Operation manual

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GARANTIEBEDINGUNGEN **292**

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10. SETTING MENU

Hydraulic diagrams

System
Boiler
Automatic wood ignition
Accumulation tank
Sources
Heating circuit 1 / 2 / 3 / (4)
DHW
General function
Solar heating
Sensors calibration
Sweeper
Alarms
Password

11. INFORMATION MENU

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13. ROOM UNITS

14. TECHNICAL PARAMETERS

1. SOFTWARE VERSION

This operation manual can be used from the **Program version (VERSION PRG)… AC16D 1.05**

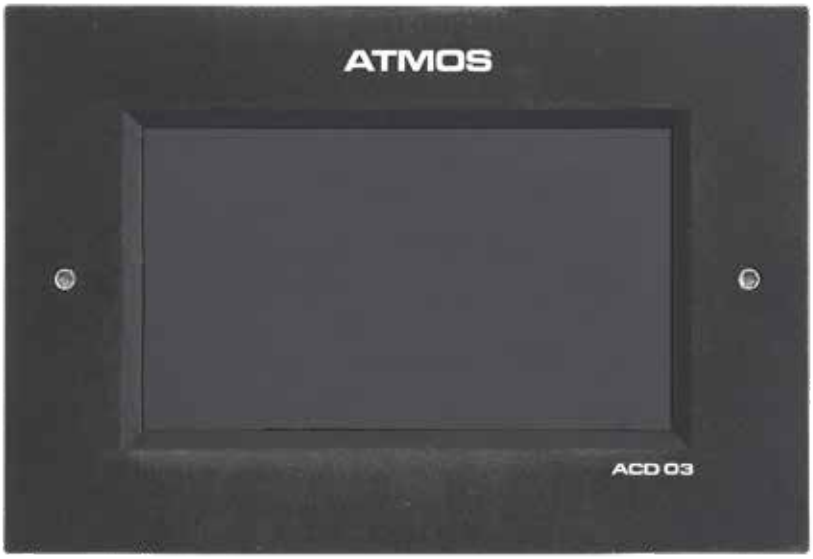
The program version is displayed at the end of the **Information** under the button i - System information.

2. INTRODUCTION

Equithermal controllers **ATMOS ACD 03 and ATMOS ACD 04** with touch screen are designed for comfortable control of the hot-water system of the heated building. The control of the controller is very simple and intuitive thanks to the touch screen.

The controller contains functions for direct control of the boiler, boiler circuit, three heating circuits, domestic hot water (DHW), solar, etc...

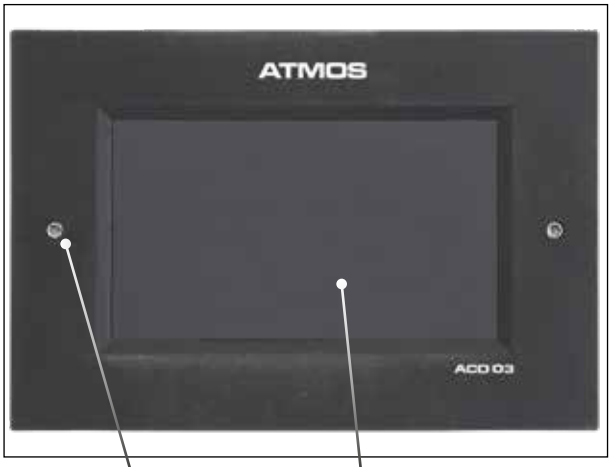
For correct operation, the controller must be precisely set up via the installation guide (according to the selected hydraulic diagram).



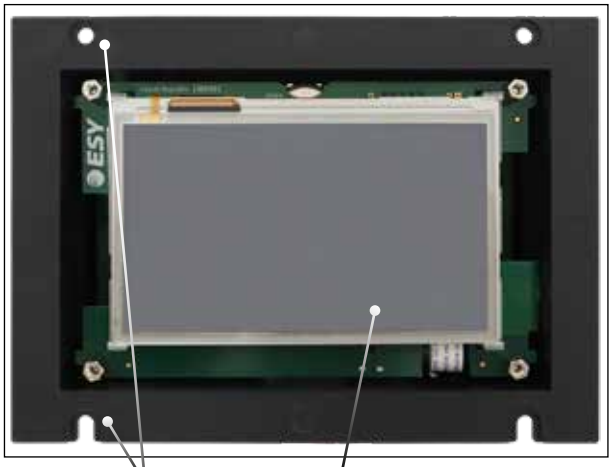
3. DESCRIPTION

Basic division of ATMOS ACD 03 and ATMOS ACD 04 controllers

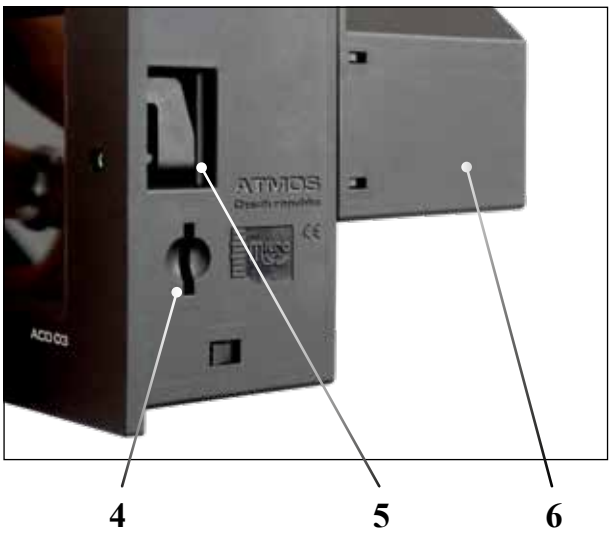
ATMOS ACD 03

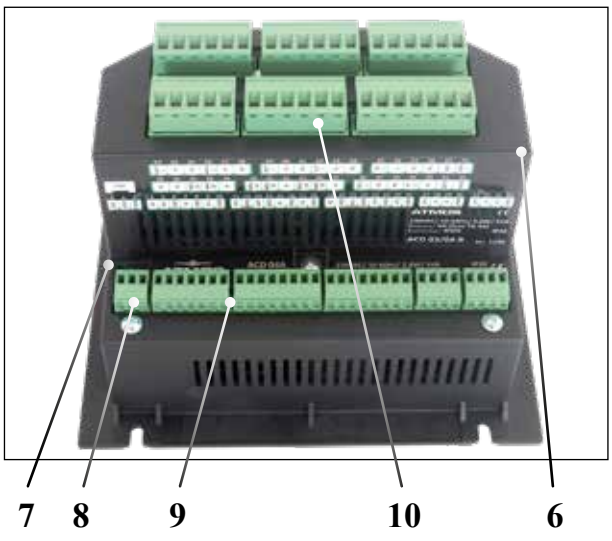


ATMOS ACD 04



1 - Screw for the attachment of the ACD 03 controller to the boiler panel
2 - Touch screen
3 - Openings for attachment of the ACD 04 regulator in the boiler instrument hood





4 - Slot for SD card
5 - ACD 03 regulator attaching mechanism into panel opening
6 - ACD 03/04-B relay module (power part)
7 - FAN connector for fan speed sensing (special function)
8 - 1, 2, 3 connectors for connection of control outputs (0 - 10 V, GND, PWM - pump control signal)
9 - Sensor connectors
10 - Power parts connectors (pumps, actuators, etc.)

Variants of ATMOS ACD 03 and ATMOS ACD 04 controllers

The ACD 03 and ACD 04 controllers differ in their installation box design:
The control functions of both controllers are the same.

ATMOS ACD 03 - Controller inserted into boiler panel

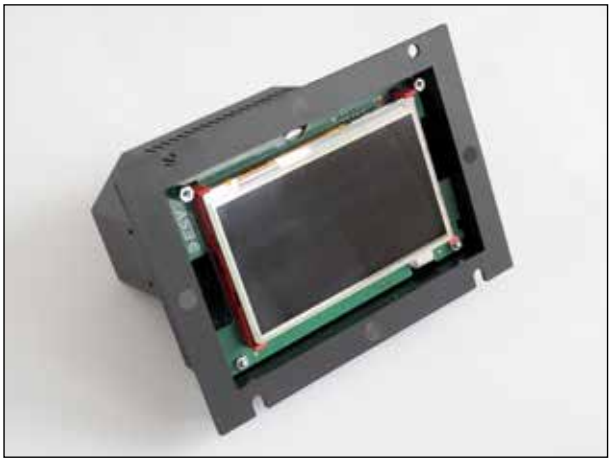
The ACD 03 controller is designed **to be inserted into the boiler panel** after breaking out the readyprepared opening (factory prepared) for ACD 03 controller (dimension 92 x 138 mm).

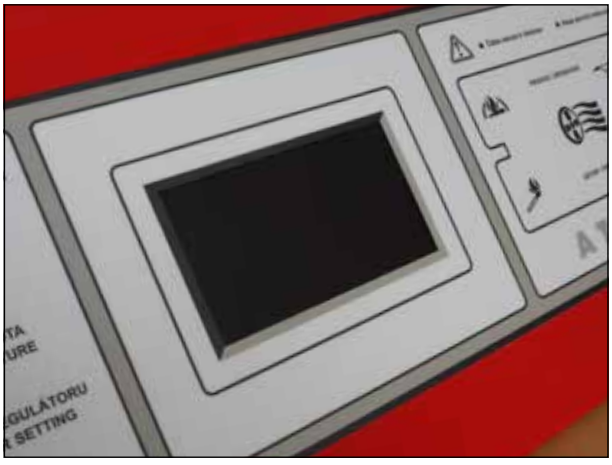
The controller can also be inserted into a special SWS 18 box intended for wall installation.

ATMOS ACD 04 - Controller installed in boiler instrument hood (in factory)

The ACD 04 controller is designed to be screwed into the instrument hood of the boiler (4x M4).

It is delivered directly from the factory and the boiler does not contain classical controls like thermometer and thermostats. The boiler panel is designed for the installation of the ACD 04 controller only.





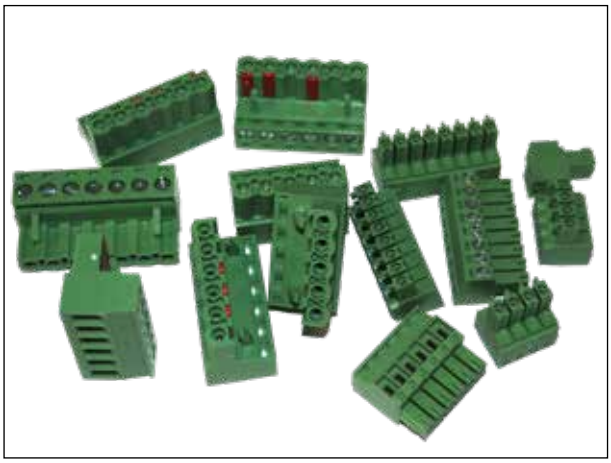
Both controllers consist of two parts. ATMOS ACD 03A / ACD 04A controller and the ACD 03/04-B relay module. The module is designed to control individual power parts of the heating system such as pumps, actuators, etc..
On the back of the controller there are connectors for sensors (ATMOS ACD 03A / ACD 04) and **power parts** (ACD 03/04-B).

ACD 03/04-B relay module (power part) and description of connection terminals on the back of the controller

ACD 03/04-B relay module (power part) and description of connection terminals on the back of the controller

SCS34 set of connectors is used to connect sensors and power parts (code: S0105).

There is an SD card slot on the side of the controller to update the software and back up the settings.



SCS34 set of connectors to connect sensors and power parts

Slot for SD card

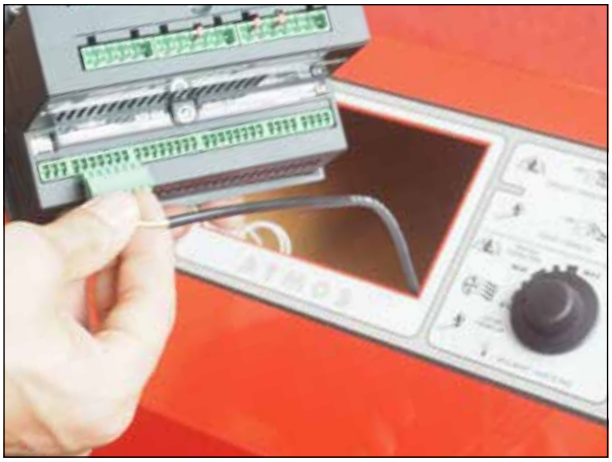
4. INSTALLATION IN BOILER

ATMOS ACD 03

Breaking the opening and installation of the regulator into the ATMOS boiler hood panel.

Break the opening by hand

Broken opening (92 x 138 mm)



Example of the connection of individual connectors

Fastening (tightening) the controller to the boiler panel (tighten by rotating clockwise)

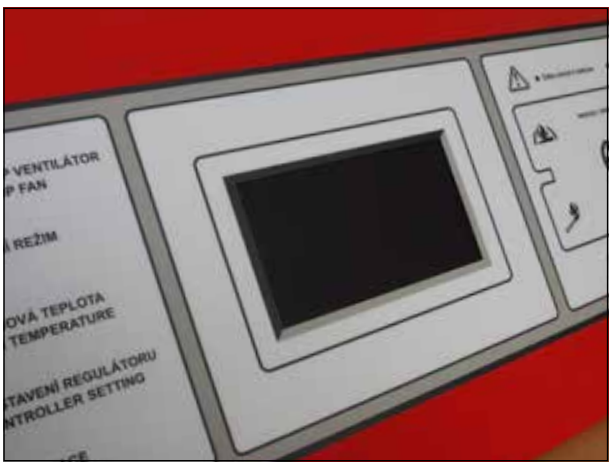
ATMOS ACD 04

Installation / removal of the ACD 04 controller into / from the boiler hood.

Special ATMOS instrument hood for ACD 04 controller with four M4 screws.

Installation of the controller on four M4 screws

Attention - do not overtighten (right-hand thread)



Controller installed in the boiler instrument hood

Example of sticking a label on the instrument hood

Recommended sensors installation

WF boiler temperature sensor in the boiler pocket, the sensor is added to other capillaries from the thermostats and thermometer of the original electromechanical regulation of the boiler.
The sensor must be placed as far (deep) as possible in the boiler pocket for accurate temperature sensing!!!

The AGF flue gas sensor attached to the boiler flue gas duct (DCxxS, DCxxSX, DCxxGS, CxxS(T)), the sensor is added to the flue gas thermostat capillary of the original electromechanical regulation of the boiler.
This sensor must be covered with insulation!!!

The AGF flue gas sensor attached to the boiler flue gas duct with tube heat exchanger (DCxxGSE, DCxxGSX, DCxxDG), the sensor is added to the flue gas thermostat capillary of the original electromechanical regulation of the boiler.
This sensor must be covered with insulation!!!

PF temperature sensor in the upper part of the accumulation tank or SF temperature sensor in the combined DHW heater inserted as deep as possible in the pocket.
The PF sensor must always be at least 10 cm below the pipe entry into the tank.
It is not recommended to place (attach) the sensor on the pipe due to the proper functioning of the controller!!!

