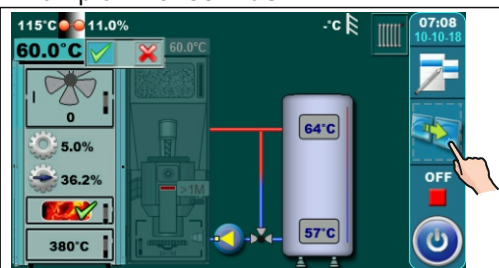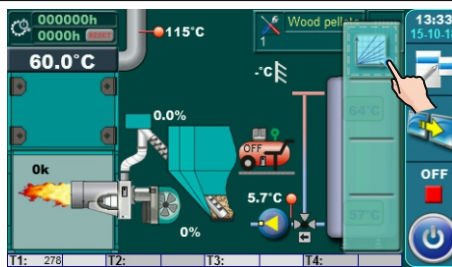To access CM2K options view press button 🔁 or ⚙ on main screen (there will be new window with CM2K view or tools menu with additional button for CM2K view and other additional equipment buttons). To go back to main menu press button ↩ or to cycle between views press 🔁. If there is more than one CM2K installed, in CM2K view, views between CM2K modules (circles) can be changed by pressing buittons ⋀ ⋁ (in one view is one CM2K, i.e. two circuits).

CIRCUIT TYPES AND CM2K VIEW SYMBOLS

Circuit 2 - Floor heating
room corrector
night mode

Circuit 1 - Radiator heating
room corrector
day mode

Circuit 4 - DHW

Circuit 3 - Constant temp.
room corrector
day mode

Circuit 6 - DHW + Recirculation
recirculation schedule
(work enabled)

Circuit 5 - Recirculation
recirculation schedule
(work disabled)

Circuits view change

CM2K VIEW EXAMPLES

1. circuit - radiator heating / room corrector / day mode (with schedule)
2. circuit - floor heating / room corrector / night mode

1 - circuit number
2 - mixing valve with actuator
3 - actuator working indication
4 - measured main flow temp.
5 - calculated main flow temp.
6 - pump working demand indication
7 - pump
8 - room corrector
9 - circle heating type
10 - set room temp.
11 - room temp. indication

12 - corrector correction setting
13 - measured rooom temp.
14 - work mode indication
15 - schedule/work enabled/disabled indication
16 - measured outdoor temp.
17 - measured accumulation tank upper temp.
18 - measured accumulation tank lower temp.
19 - indication of DWH tank with enabled recirculation
20 - measured DHW (domestic hot water) tank temp.
21 - measured CRO (hydraulic cross over) temp.

3. circuit - constant temp. / room corrector / day mode
4. circuit - DHW
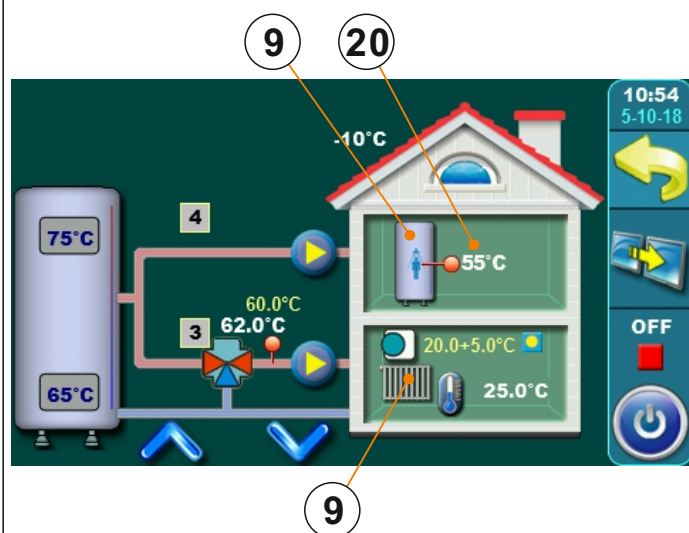
5. circuit - Recirculation / Recirculation enabled
(by schedule)
6. circuit - DHW + Recirculation / Recirculation disabled
(by schedule)

CM2K SETTINGS

Initial settings of working parameters for CM2K must be done by authorized serviceman because enabling and certain setting parameters are under **Installation** menu (PIN). After enabling the CM2K module in main menu new icon (menu) **Regulation/CM2K** will appear. Under this menu user can adjust certain parameters of heating circuits.