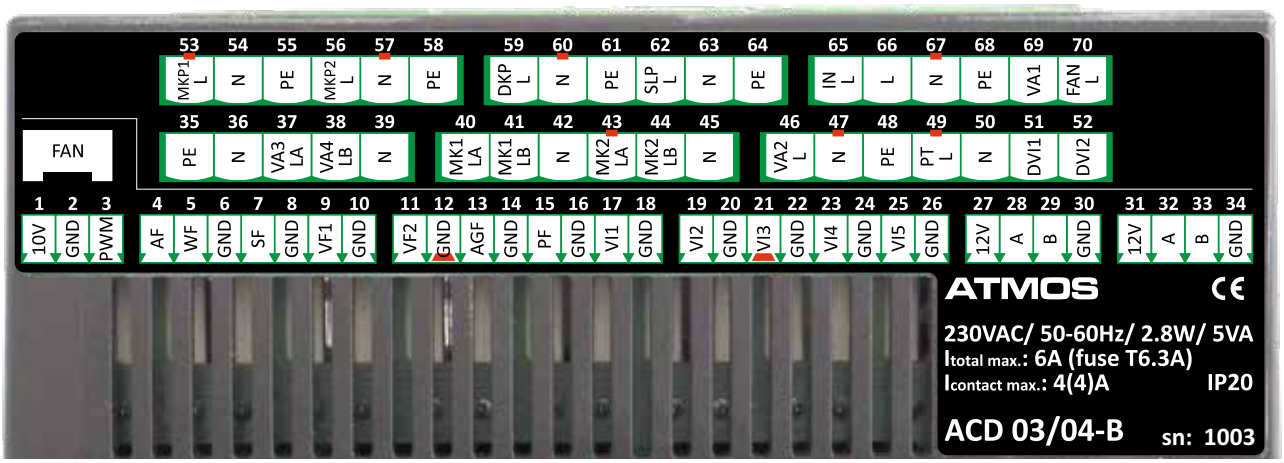
FPF temperature sensor in the lower part of the accumulation tank inserted as deep as possible in the pocket.
The FPF sensor must always be at least 10 cm above the pipe entry (outlet) to the tank.
It is not recommended to place (attach) the sensor on the pipe due to the proper functioning of the controller!!!

Additional sensor behind the mixing valve measuring the temperature of water flowing into the heating circuit.

5. CONNECTION

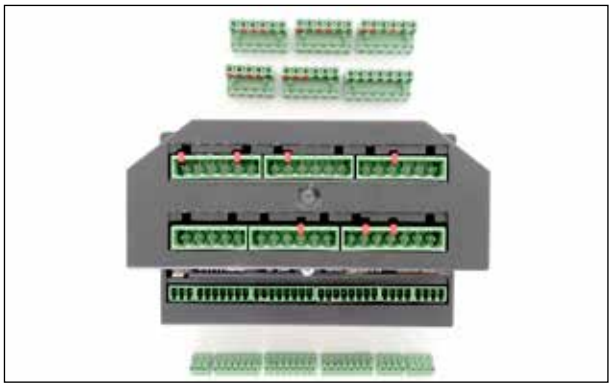
According to the selected hydraulic connection of the boiler (see diagrams on page 123), connect the necessary sensors to the controller connectors no. 1 to 34 and the power parts of the heating system to the connectors no. 35 to 70.

Connection terminals (description) on the back side of the controller

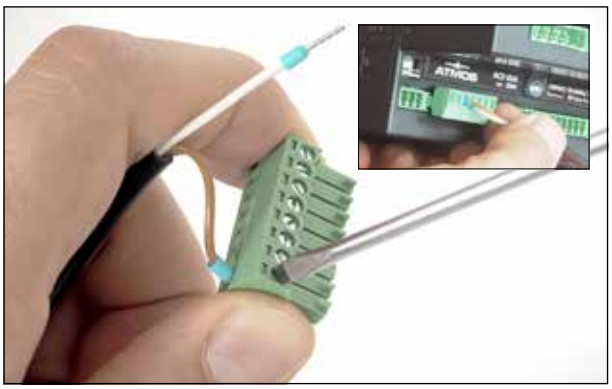


Terminal block and connectors

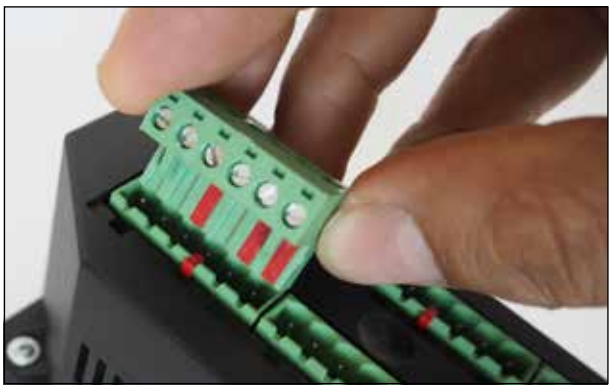
View of controller with connectors



Upper connectors for power parts
Lower connectors for sensors



Example of wiring



Attention - connectors are equipped with pins preventing them from being misplaced on the terminal block

Overview of connection terminals of ACD 03/04 controller

Terminal	Abbreviation	Terminal name - Description - Special INPUT	Log.	Sensor type, note
FAN	FAN	fan speed sensing (special function)	input	--

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
1	10 V	0 - 10 V - voltage regulation of EK external boiler temperature	output	--
2	GND			
3	PWM	PWM controller output for solar pump control	output	--

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
4	AF	outdoor temperature sensor (GND terminal 6 - together with WF sensor)	input	NTC20
5	WF	boiler water temperature sensor	input	**NTC20** / **P**T1000
6	GND			
7	SF	domestic hot water temperature sensor (DHW.)	input	**NTC20** / **P**T1000
8	GND			
9	VF1	heating circuit temperature sensor 1	input	**NTC20** / **P**T1000
10	GND			
11	VF2	heating circuit temperature sensor 2	input	**NTC20** / **P**T1000
12	GND			
13	AGF	flue gas sensor (flue gas duct)	input	**PT 1000** / NTC20
14	GND			
15	PF	accumulation tank upper temperature sensor	input	**NTC20** / **P**T1000
16	GND			
17	VI1	optional VI1 input for sensor	input	**NTC20** / **P**T1000
18	GND			
19	VI2	optional VI2 input for sensor	input	**NTC20** / **P**T1000
20	GND			
21	VI3	optional VI3 input for sensor	input	**NTC20** / **P**T1000
22	GND			
23	VI4	optional VI4 input for sensor (ARU5)	input	NTC20
24	GND			
25	VI5	optional VI5 input for sensor (ARU5)	input	NTC20
26	GND			

Terminal	Abbreviation	Terminal name - Description - Communication	Log.	Sensor type, note
27	12V	ATMOS 485 communication line for ARU 10/30 room units	--	Connected to the CU
28	A			
29	B			
30	GND			
31	12V	ATMOS 485 communication line for ARU 10/30 room units	--	Connected to the CU
32	A			
33	B			
34	GND			

INFO - Always measure the flue gas temperature and solar panel temperature with a PT 1000 sensor

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
35	PE	VA3 and VA4 output grounding	output	
36	N	VA3 output neutral cable	output	230 V / 50 Hz
37	VA3 LA	VA3 output el. phase or one direction of MK3 rotation		
38	VA4 LB	VA4 output el. phase or second direction of MK3 rotation	output	230 V / 50 Hz
39	N	VA4 output neutral cable		
40	MK1 LA	el. phase of one direction of rotation of MK1 actuator	output	230 V / 50 Hz
41	MKl LB	el. phase of second direction of rotation of MK1 actuator		
42	N	MK1 actuator neutral cable		
43	MK2 LA	el. phase of one direction of rotation of MK2 actuator	output	230 V / 50 Hz
44	MK2 LB	el. phase of second direction of rotation of MK2 actuator		
45	N	MK2 actuator neutral cable		
46	VA2 L	VA2 output el. phase	output	230 V / 50 Hz
47	N	VA2 output neutral cable		
48	PE	VA2 output grounding		
49	PT L	el. phase for analogue room thermostat	output	230 V / 50 Hz
50	N	neutral cable for analogue room thermostat		

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
51	DVI1	ON / OFF digital input (signal form analogue room thermostat)	input	
52	DVI2	ON / OFF digital input (signal form analogue room thermostat)	input	

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
53	MKP1 L	MKP1 output el. phase	output	230 V / 50 Hz
54	N	MKP1 output neutral cable		
55	PE	MKP1 output grounding		
56	MKP2 L	MKP2 output el. phase	output	230 V / 50 Hz
57	N	MKP2 output neutral cable		
58	PE	MKP2 output grounding		
59	DKP L	DKP output el. phase (L-PUMP)	output	230 V / 50 Hz
60	N	DKP output neutral cable		
61	PE	DKP output grounding		
62	SLP L	SLP output el. phase	output	230 V / 50 Hz
63	N	SLP output neutral cable		
64	PE	SLP output grounding		

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
65	IN L	contact power supply (el. phase) for L-FAN (L-FAN IN) 230 V / 50 Hz	input	Connected to the CU
66	L	controller power supply (REG-L) 230 V / 50 Hz	input	Connected to the CU
67	N	controller neutral cable (REG-N)	input	Connected to the CU
68	PE	controller grounding (REG-PE)		

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
69	VA1	VA1 output phase 230 V / 50 Hz	output	Connected to the CU
70	FAN L	L-FAN output phase (L-FAN OUT) 230 V / 50 Hz	output	Connected to the CU

INFO - We recommend leading the sensor and communication cables separately from 230 V conductors and other power lines (at least 5 cm).

6. INSTALLATION GUIDE (WIZARD)

(first start of the controller)

Before starting the controller for the first time, read chapter **Hydraulics**, so that the hydraulic diagram can be set correctly according to your actual wiring in the boiler room.

INFO - All controller settings can be later adjusted as needed.

Installation Guide

Loading

and

starting mode

Language selection

(confirm with the green arrow at the top right)

Date

and

time setting

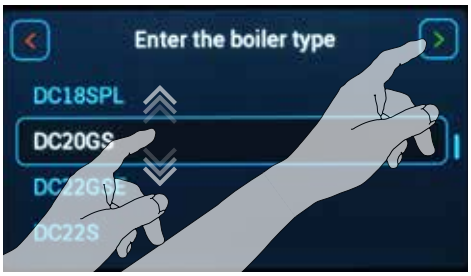
Option to **upload saved settings** (backup) from SD card

For **new installation**, select **NO**

When **replacing the controller** (to upload backup), select **YES**

(confirm with the green arrow in the upper right corner)

(use the red arrow in the upper left corner to return to the previous setting)



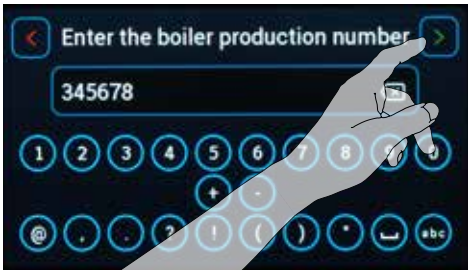
Select boiler type

Drag across the display to find your boiler in the list.

Info - Boilers without identification can be found at the end of the list

(confirm with the green arrow in the upper right corner)

(use the red arrow in the upper left corner to return to the previous setting)



Enter the boiler production number

Info - The boiler production number can be found on the boiler machine plate or on the back of the operating manual

(confirm with the green arrow in the upper right corner)

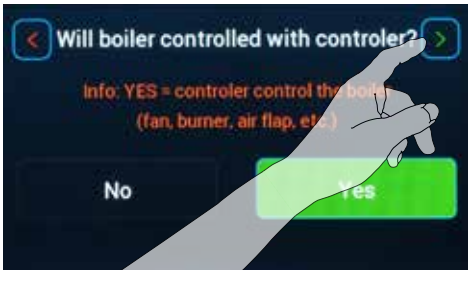
(use the red arrow in the upper left corner to return to the previous setting)

Select the access authorization level (who you are)

Info - Installation and commissioning shall be always performed by a trained service technician

(confirm with the green arrow in the upper right corner)

(use the red arrow in the upper left corner to return to the previous setting)



Do you want the **ATMOS ACD 03/04 controller to also control the boiler itself** (fan, burner, air flap, etc.)?

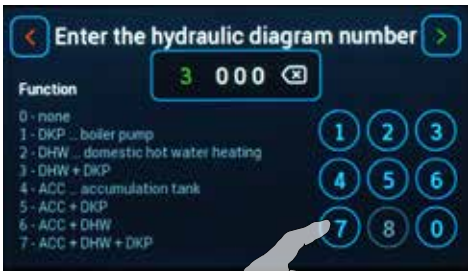
If **yes**, , an AGF combustion product temperature sensor must be installed in boilers with manual stoking (combustion gas duct temperature).

(confirm with the green arrow in the upper right corner)

(use the red arrow in the upper left corner to return to the previous setting)

Entering the hydraulic diagram

INFO - **1st digit** of the hydraulic diagram, boiler type, is already defined in the previous steps (e.g. no. 3 - FAN - controlled boiler with manual stoking). The overview of the boiler types can be found in the table on page 23.



2nd digit - FUNCTION
Define the boiler circuit and DHW assembly

0 - none ... (no function)

1 - DKP ... boiler pump
(the boiler circuit equipped only with a boiler pump controlled by the controller)

2 - DHW ... domestic hot water heating
(boiler (heating) circuit equipped only with domestic water heating controlled by controller)

3 - DHW + DKP ... domestic water heating + boiler pump
(boiler (heating) circuit equipped with domestic water heating controlled by controller and boiler pump)

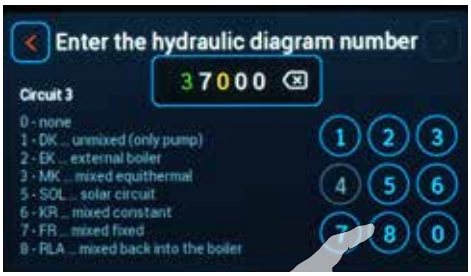
4 - ACC ... accumulation tank
(boiler circuit equipped only with accumulation tank with temperature sensor(s))

5 - ACC + DKP ... accumulation tank + boiler pump
(boiler circuit equipped with accumulation tank with temperature sensor(s) and boiler pump controlled by controller)

6 - ACC + DHW ... accumulation tank + domestic water heating
(boiler (heating) circuit equipped with an accumulation tank with temperature sensor(s) and domestic water heating controlled by controller)

7 - ACC + DHW + DKP ... accumulation tank + domestic water heating + boiler pump
(boiler (heating) circuit equipped with an accumulation tank with temperature sensor(s) and domestic water heating controlled by controller and boiler pump)

ATTENTION - Devices (DKP, DHW, ACC) that are not defined cannot be controlled by ACD 03/04 controller.



3rd digit-"HEATING" CIRCUIT 3
Define the functions of the heating circuit (output)

0 - none ... (no function)

1 - DK .... unmixed (only pump)
(direct pump control with source temperature demand)

2 - EK .... external boiler
(external boiler control - can be set only for one circuit - xx2xx or xxx2x or xxxx2)

3 - MK ... mixed equithermal
(heating circuit control according to equithermal curve (exterior temperature) and room unit (room temperature)
(NOT POSSIBLE WITH SEKGS, SEKGSP)

4 - DHW2 ... second DHW tank heating
(circuit (output) used to control the second domestic hot water tank (DHW))

5 - SOL .. solar circuit
(circuit (output) used for solar heating)

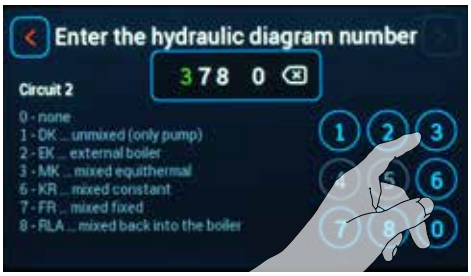
6 - KR .... mixed constant
(heating circuit control to constant temperature with source (boiler) temperature demand)
(NOT POSSIBLE WITH SEKGSE, SEKGSP)

7 - FR ..... mixed fixed
(heating circuit control to constant temperature without source (boiler) temperature demand)
(NOT POSSIBLE WITH SEKGSE, SEKGSP)

8 - RLA .. mixed back into the boiler
(heating circuit defined to monitor the return water to the boiler (return control))

INFO - First, we always define „heating" circuit 3 with regard to variable use of circuit outputs and possible collisions with other circuits (outputs).

The heating circuit can be controlled using the room units when setting the output functions to DK, MK, KR, FR, DHW2.



4th digit - „HEATING“ CIRCUIT 2
Define the functions of the heating circuit (output)

0 - none ... (no function)

1 - DK .... unmixed (only pump) (direct pump control with source temperature demand)

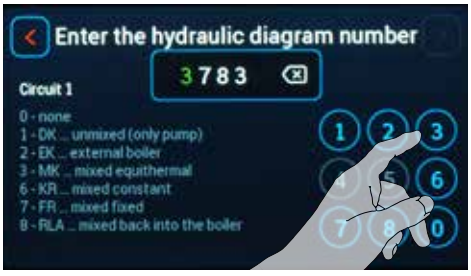
2 - EK .... external boiler (external boiler control - can be set only for one circuit - xx2xx or xxx2x or xxxx2)

3 - MK ... mixed equithermal (heating circuit control according to equithermal curve (exterior temperature) and room unit (room temperature))

6 - KR .... mixed constant (heating circuit control to constant temperature with source (boiler) temperature demand)

7 - FR ..... mixed fixed (heating circuit control to constant temperature without source (boiler) temperature demand))

8 - RLA .. mixed back into the boiler (heating circuit defined to monitor the return water to the boiler (return control))



5th digit - „HEATING“ CIRCUIT 1
Define the functions of the heating circuit (output)

0 - none ... (no function)

1 - DK .... unmixed (only pump) (direct pump control with source temperature demand)

2 - EK .... external boiler (external boiler control - can be set only for one circuit - xx2xx or xxx2x or xxxx2)

3 - MK ... mixed equithermal (heating circuit control according to equithermal curve (exterior temperature) and room unit (room temperature))

6 - KR .... mixed constant (heating circuit control to constant temperature with source (boiler) temperature demand)

7 - FR ..... mixed fixed (heating circuit control to constant temperature without source (boiler) temperature demand))

8 - RLA .. mixed back into the boiler (heating circuit defined to monitor the return water to the boiler (return control))

Key to define hydraulic diagram number

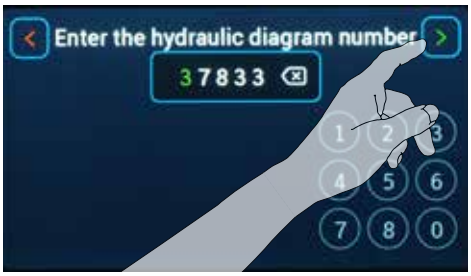
BOILER type	DKP / ACC / TUV	CIRCUITS		
		Circuit 3	Circuit 2	Circuit 1
X x x x x	x X x x x	x x X x x	x x x X x	x x x x X
without boiler = 0	no function = 0	no function = 0	no function = 0	no function = 0
NOT CONTROLLED = 1 Boiler with its own controller (the controller does not control the boiler)	DKP = 1 Boiler circuit pump	DK3 = 1 Heating circuit Direct unmixed	DK2 = 1 Heating circuit Direct unmixed	DK1 = 1 Heating circuit Direct unmixed
BRE = 2 Automatic boiler with burner	DHW = 2 Domestic hot water	EK = 2 * (ONLY xxxx2 or xxx2x or xx2xx) External boiler		
FAN = 3 Boiler with manual stoking and exhaust fan	DKP + DHW = 3 Boiler circuit pump and Domestic hot water	MK3 = 3 Heating circuit Mixed according to outdoor temperature (equitherm/actuator) **(NOT POSSIBLE WITH SEKGSE, SEKGSP)	MK2 = 3 Heating circuit Mixed according to outdoor temperature (equitherm/actuator)	MK1 = 3 Heating circuit Mixed according to outdoor temperature (equitherm/actuator)
PRESS = 4 Boiler with manual stoking and pressure fan	ACC = 4 Accumulation tank	DHW2 = 4 Heating of the second domestic hot water tank (DHW)	-	-
FAN + SEKGSE = 5 Boiler with manual stoking, exhaust fan and servo flap (GSE)	DKP + ACC = 5 Boiler circuit pump and accumulation tank	SOL = 5 Solar heating	-	-
FAN + BRE = 6 Combined boiler with exhaust fan and burner (SP / boilers with modification for pellet burner)	DHW + ACC = 6 Domestic hot water and accumulation tank	KR3 = 6 Heating circuit Mixed with constant (fixed) temperature with source requirement **(CANNOT BE USED WITH SEKGSE, SEKGSP)	KR2 = 6 Heating circuit Mixed with constant (fixed) temperature with source requirement	KR1 = 6 Heating circuit Mixed with constant (fixed) temperature with source requirement
FAN + BRE + SEKGSP = 7 Combined boiler with exhaust fan and burner and servo flap (GSP)	DKP + DHW + ACC = 7 Boiler circuit pump, domestic hot water and accumulation tank	FR3 = 7 Heating circuit Mixed with fixed temperature without requirement for source **(CANNOT BE USED WITH SEKGSE, SEKGSP)	FR2 = 7 Heating circuit Mixed with fixed temperature without requirement for source	FR1 = 7 Heating circuit Mixed with fixed temperature without requirement for source
-	-	RLA3 = 8 Mixed return temperature to the boiler	RLA2 = 8 Mixed return temperature to the boiler	RLA1 = 8 Mixed return temperature to the boiler
***Custom Definition = 9	***Custom Definition = 9	***Custom Definition = 9	***Custom Definition = 9	***Custom Definition = 9

The boiler type is defined according to the selection in the setup wizard after the first start of the controller.

* The EK function can only be defined by default for one circuit (output).

** The pump terminals of MK, KR and FR mixed circuits are assigned in circuit 3 in the hydraulic connection of the boiler with the SEKGSE and SEKGSP servo flap. The function is not supported by the hydraulic diagram number (cannot be set up). Moving the MKP3, KRP3 or FRP3 pump to another terminal is possible using your own definition during manual configuration.

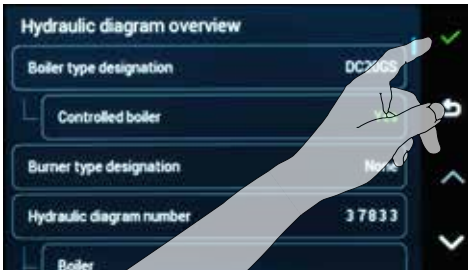
*** If during the first configuration of the controller (Wizard) the number of a specific function cannot be defined, set the **number 0** to the relevant position. After completion of the configuration wizard, enter the **Hydraulics** menu and then the **Function configuration** menu and manually set (adjust) the required function for the boiler and the mixed (heating) circuit. If the manually defined function does not correspond to any function (number) in the key (table) of the hydraulic diagram, the **number 9** is automatically entered in the hydraulic diagram number.



Final confirmation of the specified hydraulic diagram

(confirm with the green arrow at the top right)

(use the red arrow in the upper left corner to return to the previous setting)

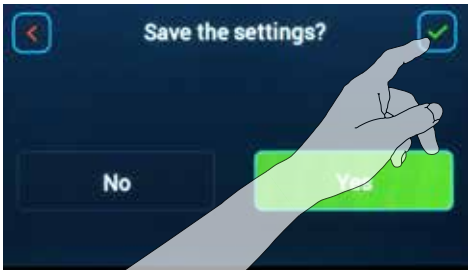


Overview of your entry:

Check, correct and confirm your entry!

(confirm with the green tick at the top right)

(use the white arrow on the right to return to the previous setting)

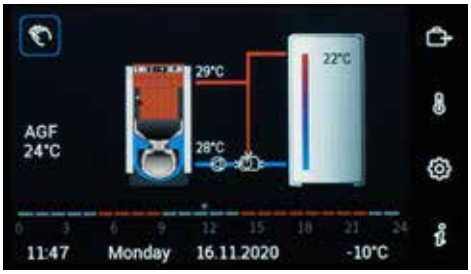


Saving setting

Attention - saving the setting will put the controller into operation.

(confirm with the green arrow at the top right)

(use the red arrow in the upper left corner to return to the previous setting)



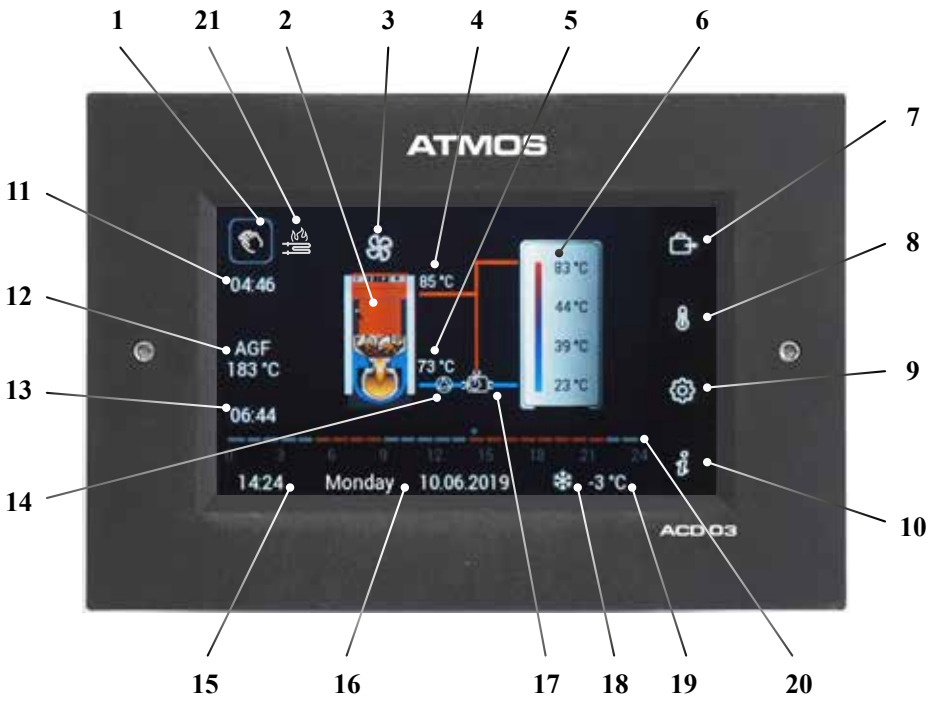
Main screen

Info - after saving the setting, the main screen of your chosen hydraulic diagram appears on the display.

Check everything again and perform the Relay Test (outputs test - pumps, mixing valves, boiler, etc.).
If everything is OK you can put the boiler in operation.

7. BUTTONS AND INFORMATION ON THE SCREEN

ATMOS ACD 03/04 controller display



1 / - exhaust fan start button (off / source switch)
2 - source (boiler)
3 - indicates the boiler fan operation (on = rotates / off = symbol is not displayed)
4 - current boiler operating temperature (boiler water output temperature)
5 - return water temperature (when the function for the control of return water is set up - **return control**)
6 - storage tank and storage tank temperatures (actual display is related to the number of installed sensors and set functions)
7 - button **for setting the working mode**
8 - button **for setting the required temperatures** (heating circuits, DHW)
9 - button **to enter the Setting menu**
10 - button **to enter the Information menu**
11 - time to heat up the boiler (ignition) / fuel loading time
12 - display of the current combustion gas duct temperature (normally it does not mean the combustion products temperature; depending on the sensor location, it shows the reference or actual combustion products temperature)
13 - boiler fan rundown after the burner stops (BRE)
14 - current status of the boiler pump (on = rotates / off = stopped)
15 - actual time
16 - date and day of the week
17 - return water temperature control (return control or Laddomat / TV valve)
18 - active frost protection symbol
19 - current outdoor temperature
20 - display of the time program for the boiler (shows the boiler operation - heating demand)
21 - indicates the activated automatic wood ignition (symbol flashes at the same time)

The main screen contains the most used tools for quick selection.

- Access to settings - **OPERATING MODES**

- Access to heating circuits **TEMPERATURE SETTING**

- Access to menu **SETTING** of parameters

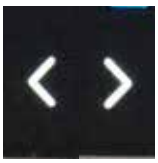
- Access to **INFORMATION**

There are tools for navigation in the menu on the sub-screens.

- Used to return to the main screen

- Used to go back to the previous screen, one step back (one level)

- Used to move in the menu vertically, if you do not use the features of the touch screen



- Used to move in the menu horizontally, if you do not use the features of the touch screen

The following additional tools appear on the controller screens:

- drag up gesture to unlock the screen saver

- button to control the fan of the controlled solid fuel boiler with manual stoking with manual stoking
- for COMBIned boilers (e.g. DCxxSP(L), DCxxGSP(L) or boilers with pellet burner, hold the button to switch to the source selection (switch) screen.
- for boilers with automatic wood ignition, if the button is pressed and held for a longer time (min. 3 s), the setting screen will be entered or the automatic ignition schedule will be deactivated

- by clicking on the button, the operation (of automatic source) is enabled (switched on) or disabled (switched off) (e.g. burner for pellet boilers) and the button changes color

- click on the button to confirm the entered value or to move to the next screen

- click on the button to cancel the entry or to return to the previous screen

- used to copy time program

- used to edit time block (access to the day time block)

- used to add another time block

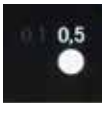
- used to switch between individual blocks / days (to set time programs)

- used to delete time block (to set time programs)

- used to delete the entered character value (Backspace)

- used to switch to the numeric keypad screen

- used to switch to the screen with a sliding gesture



- used to change the size of the step (sensitivity)

Boilers with manual stoking - button to **start the boiler fan** during its firing up (FAN, PRESS) - **short click.**

The time for **firing up a boiler** with manual stoking is factory-set to 60 minutes (→ P08[Boiler] Parameter). The controller remains in **firing up** mode until it reaches the minimum flue gas temperature value defined in → P18[Boiler] Parameter. If the **minimum flue gas temperature** is not reached, the boiler (fan) will be shut down 60 minutes after firing up has started.

Boilers with manual stoking - button to **start FAN exhaust fan** for a limited time (3 min. (using → P09[Boiler] Parameter)) when operating the boiler and when adding fuel or removing ash - **short click.**

Boilers with manual stoking - button for **shutdown of the PRESS pressure fan** for a limited time (3 min. (using → P09[Boiler] Parameter)) when operating the boiler and when adding fuel or removing ash - **short click.**

Automatic boilers - ⏻ button to **start and shutdown** (enable and disable operation) of BRE automatic boiler (burner) - **short click**

Display options:

⏻ - symbol **lights red** (operation disabled) → **short click** → ⏻ - symbol **lights green** (operation enabled)

⏻ - symbol **lights green** (operation enabled) → **short click** → ⏻ - symbol **lights red** (operation disabled)

Operation of the burner enabled (⏻ - symbol indicator light is green) - if there is a requirement of the heating system, the burner will start automatically.

Operation of the burner is disabled (⏻ - symbol indicator light is red) - the burner is switched off by the boiler operator, for example, when cleaning. After switching off (disabling operation) during operation, it is always followed by a burnout phase, which can take 15 - 30 minutes according to the burner setting (T5 parameter).

INFO - burner operation (flame animation) is displayed in case of switching on the L2 control phase of the burner.