NOTE: every parameter will be marked by who can set it, serviceman and user (S/K) or only serviceman (S).

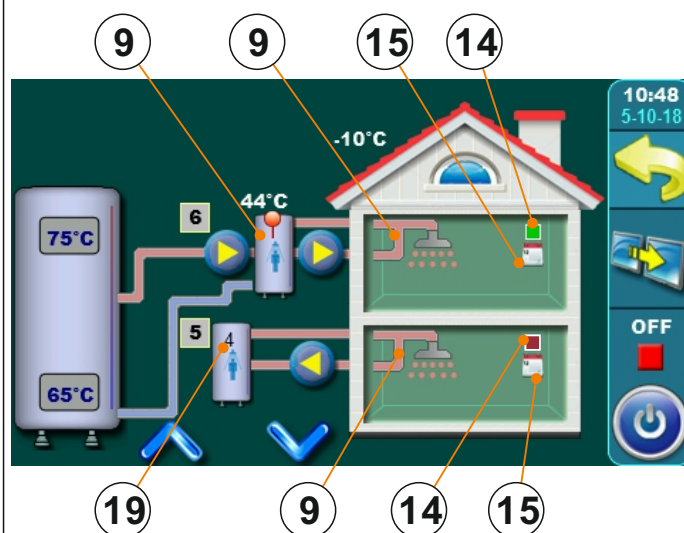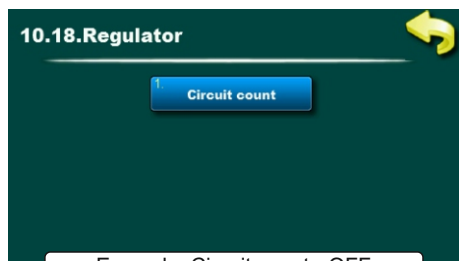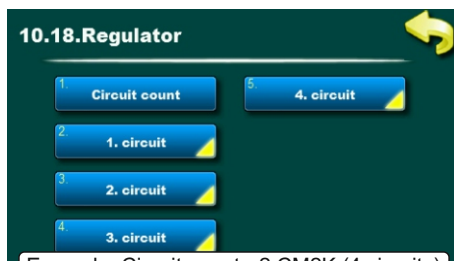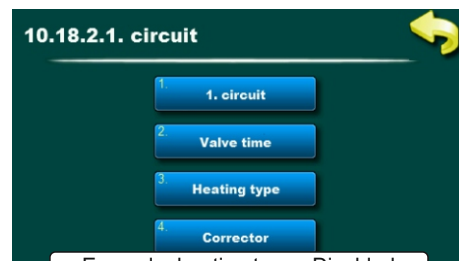**EXAMPLE:** view of the **Regulator/ CM2K** menu under **Installation** menu (PIN) - parameters with (S/K) indication will be displayed also under **Regulator/CM2K** menu in the main menu so user can adjust them.
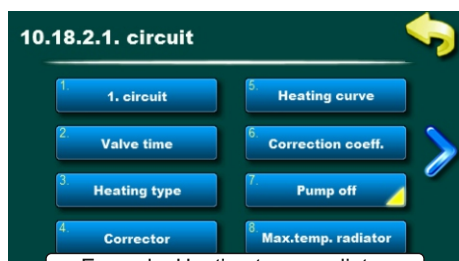
Example: Circuit count - OFF	Example: Circuit count - 2 CM2K (4 circuits)	Example: heating type - Disabled
Example: Heating type - radiator	Example: Heating type - radiator	Example: Heating type - radiator

DESCRIPTION AND PARAMETERS VALUE

NOTES:
- at initial circle view (before adjusting) are only certain parameters shown (X. circuit / Valve time / Heating type / Corrector). After adjusting the circuit heating type, in main menu of heating circuit, other parameters will be shown according the set heating type.
- certain parameters depends of the boiler type to which CM2K is installed and view is set according to this. Because of this, certain parameters are shown or not shown depending of the boiler type.

Circuit count (S)
This parameter is used to set number of CM2K modules i.e. number of circuits (1 CM2K = 2 circuits)
By selecting and confirmation of CM2K modules this parameter is enabled.

Factory setting		setting
Circuit count	OFF	OFF / 1xCM2K... 4xCM2K

X. circuit (S/K) (in this example - 1. circuit)
Enable and disable heating circuit.
This parameter is used to enable or disable heating circuit (set parameters are stored).