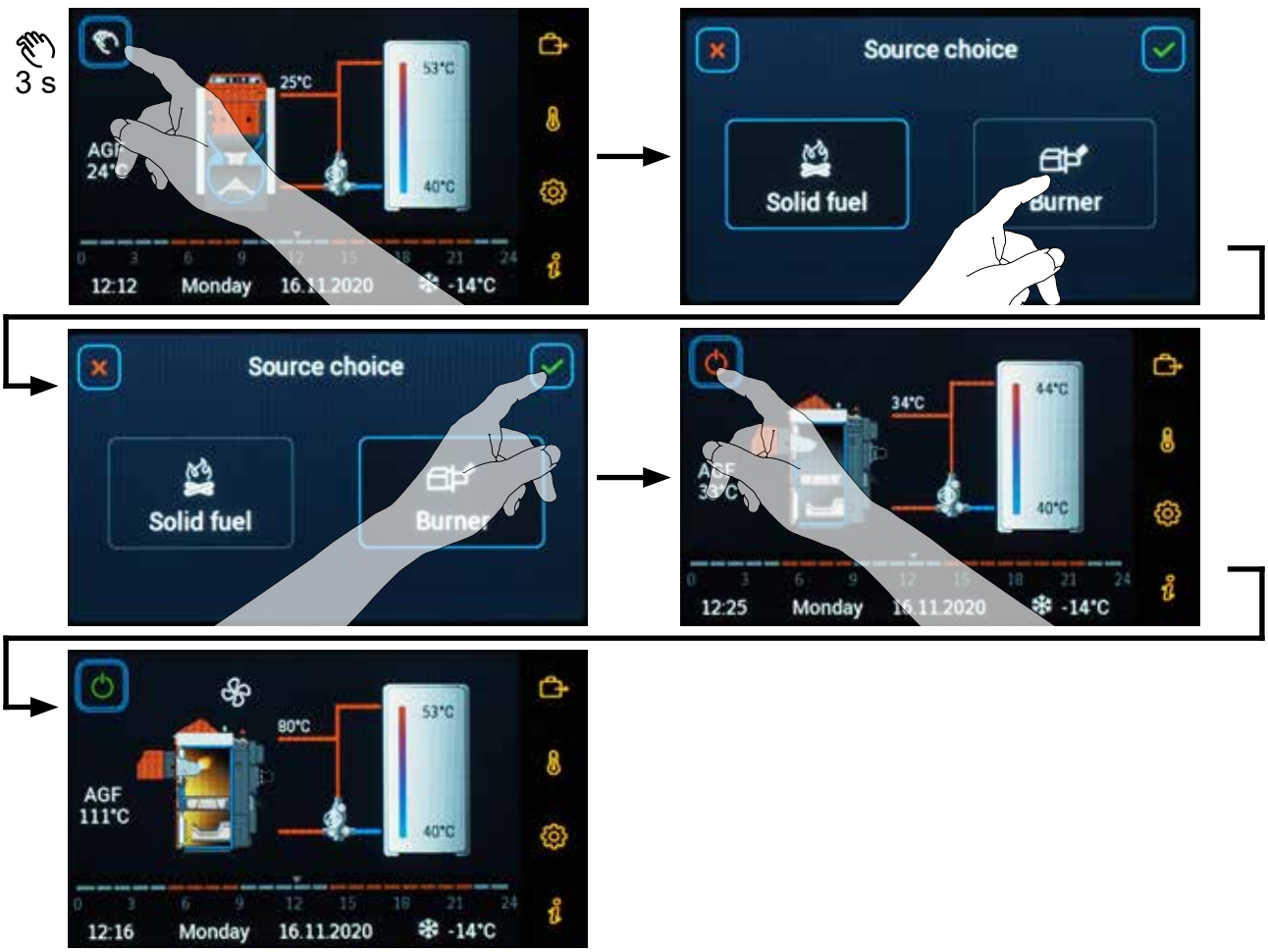
INFO - if the burner is manually **switched off** (disabled) (⏻ - symbol is red), the alarm of the switched off burner is displayed on the ℹ Information button and the "BRE blocked" information is displayed inside!

Combined boilers with burner (manual / automatic) - button to switch between heating with manual and automatic stoking (e.g. wood / pellets) **- press and hold (3 s).**

When switching **from manual** heating (stoking) **to automatic heating with burner**, the change of source is performed by holding down the button with the hand symbol **for more than 3 seconds.**

If the boiler is **not in operation (not burning)** (the flue gas temperature is **lower** than the AGFmin minimum flue gas temperature defined by →P18[Boiler] Parameter), the source will be switched immediately. The operation of the burner must be enabled by clicking on the symbol only after it is fitted to the boiler (the burner will be switched on in case of the requirement of the heating system).

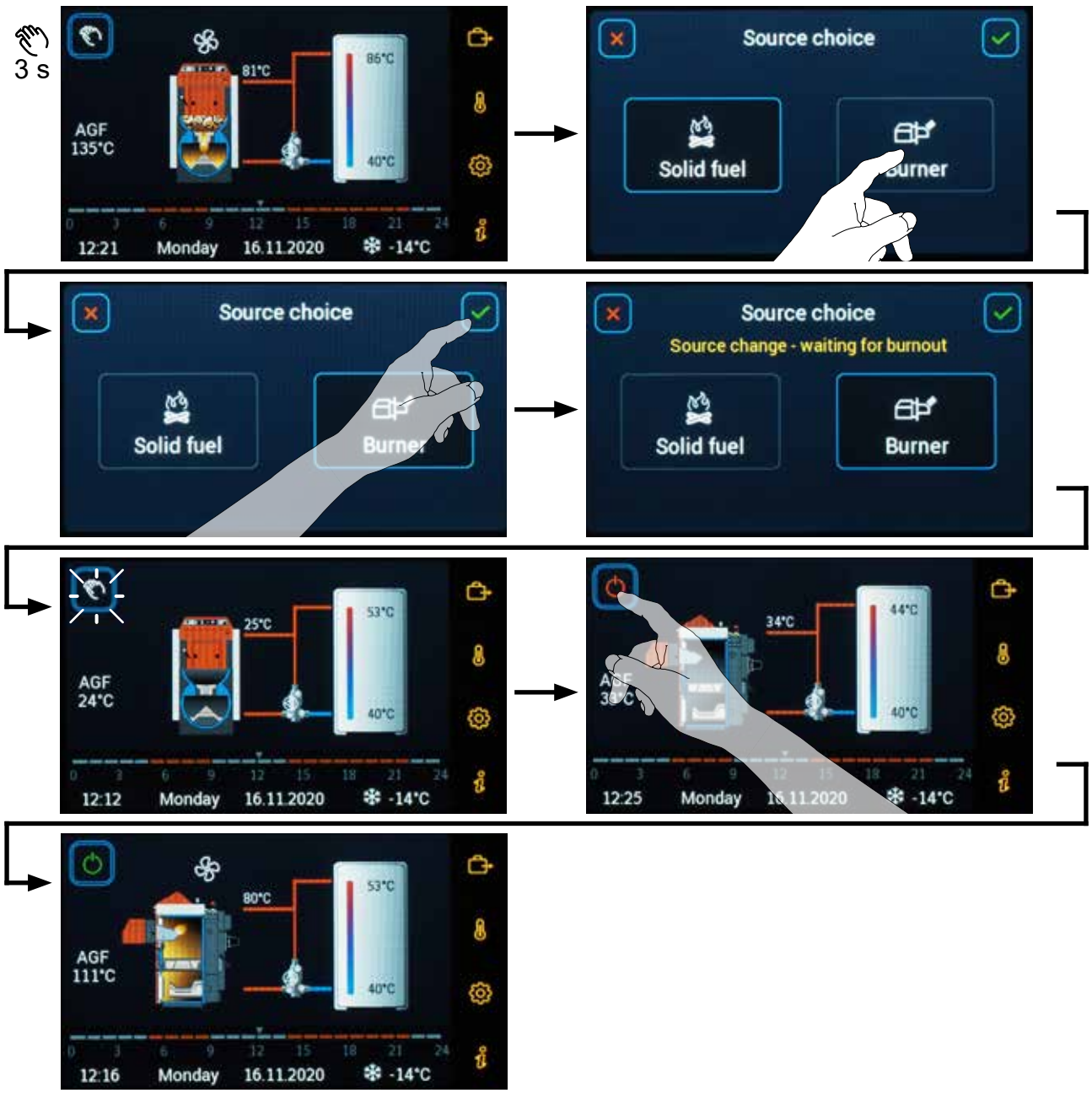
- Symbol **light turns red** (operation disabled) → **short click** → - symbol **light turns green** (operation enabled)



ATTENTION - Do not connect the burner power connector until the burner has been completely installed in the boiler.

If the boiler is **in operation**, when the flue gas temperature is higher than the AGFmin minimum flue gas temperature defined by ⚙→ P18[Boiler] Parameter, the ✋ hand symbol button will flash. This means that you must first wait for the boiler to burn out **for safety reasons**. After it burns out (the button with the ✋ hand symbol stops flashing), perform the installation of the burner on the boiler and enable its start by clicking on the ⏻ symbol (the burner starts in case of heating system requirement).

⏻ - Symbol **light turns red** (operation disabled) → **short click** → ⏻ - symbol **light turns green** (operation enabled)

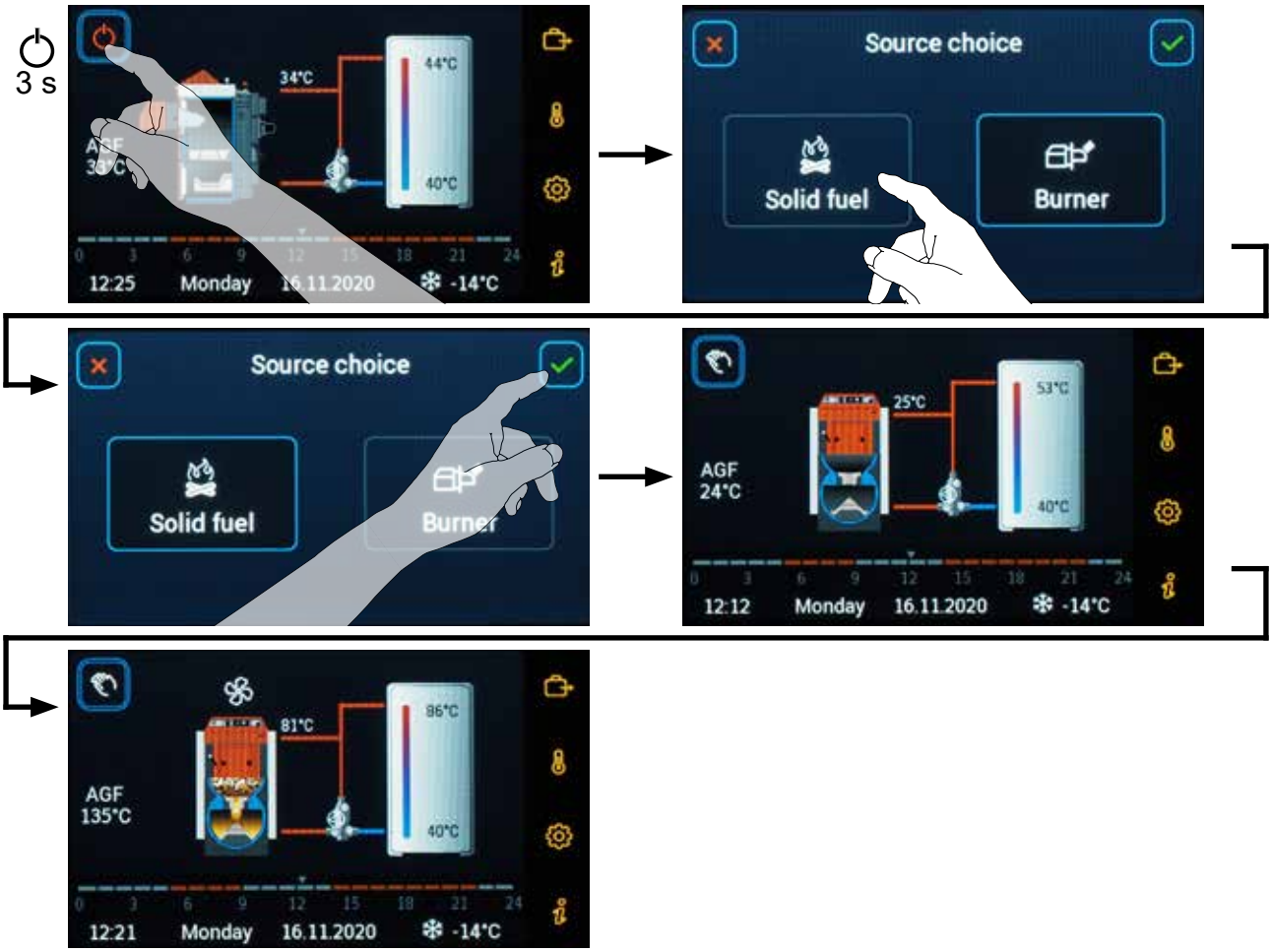


ATTENTION - Do not connect the burner power connector until the burner has been completely installed in the boiler.

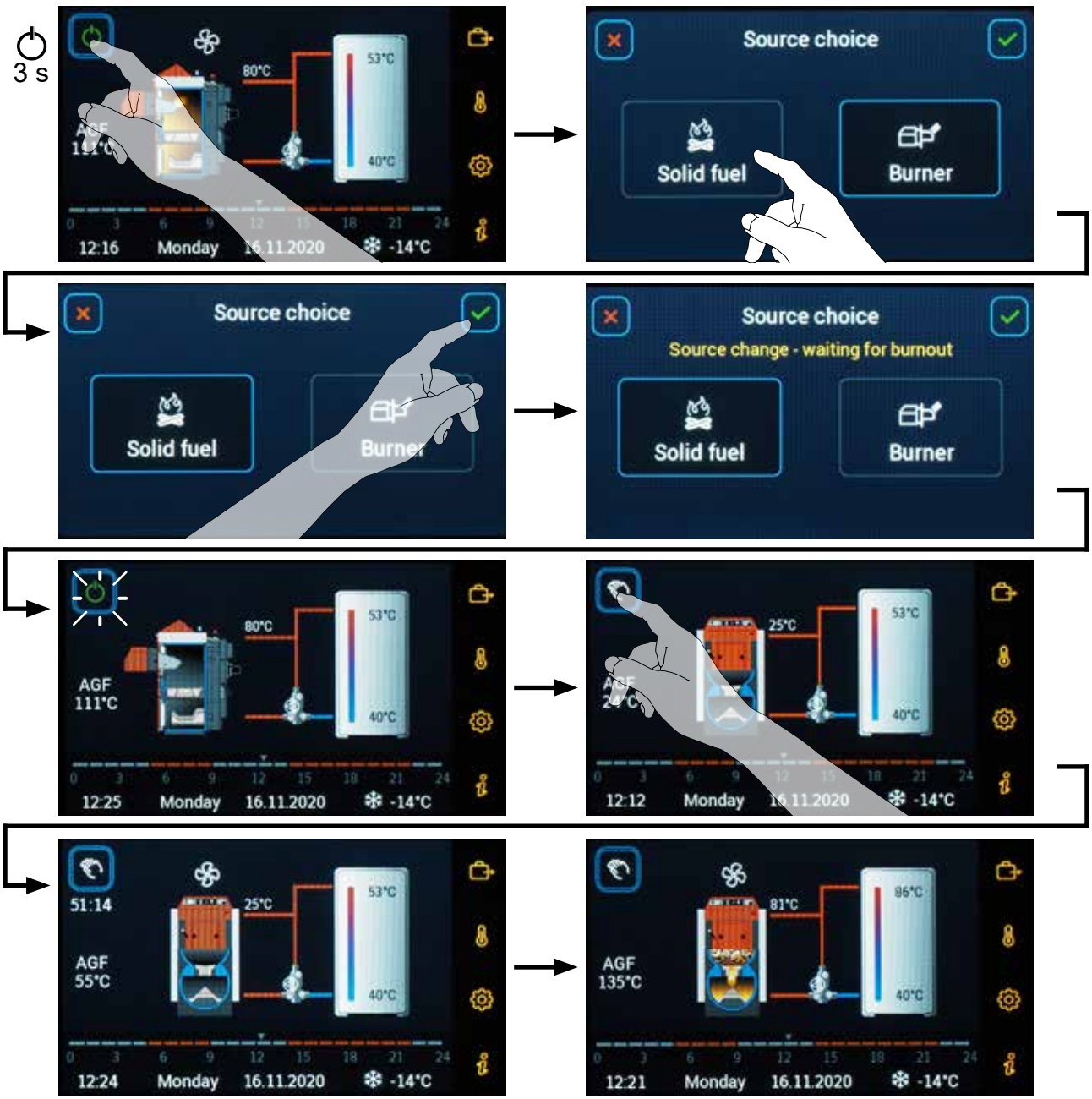
Combined boilers with burner (automatic / manual) - ⏻ button to **switch** between heating with automatic and manual stoking (e.g. wood / pellets) - **press and hold (3 s).**

When switching **from automatic** heating (stoking) **to manual** heating, the change of source is performed by holding down the button with the ⏻ symbol **for more than 3 seconds.**

If the boiler (BRE burner) **is not in operation** (burner STOPped), the source is switched immediately and the burner can be **safely** removed from the boiler and stoking can be performed (manually).



If the boiler (BRE burner) is **in operation** (burner in operation - RUN), the button with the ⏻ symbol flashes and the burner is switched into burnout. The time countdown defined in ⚙→🔥 P24[Boiler] Parameter is started on the display. After this time has elapsed (P24[Boiler] Parameter ≥ burner T5 parameter), the burner can be **safely** removed from the boiler (burner has burned out) and stoking can be performed (manually).



INFO - production setting for boilers with burner = ⚙→🔥 P21[Boiler] Parameter - 2-BRE+time (boiler fan switches off with delay according to the time set in ⚙→🔥 P24[Boiler] Parameter)

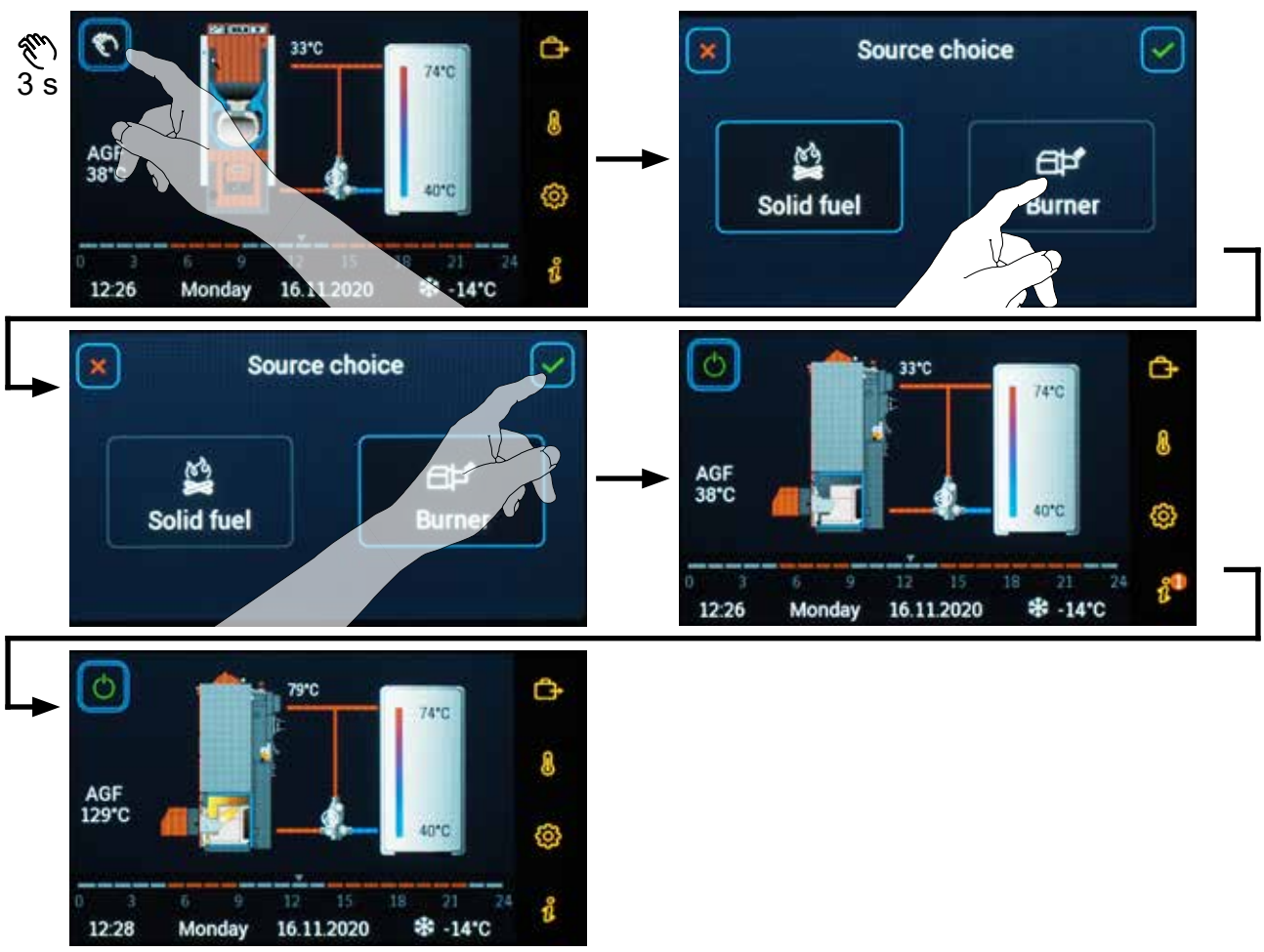
ATTENTION - When removing the burner from the boiler, always disconnect the connector for its power supply.

DCxxSP(X), DCxxGSP combined boilers (manual / automatic)

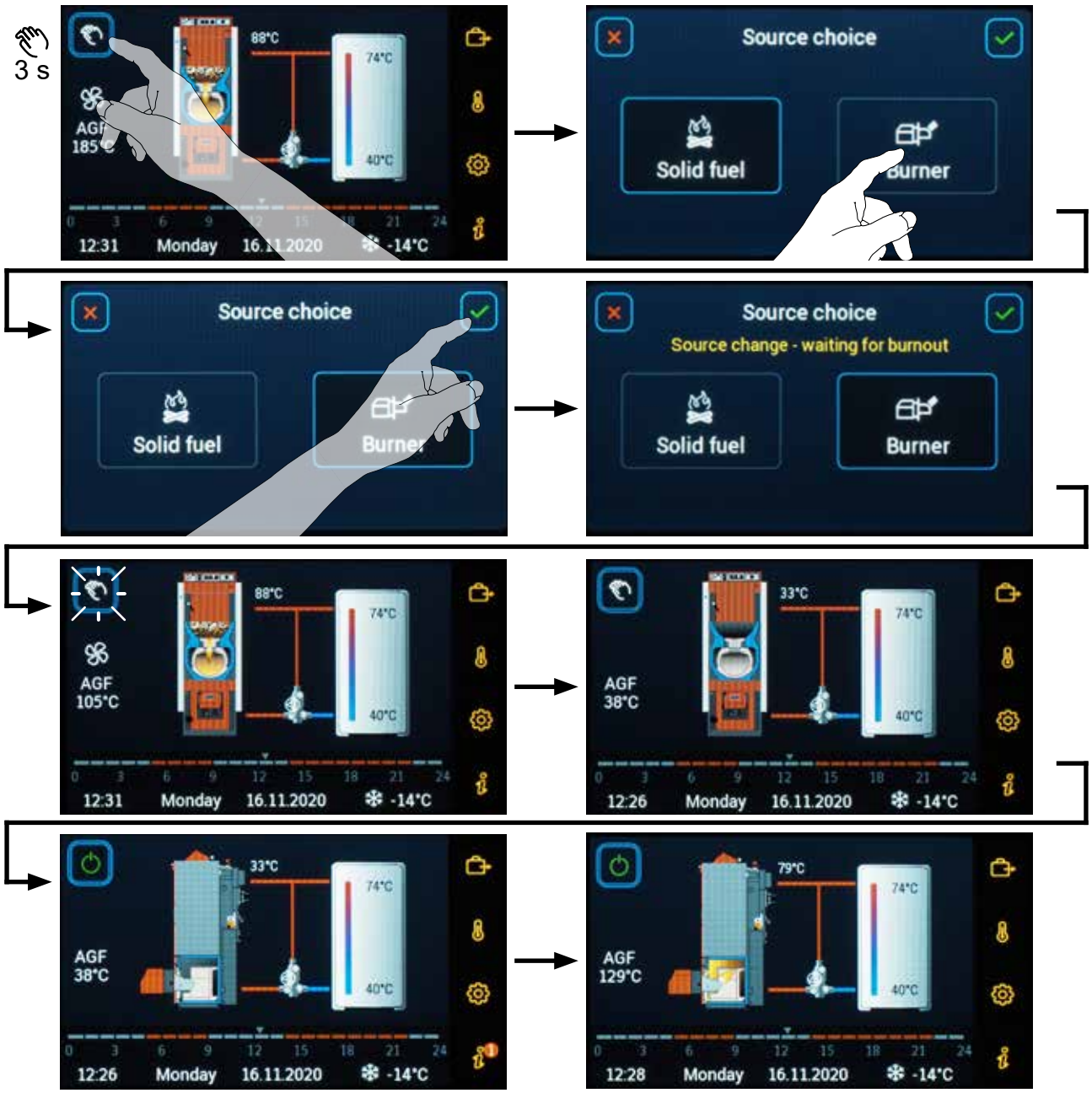
For DCxxSP(X), DCxxGSP combined boilers, where the pellet burner is permanently installed in the lower (third) chamber, it is possible to select either **manual** switching or **automatic switching** of operation after wood burnout. This depends on the ⚙→🔥 P23[Boiler] Parameter setting.

Manual switching (P23[Boiler] Parameter = **1-manually**) - switching **from manual heating** (stoking) **to automatic heating** with burner is performed by holding down the button with the ✋ hand symbol for **more than 3 seconds.**

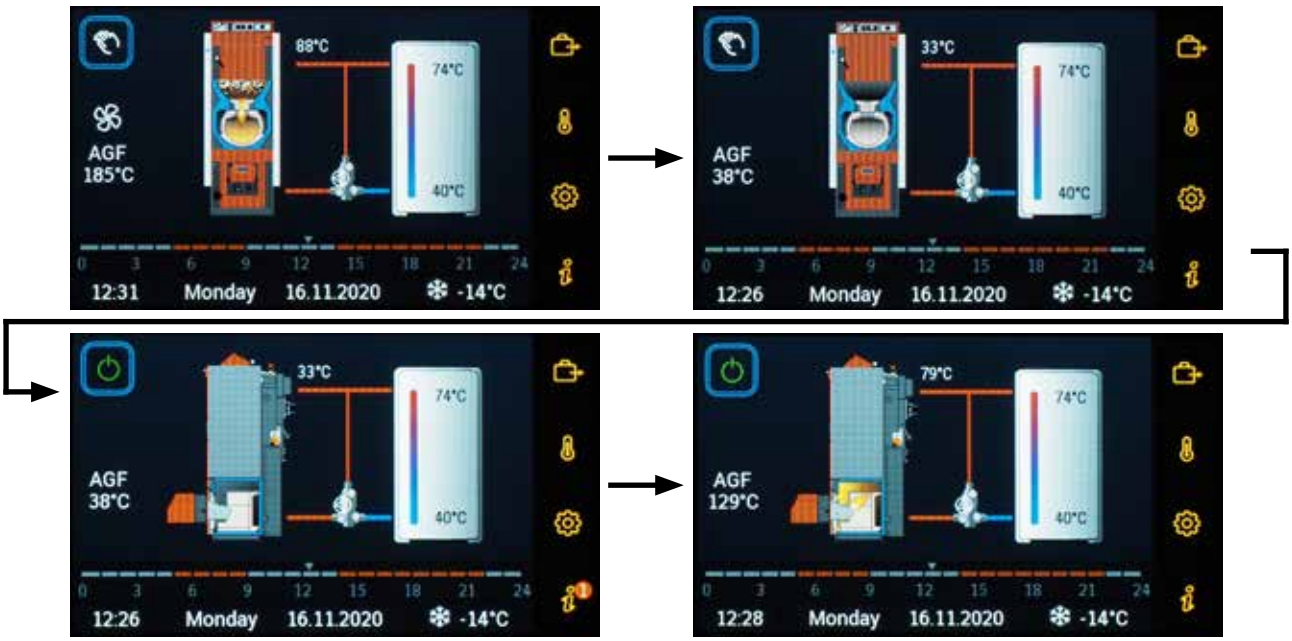
If the boiler is not in operation (not burning), the flue gas temperature is lower than the AGFmin minimum flue gas temperature defined by ⚙→🔥 P18[Boiler] Parameter, the source will be switched immediately and **in case of heating system demand** the burner is switched on (started).



If the boiler is **in operation**, when the flue gas temperature is higher than the AGFmin minimum flue gas temperature defined by ⚙→ P18[Boiler] Parameter, the hand symbol button will flash and the switching on to burner is performed after burnout of the boiler. **If there is a heating system requirement**, the burner is switched on (started).



Automatic switching (⚙→🔥 P23[Boiler] Parameter = **2- automatically**) - switching from **manual heating** (stocking) **to automatic heating** with burner always **occurs always** after wood burns out, when the flue gas temperature drops below the AGFmin minimum flue gas temperature defined by ⚙ →🔥 P18[Boiler] Parameter. Operation of the burner (immediate start) depends on the requirement of the heating system.



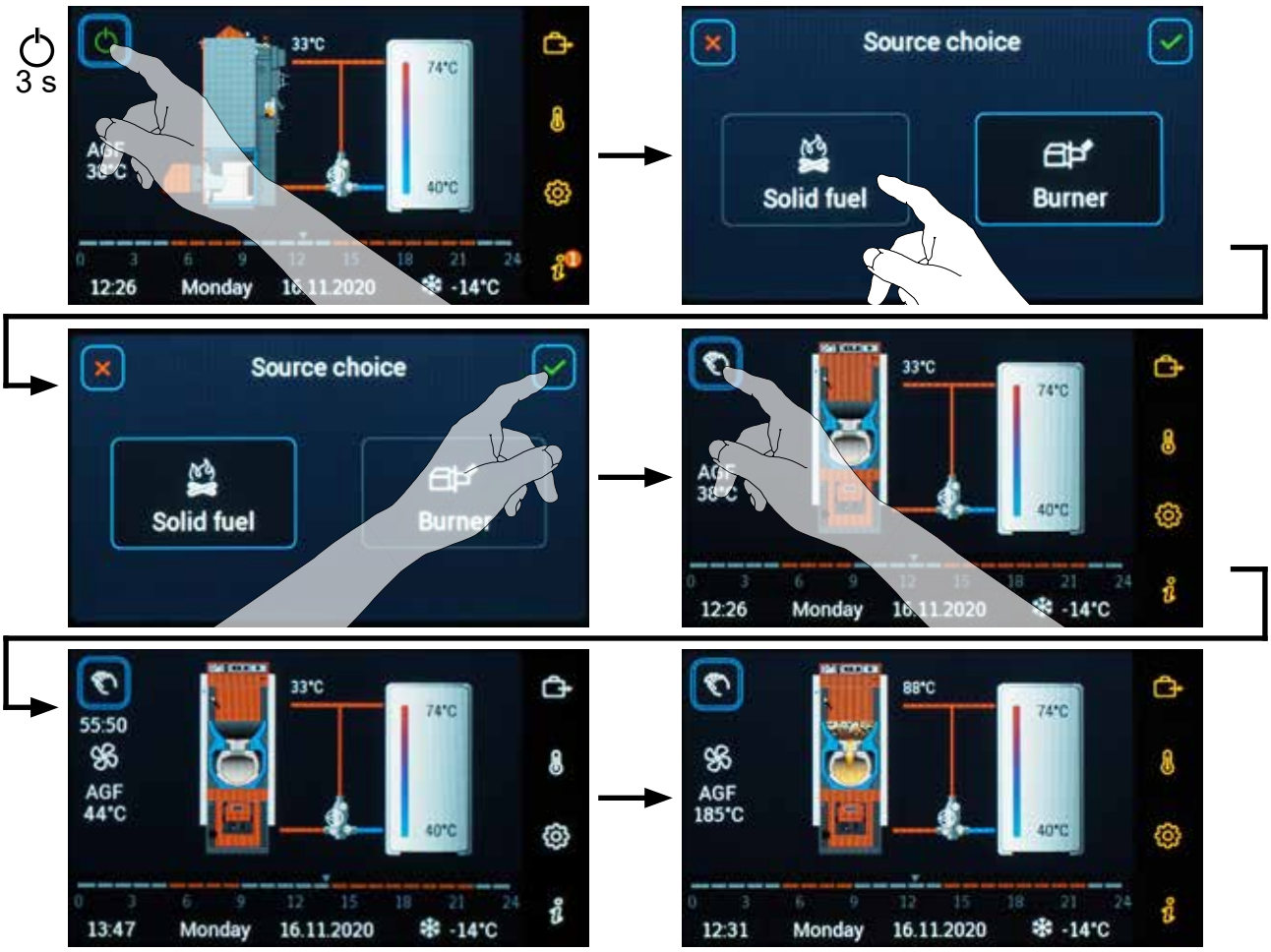
INFO - If the burner was previously disabled (⏻ - the symbol is lit in red), then its operation will remain disabled even after switching the source.

ATTENTION - In order to start the burner (BRE), the limit switch on the boiler hood must be pressed (blue button next to the upper door).