Factory setting		setting
1. circuit	ON	OFF/ON

Valve time (S/K)
Setting the mixing valve actuator speed.
This parameter is used for setting the speed of the mixing valve actuator speed for work of 90° (open/close). It must be set according the installed mixing valve actuator speed.

Factory setting		setting
Valve time	120 sec	10-300 sec

Heating type (S)
Setting the heating circuit type.
This parameter is used to set heating circuit type. After setting the heating circuit type, in main menu of the circuit, other setting parameters will be shown according the heating circuit type.

Factory setting		setting
Heating type	Disabled	Disabled/Radiator/Floor/Constant temp./DHW/*Pool/Recirculation/DHW+Recirculation

* NOT USED

Corrector (S)

Setting for room corrector (installled/not installed) and room corrector type.
This parameter is used for setting if room corrector is used or not, room corrector type and its connection type.

Factory setting		*setting*
Corrector	OFF	OFF / ON / Room temp. (2 wires) / Reg. control

Correcto ON: standard connection of Centrometal **CSK** room corrector with 3 wires (measuring and view of the room temp. and corrector correction).
Room temp. (2 wires): connection of Centrometal **CKS** room corrector with 2 wires (measuring and view of the room temp., without corrector correction) - in case only 2 wires are installed.
Reg. control: regulationg the circuit pump with external heating circuit regulation and its demand for heating and pump working.

DESCRIPTION AND PARAMETERS VALUE BY HEATING CIRCUIT TYPE

RADIATOR / FLOOR

X. circuit (S/K) - see page 18
Valve time (S) - see page 18
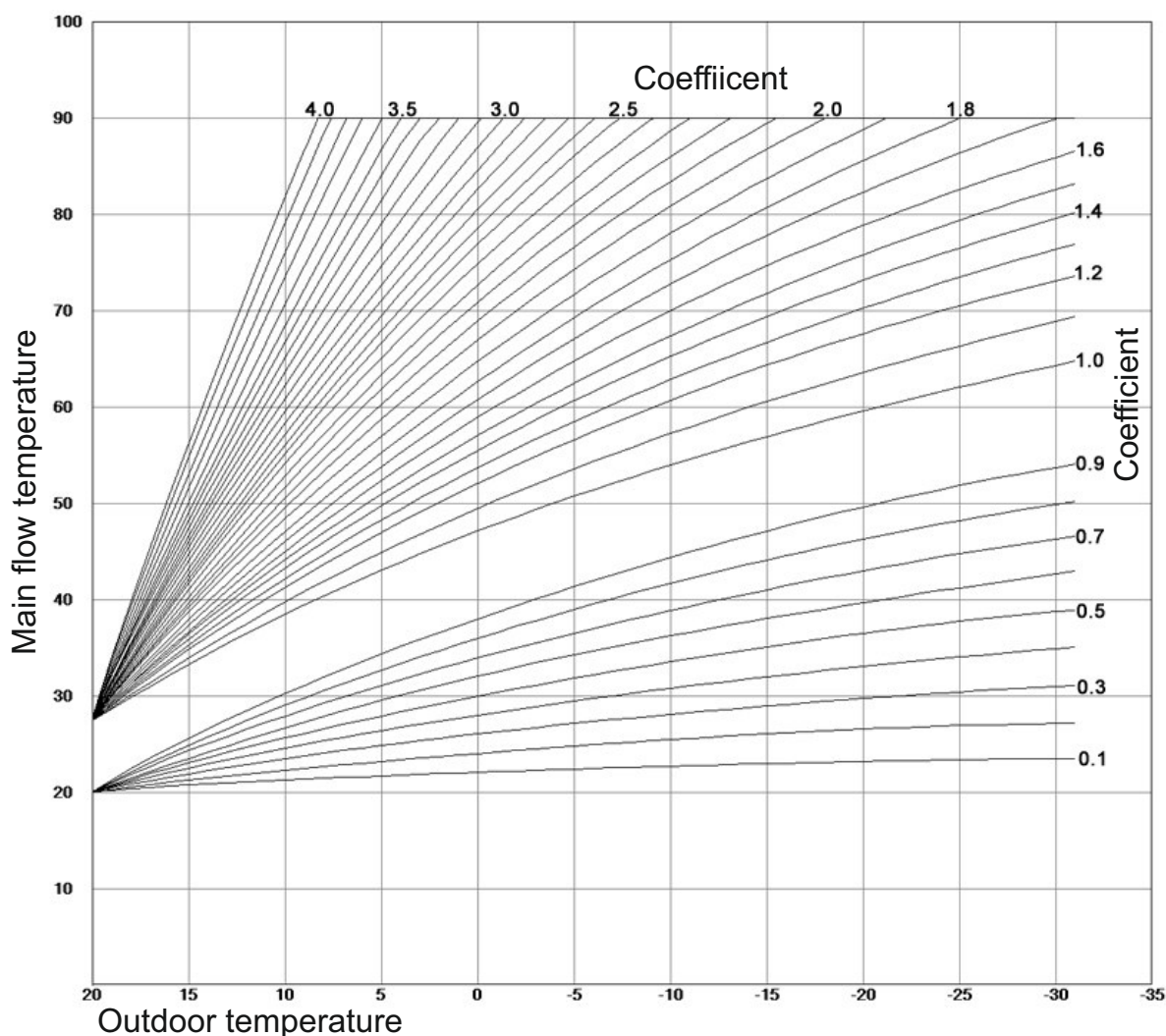**Heating type (S)** - see page 18
Corrector (S) - see page 19

Heating curve (S/K)
Setting of the heating curve.
Heating curve is one of the parameters for main flow temp. calculation.

Factory setting		*setting*
Heating curve	1.0	0.1-4.0

Day / Night temp. (S/K)
Setting the heating circuit mode.
This parameter is used to set heating circuit mode. Selecting the Day temp. heating cirucuit always works according set day temp., selecting the Night temp. heating circuit always works accroding set night temp. and by selecting the Table 1/2, heating circuit automaticaly switches mode between set day and set night temp. according the time set in the Table 1/2.

Factory setting		*setting*
Day/night temp.	Day temp.	Day temp. / Night temp. / Table 1 / Table 2

Table 1 / Table 2 (S/K)
Setting the schedule tables with heating ciruit mode switching between day and night temp.. For each day 3 mode switching can be set. All settings from one day can be selected and copy/paste to any another day of the week. After any adjustment they must be confirmed by pressing OK button to save the settings. Two tables can be set but only one can be active.

week day
day selecting button · circuit number · back button

day temp.

night temp.

time setting area (buttons)

entire day selected

copy button

paste button

OK (confirmation) button

Correction coefficient (S/K)
Setting the correction coefficient for room corrector.
This parameter is used for setting the correction coefficient of the room corrector which will be used for main flow temp. calculation. Higher value of this parameter, higher effect it will have on main flow temp. calculation. This parameter is used only if room corrector is installed.

Factory setting		setting
Correction coeff.	1.0	0.1 - 5.0

Pump off (S/K)
This menu is used for setting the parameters for switching off circuit pump according outdoor temperature and settings in this menu (doesn't affect DHW and Recirculation).
It has 3 options: **Outside temp.** / **Difference** / **Time**

Toutside (S/K)
Setting outside temperature.
This parameter is used to set according which outside temp. circuit pump will stop.

Factory setting		setting
Toutside	20°C	0 - 40°C

Out temp. difference (S/K)
Setting the difference.
This parameter is used to set difference on which circuit pump will start again and delay time will be reset.

Factory setting		setting
Out. temp. difference	2°C	0 - 5°C

Time (S/K)
Setting the time.
This parameter is used to set time delay for switching off the circuit pump when temperature for pump switching off is reached.

Factory setting		setting
Time	30 min	0 - 600 min

Min. temperature radiator / floor / constant temp. (S)
Setting the main flow min. temp.
This parameter is used to set mixing circuit main flow min. temp..

Factory setting		setting
Min. temp. radiator/floor/constant temp.	20°C	20 - 90°C

Max. temperature radiator / floor / constant temp. (S)
Setting the main flow max. temp.
This parameter is used to set mixing circuit main flow max. temp..

Factory setting		setting
Max. temp. radiator/floor/constant temp.	90°C	20 - 90°C

Day room temperature (S/K)
Setting the day room temp.
This parameter is used to set desired heating circuit day room temperature.

Factory setting		setting
Day room temp.	20°C	5.0. - 30.0°C

Night room temperature (S/K)
Setting the night room temp.
This parameter is used to set desired heating circuit night room temperature.