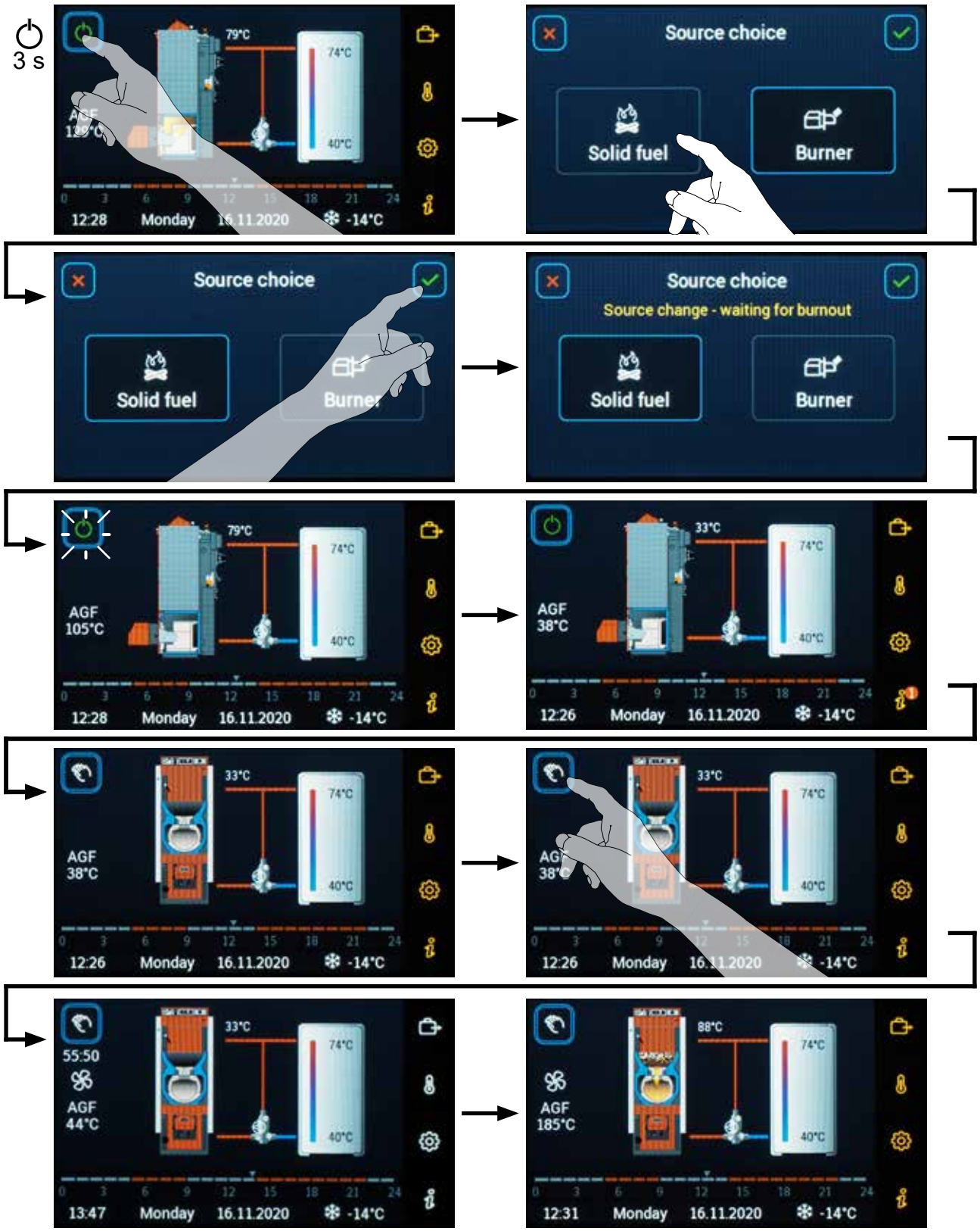
DCxxSP(X), DCxxGSP combined boilers (automatic / manual) - button to **switch** between heating with **automatic and manual** stoking (e.g. pellets / wood) - **press and hold (3 s).**

When switching **from automatic heating** (stoking) with burner **to manual heating**, the change of source is performed by holding down the button with the ⏻ symbol **for more than 3 seconds.**

If the boiler (BRE burner) is **not in operation** (burner STOPped), you can **safely** open the upper door of the boiler for (manual) stoking.



If the boiler (BRE burner) is **in operation** (burner in OPERATION), the button with the ⏻ symbol flashes. After the burner burns out and the flue gas temperature drops below the AGFmin minimum flue gas temperature defined by ⚙→🔥 P18[Boiler] Parameter, the source is switched and the button with the ✋ hand symbol is displayed. After that, you can **safely** open the upper door of the boiler for (manual) stoking.



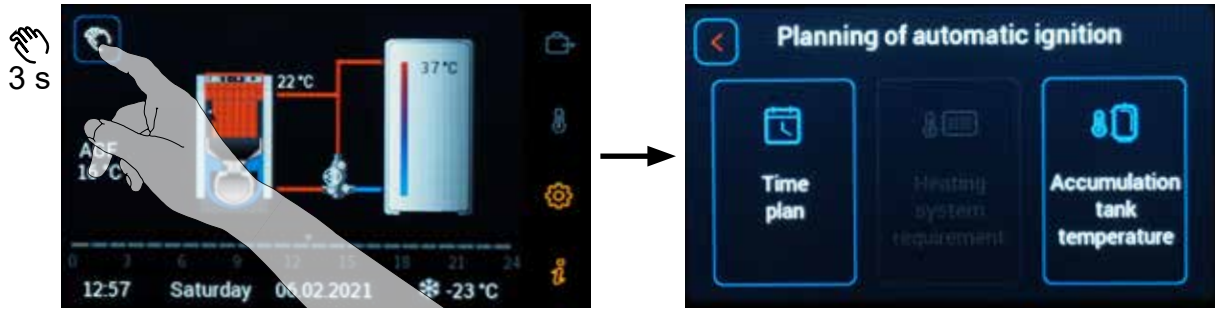
INFO - If the burner is manually **switched off** (disabled) (⏻ - symbol is red), the alarm of the switched off burner is displayed on the ℹ Information button and the BRE blocked information is displayed inside!

ATTENTION - production settings for DCxxSP(X), DCxxGSP boilers = ⚙→ P21 Boiler Parameter – **OFF** – boiler exhaust fan does not run during burner operation.

INFO - If you turn the burner off **during its operation** (disable its operation), then its operation will remain disabled even after switching from manual heating (stoking) to automatic operation with burner.

Boilers with manual stoking and **automatic wood ignition – button with the hand symbol for setting (planning) of automatic boiler ignition. To enter the planning screen**, press and hold the button with the hand symbol for **more than 3 seconds.**

ATTENTION – If the selected type of boiler with automatic ignition is set, the function is switched on. To set the type of the boiler, go to the menu →Hydraulics/Hydraulic diagram overview/Boiler type designation (e.g. DC25GD with ignition). The function can be additionally switched on in the menu →Hydraulics/Function configuration/Boiler/ AIW – Automatic wood ignition.



INFO – To enter the screen (to enter the menu) of automatic wood ignition planning, it is also possible to use the button (enter the settings menu), under which we click on the automatic wood ignition symbol.

Select the method how the automatic wood ignition should be switched on.

Choose from three basic options:

Time plan (according to the time program)

System requirement (for installation without accumulation tanks)

Accumulation temperature (according to the discharge (of temperature) of the accumulation tank)

According to the time plan – Allows to set the **date/day and time** when the wood should be automatically ignited.

Today – Quick setting of the ignition time on the same day when you enter the menu

Tomorrow – Quick setting of the ignition time on the following day

Time schedule – Allows to set the ignition on any day and time in the calendar

According to the system requirement – Allows to set automatic ignition according **to the requirement of the heating system** (heating circuits, DHW heating), for installations without accumulation tank.

INFO – When the boiler is installed with an accumulation tank, the item is not active (not visible).

According to the accumulation temperature – Allows to set the **accumulation tank temperature (PF top sensor)** at which automatic ignition will occur. After setting the required temperature, it is possible to set the **Ignition start delay** of the fuel ignition (0–72 hours).

INFO – When the boiler is installed without an accumulation tank, the item is not active (not visible).

After setting (planning), switch on the automatic wood ignition function **by pressing the green START button.**

CAUTION – Before confirming, check the retracted (closed) ignition valve and the properly closed and secured door (locking screw) and cleaning apertures.

If the function is activated properly, the automatic wood ignition icon is displayed on the main screen next to the flashing hand button. The information icon shows an overview of the plan and the status (on/off) of the ignition spiral.

When the automatic ignition of wood is started, the boiler exhaust fan and the ignition spiral are turned on. Everything is indicated by the flashing of the automatic ignition symbol next to the hand symbol button.

The planned start can be easily cancelled. Press and hold the button with the hand symbol for more than 3 seconds or enter **the automatic wood ignition menu** via the ⚙→ button. To cancel the automatic wood ignition, press the red **Yes/STOP** button.

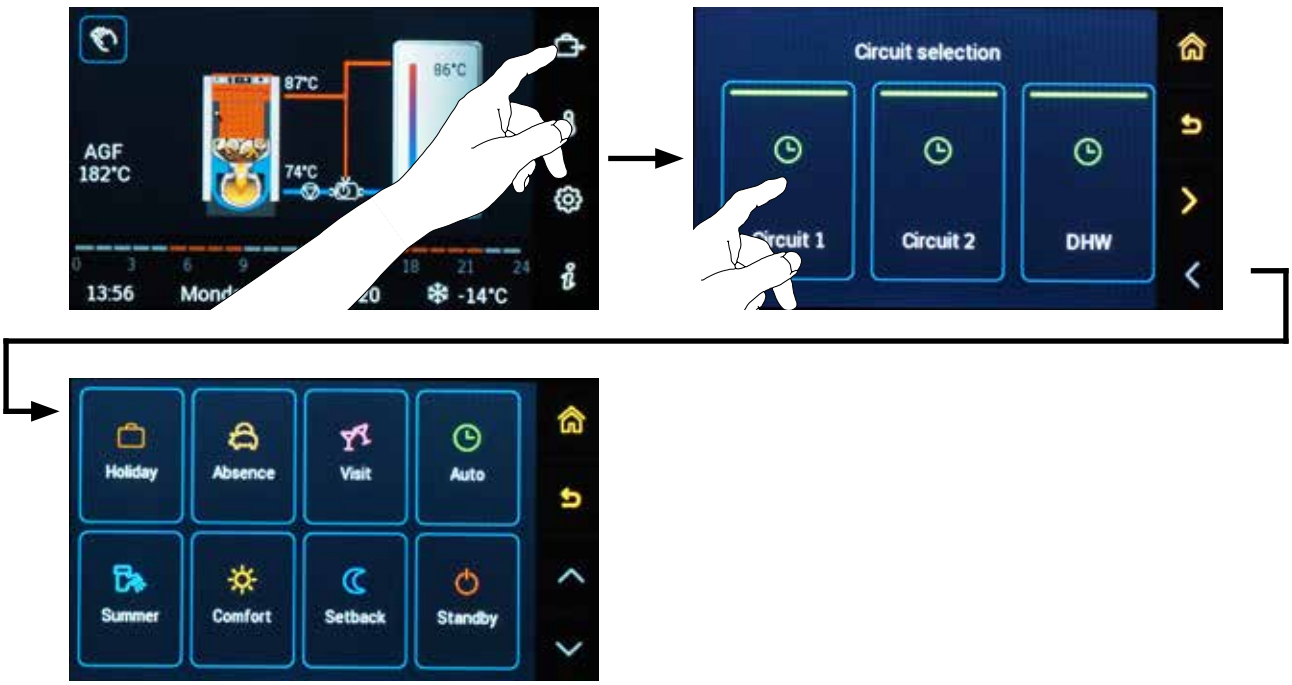
The operation information about the automatic wood ignition can be found in the **Information** menu.

INFO – If the ignition failed (flue gas temperature did not exceed 80 °C ⚙→ Parameter P18[Boiler]), the boiler will be shut down after the ignition time has elapsed (60 min - ⚙→ Parameter P08[Boiler]). Information about a failed ignition is displayed in Information – Wood ignition failed!

8. OPERATING MODES MENU

Operating modes menu is used to set individual functions and temperatures for defined circuits.

Before setting the selected mode, select the (heating) circuit for which the mode is to be set.



Circuits without connection (Summer mode not active)

Circuits with connection (Summer mode active)

After entering the operating modes menu (tile with symbol), the controller shall offer the user the possibility to set different operating modes for individual heating circuits including domestic hot water (DHW) heating.

Holiday | Absence | Visit | Auto
Summer | Comfort | Setback | Standby

The operating modes are divided according to their duration into 2 types - **permanent / temporary**

The controller (selected circuit) remains in a **permanent mode** until the user changes it.

Permanent modes

| Auto | Summer | Comfort | Setback | Standby

The controller (selected circuit) remains in a **temporary mode** for a preset period of time and then automatically returns to the original mode.

Temporary modes

Holiday | Absence | Visit

INFO - After touching the required mode, the modes (**Auto** | **Summer** | **Comfort** | **Setback** | **Standby**) will be automatically set.

Basic description of operating modes

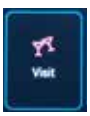
- When the mode is set to **StandBy** ⏻ , all heating, domestic hot water (DHW), solar, etc. functions of the controller are switched off. The controller only provides frost protection ❄.

- When the mode is set to **Setback** ☾ , the controller permanently maintains the **economic temperature** for the relevant heating circuit.

- When the mode is set to **Comfort** ☼ , the controller permanently maintains the **comfort temperature** for the relevant heating circuit.

- When the mode is set to **Summer** , the controller only provides domestic hot water (DHW). Heating circuits are switched off. (The function is only available if the DHW circuit mode connection to a heating circuit is set (→ Hydraulics / Function configuration / Heating circuit function / Control circuit connection = Yes)

- When the mode is set to **Auto** 🕒 , the controller maintains predefined temperatures (Comfort / Setback) depending on the setting of the time (weekly) programs.
For **Auto** 🕒 mode, you can select the type of weekly program. You can choose from two different weekly program options (one-week / three-week A - B - C), according to previous custom settings.



- When the mode is set to **Visit** , the controller temporarily maintains the **Comfort** ☼ temperature for a preset period of time.
Therefore, for **Visit** mode, it is necessary to set the mode duration period (hours, minutes), after which the originally set mode and temperature is reset.

- When the mode is set to **Absence** , the controller temporarily maintains the **Economic (Setback)** ☾ temperature for a preset period of time.
Therefore, for **Absence** mode, it is necessary to set the mode duration period (hours, minutes), after which the originally set mode is reset.

- When the mode is set to **Holiday** , the controller remains in **StandBy** ⏻ mode with frost protection (unless set otherwise - Economic mode) for a preset period of time (depending on its setting, e.g. frost protection temperature).
Therefore, for mode **Holiday** , it is necessary to set the mode period (days), for which the room unit shall remain in that mode.

INFO - Temporary modes are most often used as a non-recurring change, after which the system returns to **Auto** mode 🕒 .