Factory setting		setting
Night room temp.	20°C	5.0. - 30.0°C

dT pump off (S)
Setting the room corrector difference.
This parameter is used to set how many °C measured room temp. must be higher than set room temp. to switch off the circuit pump (only if room coreector is installed).

Factory setting		setting
dT pump Off	0.5°C	0.0. - 3.0°C

dT pump on (S)
Setting the room corrector difference.
This parameter is used to set how many °C measured room temp. must be lower than set room temp. to switch on the circuit pump (only if room coreector is installed).

Factory setting		setting
dT pump On	0.5°C	0.0. - 3.0°C

Transition time (S/K)

This parameter is used only when there isnt't room corrector installed because regulation doesn't have info regarding measured room temp. This is presumed time in which system will achieve set room temp. between switching from day to night mode and vice versa, i.e. in which time main flow temp. will be optimized for quick transition.

Note:

If room corrector CSK (additional equipment) is connected to the CM2K, this parameter is not used.

Factory setting		*setting*
Transition time	3600 sec	0 - 18000 sec

CONSTANT TEMPERATURE

X. circuit (S/K) - see page 17
Valve time (S) - see page 17
Heating type (S) - see page 17
Corrector (S) - see page 18
Pump off (S/K) - see page 20
Day room temp. (S/K) - see page 20
Night temp. (S/K) - see page 20
Day / Night temp. (S/K) - see page 19
Table 1/2 (S/K) - see page 19
dT pump off (S) - see page 20
dT pump on (S) - see page 20
Transition time (S/K) - see page 22

Day constant temp. (S/K)

Setting the circuit main flow constant temp. for day mode.
This parameter is used to set desired circuit main flow constant temp. for day mode.

Factory setting		*setting*
Day constant temp.	60°C	20 - 90°C

Noćna konstatna temperatura (S/K)

Setting the circuit main flow constant temp. for night mode.
This parameter is used to set desired circuit main flow constant temp. for night mode.

Factory setting		*setting*
Night constant temp.	60°C	20 - 90°C

DHW

X. circuit (S/K) - see page17
Heating type (S) - see page 17

DHW Temperature (S/K)

Setting the DHW tank temperature.
This parameter is used to set desired DHW tank domestic hot water) temp.

Factory setting		*setting*
DHW temp.	50°C	40 - 80°C

DHW difference (S/K)

Setting the DHW difference.
This parameter is used to set desired DHW tank (domestic hot water) difference.

Factory setting		*setting*
DHW difference	5°C	4 - 40°C

DHW schedule (S/K)

Setting the schedule for DHW.
this parameter is used to set if DHW schedule is active or not and select active Table 1/2 according to which schedule will work.

Factory setting		*setting*
DHW schedule	OFF	OFF / Table 1 / Table 2

Table1 / Table 2 (S/K)

Setting the DHW schedule tables.
This parameter is used for seting the tables according DHW schedule will work. Only one table can be active.

RECIRCULATION

X. circuit (S/K) - see page 17
Heating type (S) - see page 17

DHW circuit (S)

Seting the DHW circuit for which recirculation will be enabled.
DHW circuit which has circulation installed must be selected. Selecting the DHW circuit must be done according how this circuit is regulated (boiler or one of CM2K circuits).

Sensor installed (S)
NOT USED

Time On rec. (S/K)
Recirculation pump work time.
Setting the recirculation pump work time when recirculation is active.

Factory setting		setting
Time On rec.	5 min	0 - 1440 min

Time Off rec. (S/K)
Recirculation pump stop time.
Setting the recirculation pump stop time when recirculation is active.

Factory setting		setting
Time Off rec.	5 min	0 - 1440 min

Recirculation table (S/K)
Recirculation work and stop table.

week day
whole day
selecting button

circuit number

back button

work start

work stop

time setting field
(buttons)

whole day
select

copy button

paste button

OK (confirmation)
button

DHW + RECIRCULATION

X. circuit (S/K) - see page 17
Heating type (S) - see page 17
DHW temp. (S/K) - see page 21
DHW difference (S/K) - see page 21
Time On rec. (S/K) - see page 22
Time Off rec. (S/K) - see page 22
DHW schedule (S/K) - see page 22
Table 1 (S/K) - see page 22
Recirculation table (S/K) - see page 22

Centrometal
HEATING TECHNIQUE