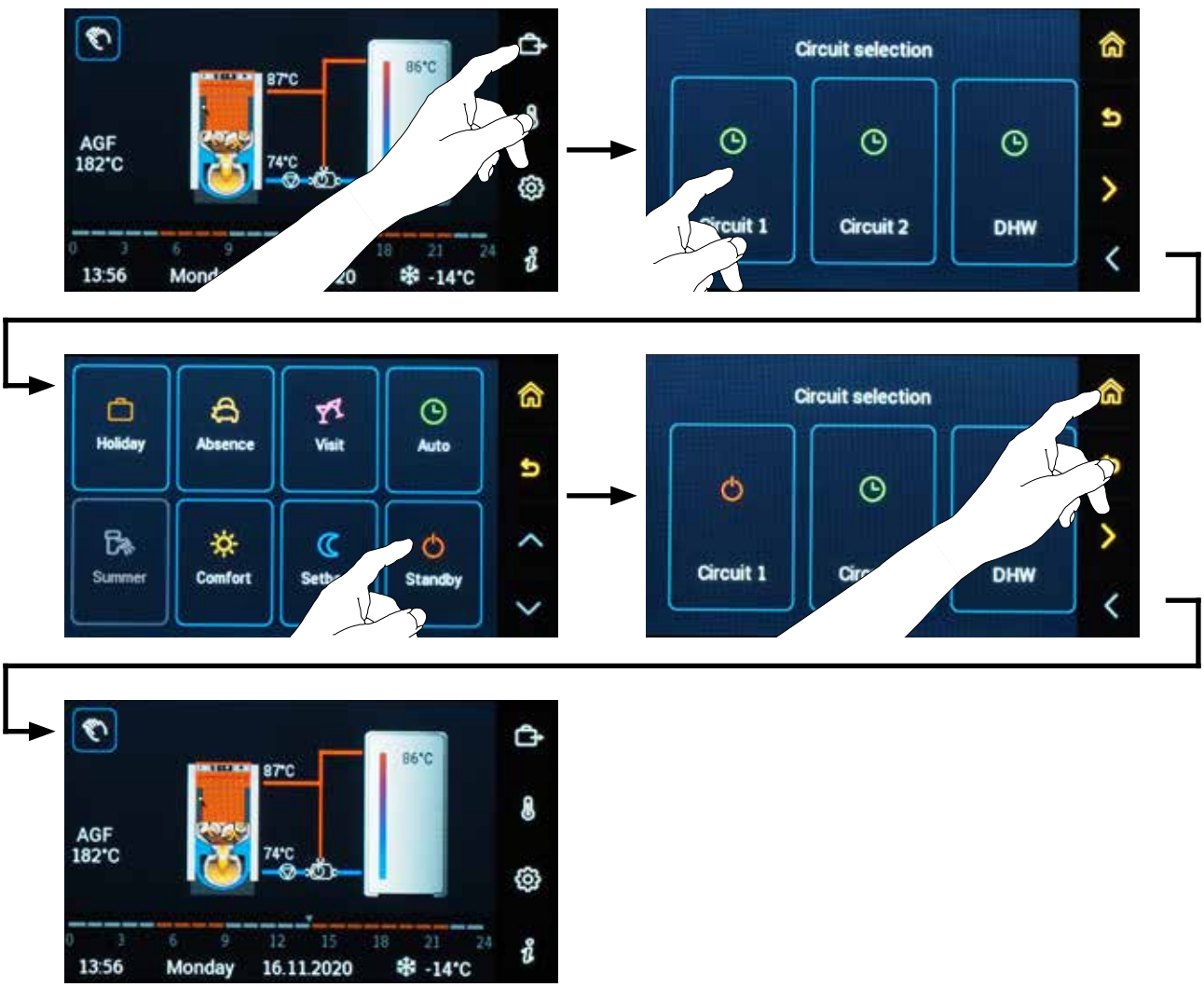
Standby - permanent working mode

In this mode, the heating of all selected heating circuits and DHW heating is switched off.

Only the room frost protection remains active
(⚙→ P08[Heating circuit] Parameter = 8,0 °C)

INFO - The **Information** *i* for the heating circuit shows the current and required room temperature or DHW temperature (if detected) and the working mode.

Example setting

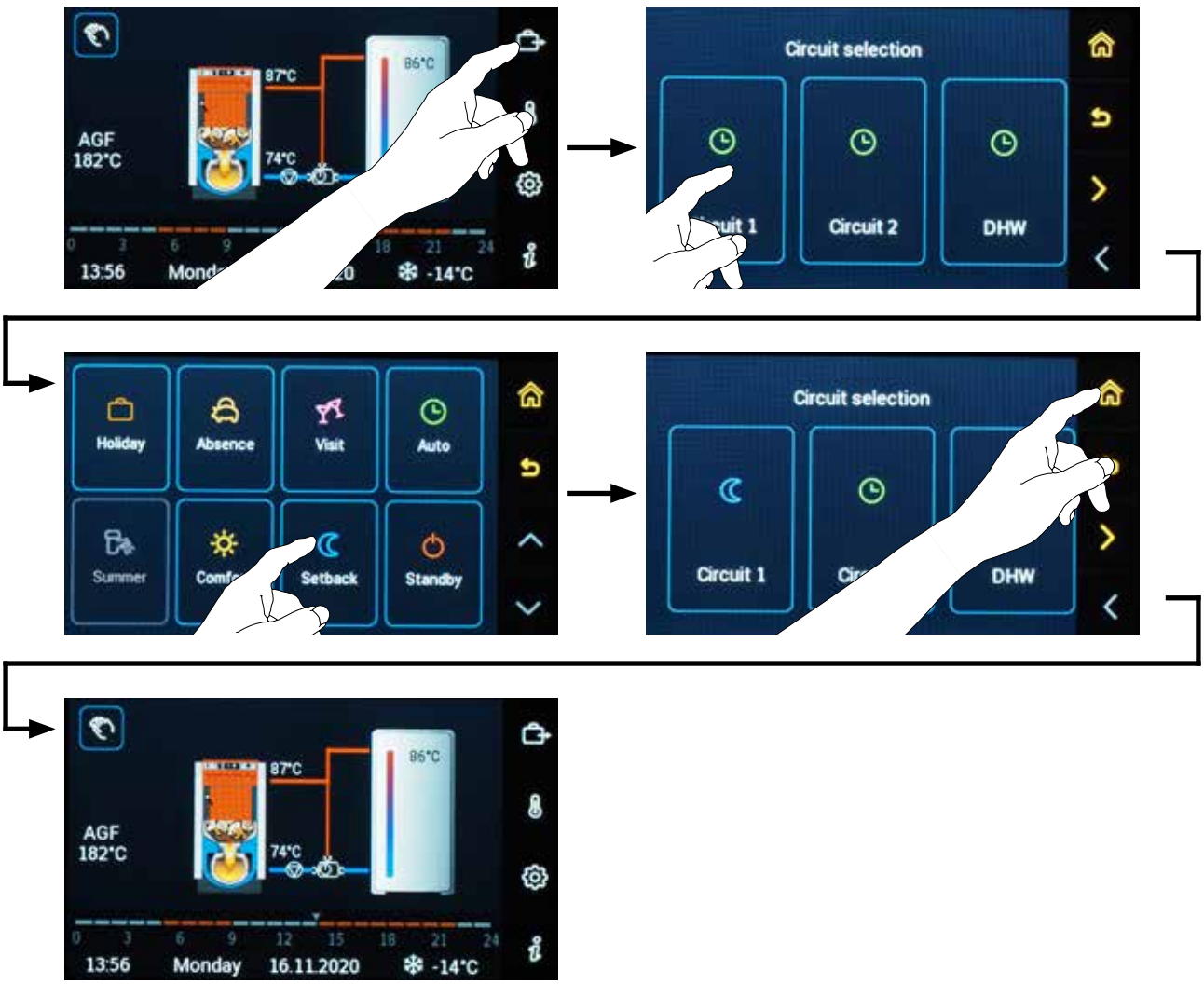


Setback - permanent working mode

When the mode is set to **Setback** ☾, the controller permanently maintains the **economic temperature** ☾ for the relevant heating circuit (including heating of DHW).

INFO - The **Information** *i* for the heating circuit shows the current and required room temperature or DHW temperature (if detected) and the working mode.

Example setting

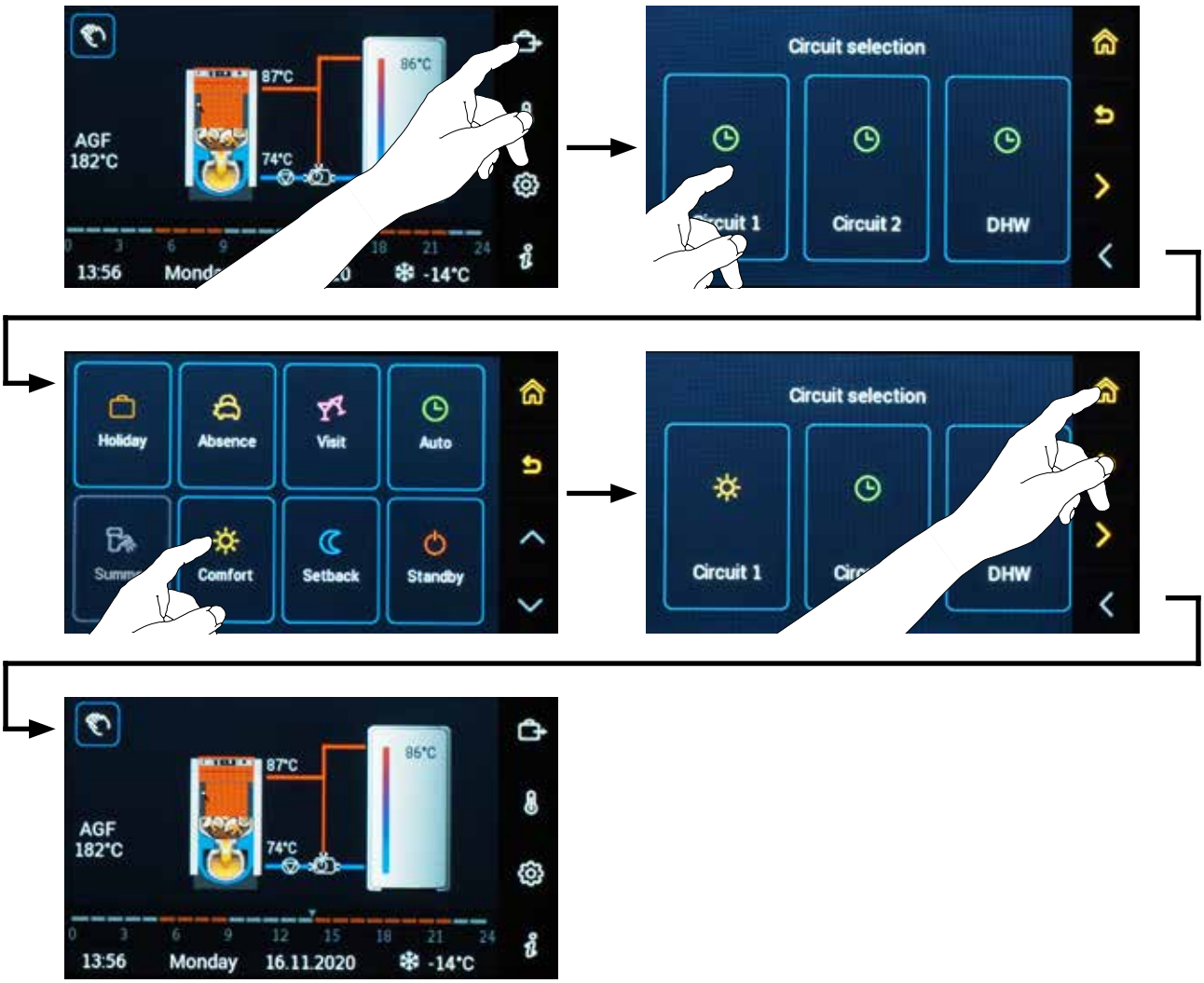


Comfort - permanent working mode

When the mode is set to **Comfort** ☼ , the controller permanently maintains **the comfort temperature** ☼ for the relevant heating circuit (including heating of DHW).

INFO - The **Information** *i* for the heating circuit shows the current and required room temperature or DHW temperature (if detected) and the working mode.

Example setting



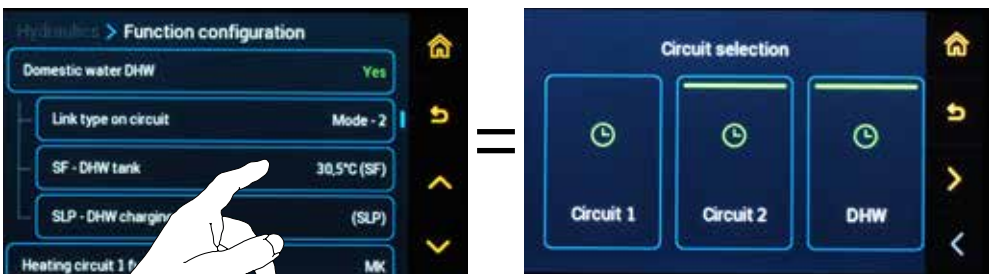
Summer - permanent working mode

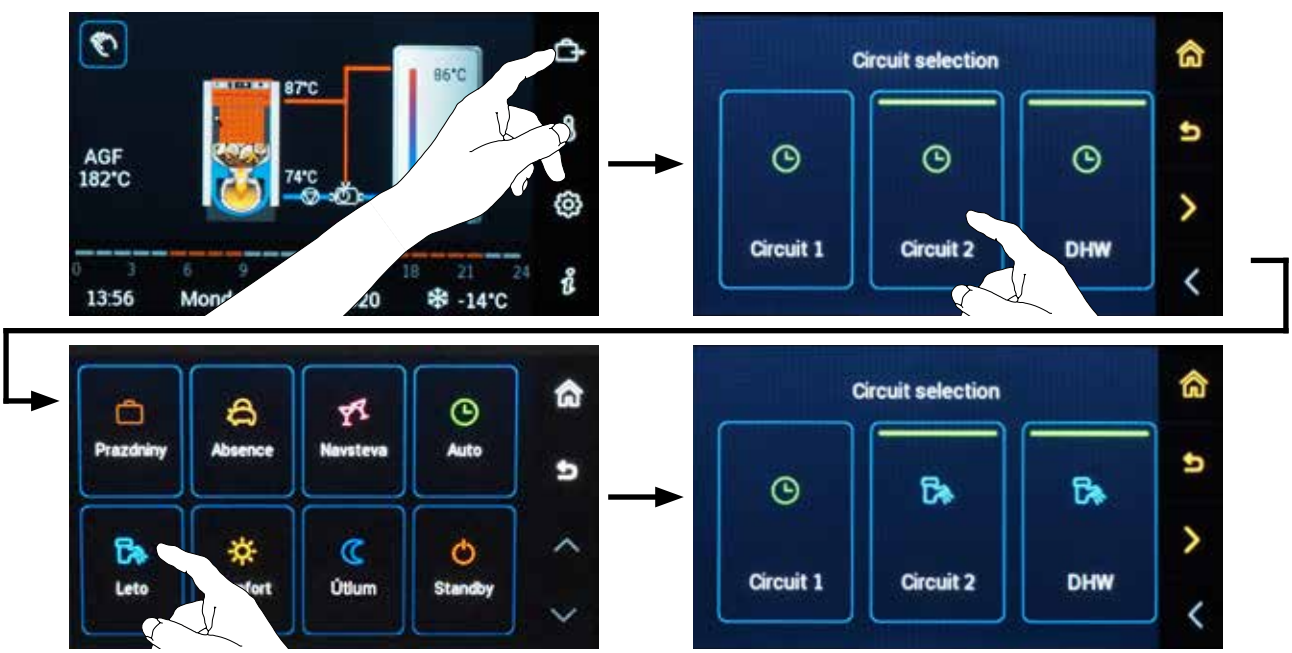
Summer working mode is only active if DHW circuit mode connection to a heating circuit is set (⚙→🔧 Hydraulics / Function configuration / DHW domestic water / Connection to control circuit = Yes).

Subsequently, the DHW heating is controlled according to the controller in the AUTO operating mode and for heating circuits the request is set only for antifreeze room temperature ⚙→▥ P08[Heating circuit] Parameter. This is, for example, during a transitional period in spring or autumn, when it is not necessary to use the heating, but only (domestic water) DHW is required.

INFO - The **Information** *i* for the heating circuit shows the current and required room temperature or DHW temperature (if detected) and the working mode.

Example setting





Auto (time program) - permanent working mode

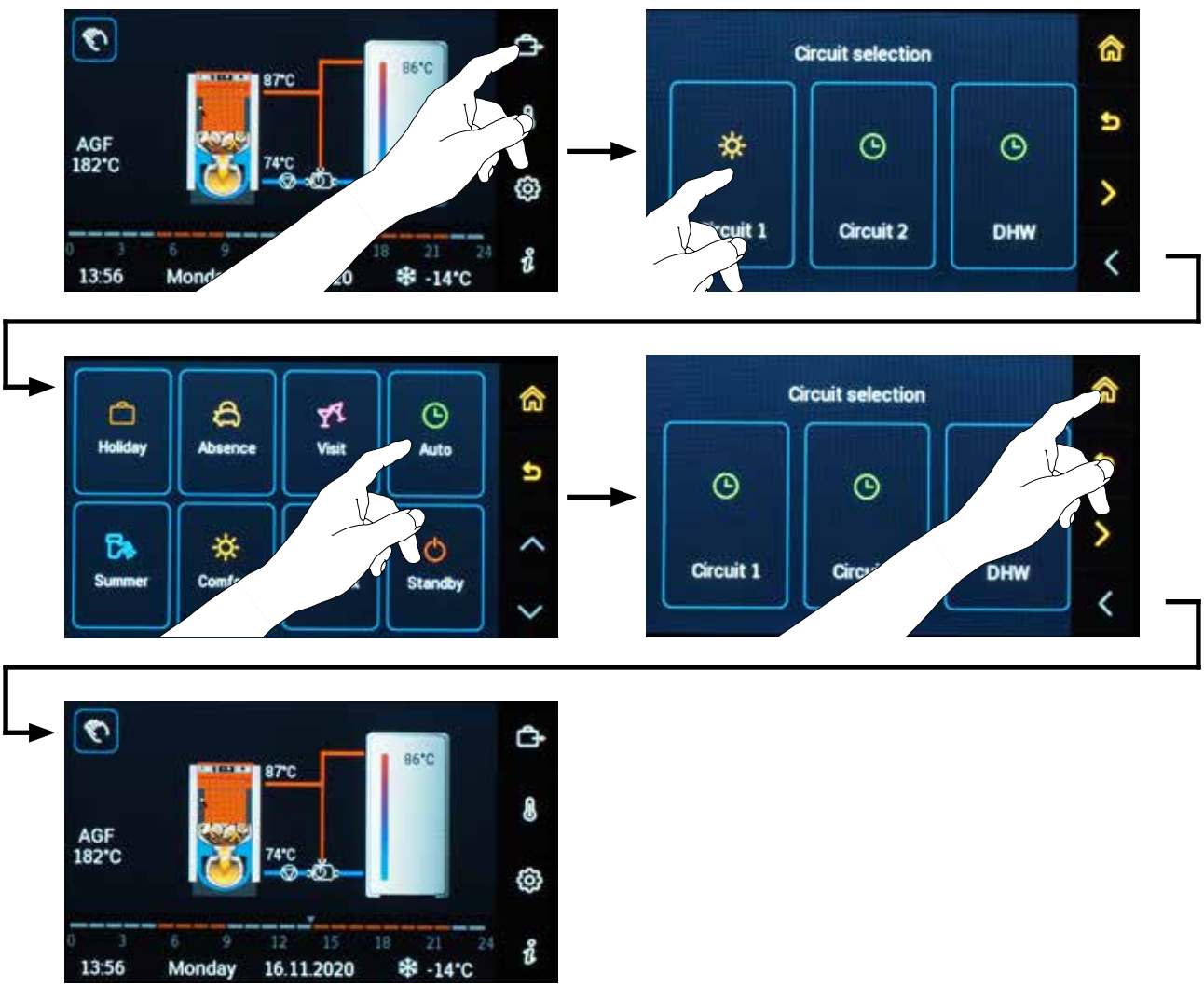
The working mode switches between **Comfort** ☼ (daytime) and **Setback (Eckonomic)** ☾ (night) temperatures according to the timeline of the set time program.

When setting ⚙→ P02[System] Parameter = 2 – week A, B, C, (three-week A - B - C), it is possible to choose from 3 time programs, which can be used e.g. for shift work (morning - afternoon - night), holiday season (Christmas, etc.), period of illness, etc. Thus, the user can simply choose heating according to a different time schedule than the one which is normally used.

INFO - The **Information** ℹ for the heating circuit shows the current and required room temperature or DHW temperature (if detected) and the working mode.

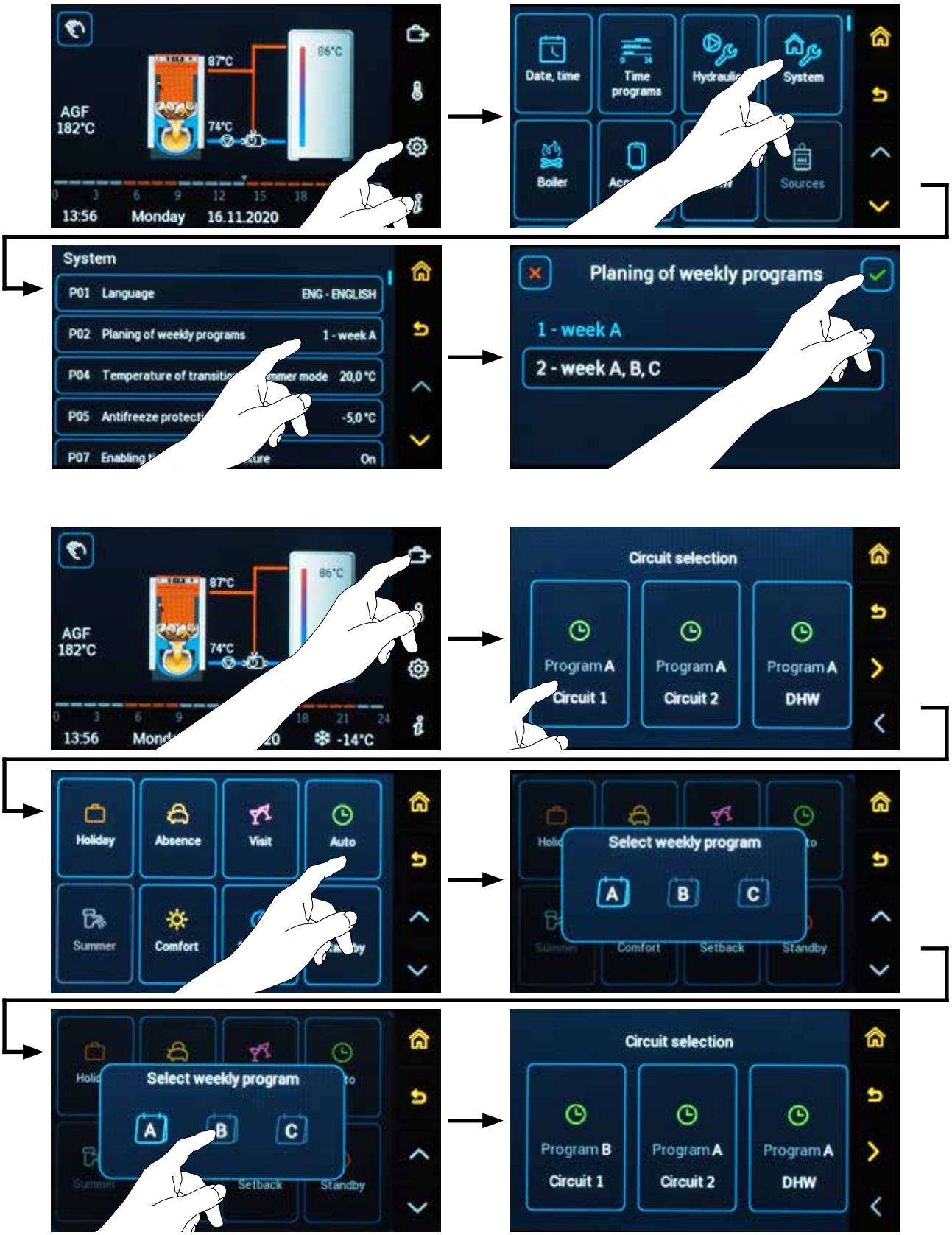
Example setting

Auto (time program) - one-week mode A



Example setting

Auto (time program) - three-week mode A - B - C



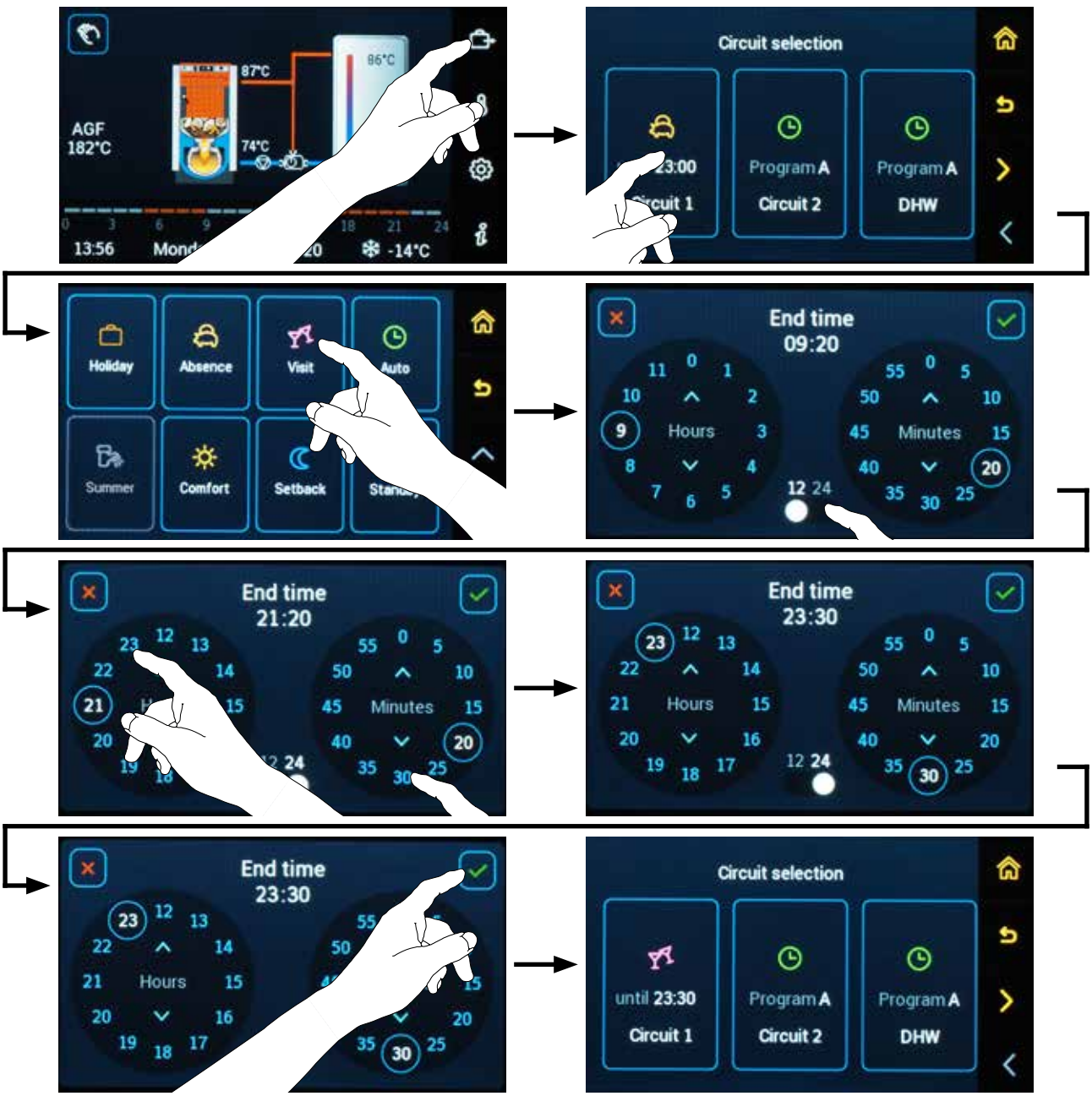
Visit - temporary working mode

When the mode is set to **Visit**, the controller temporarily maintains the **Comfort** temperature for a preset period of time. Therefore, for **Visit** mode, it is necessary to set the mode duration period (hours, minutes), after which the originally set mode and temperature is reset (e.g. **Auto**).

Setting range: current time plus 0.5 hour (30 min) to 24 hours using the Time tool

INFO - INFO - The **Information** for the circuit shows the current and required room temperature or DHW temperature (if detected), current date and time, time of the end of the working mode and the working mode.

Example setting



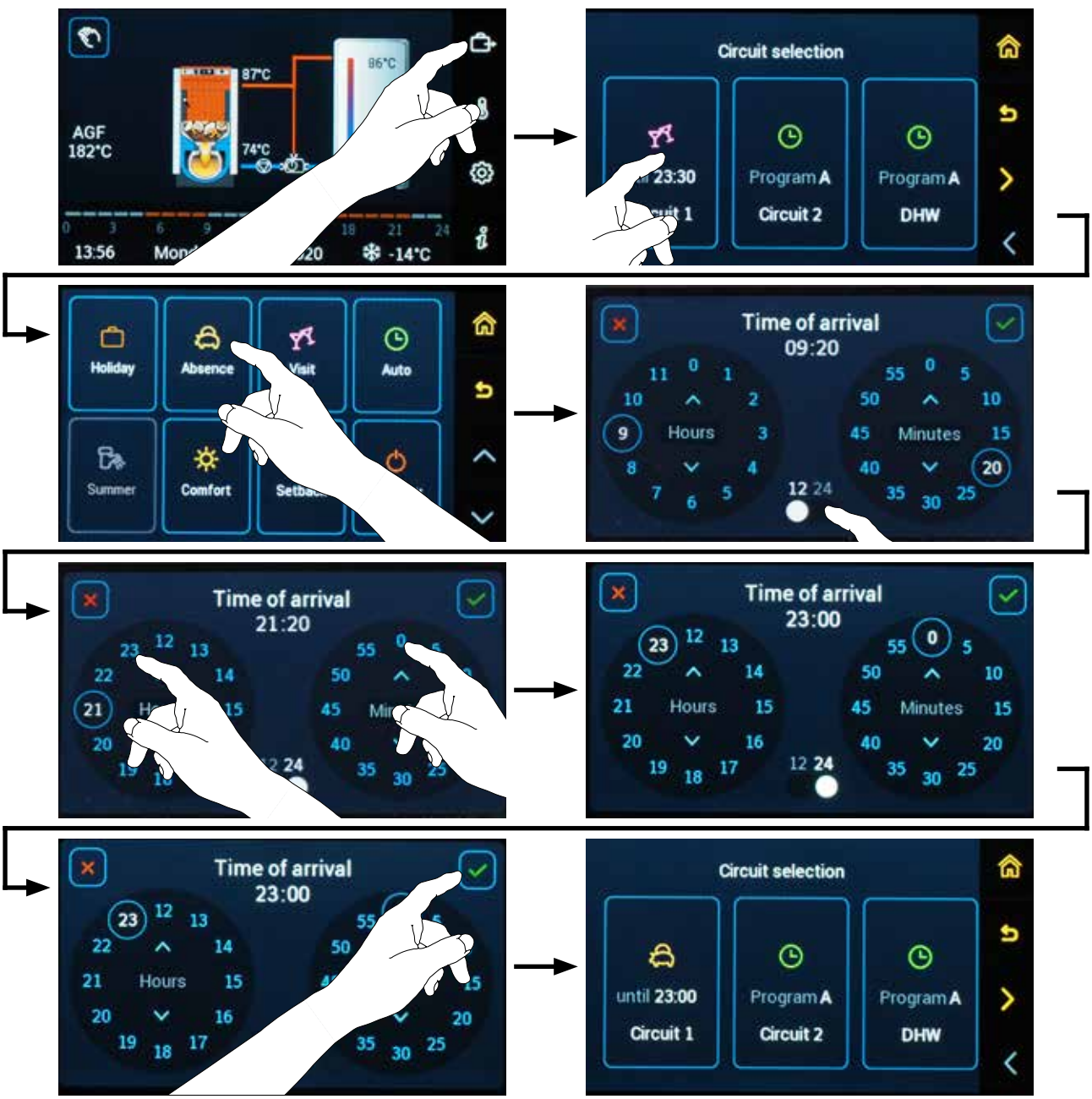
Absence - temporary working mode

When the mode is set to **Absence**, the controller temporarily maintains the **Economic** (Setback) temperature for a preset period of time.
Therefore, for **Absence** mode, it is necessary to set the mode duration period (hours, minutes), after which the originally set mode is reset (e.g. **Auto**).

Setting range: current time plus 0.5 hour (30 min) to 24 hours using the Time tool

INFO - INFO - The **Information** for the circuit shows the current and required room temperature or DHW temperature (if detected), current date and time, time of the end of the working mode and the working mode.

Example setting



Holidays - temporary working mode

Working mode **Holiday** is used if the living spaces are not used for a longer period of time.

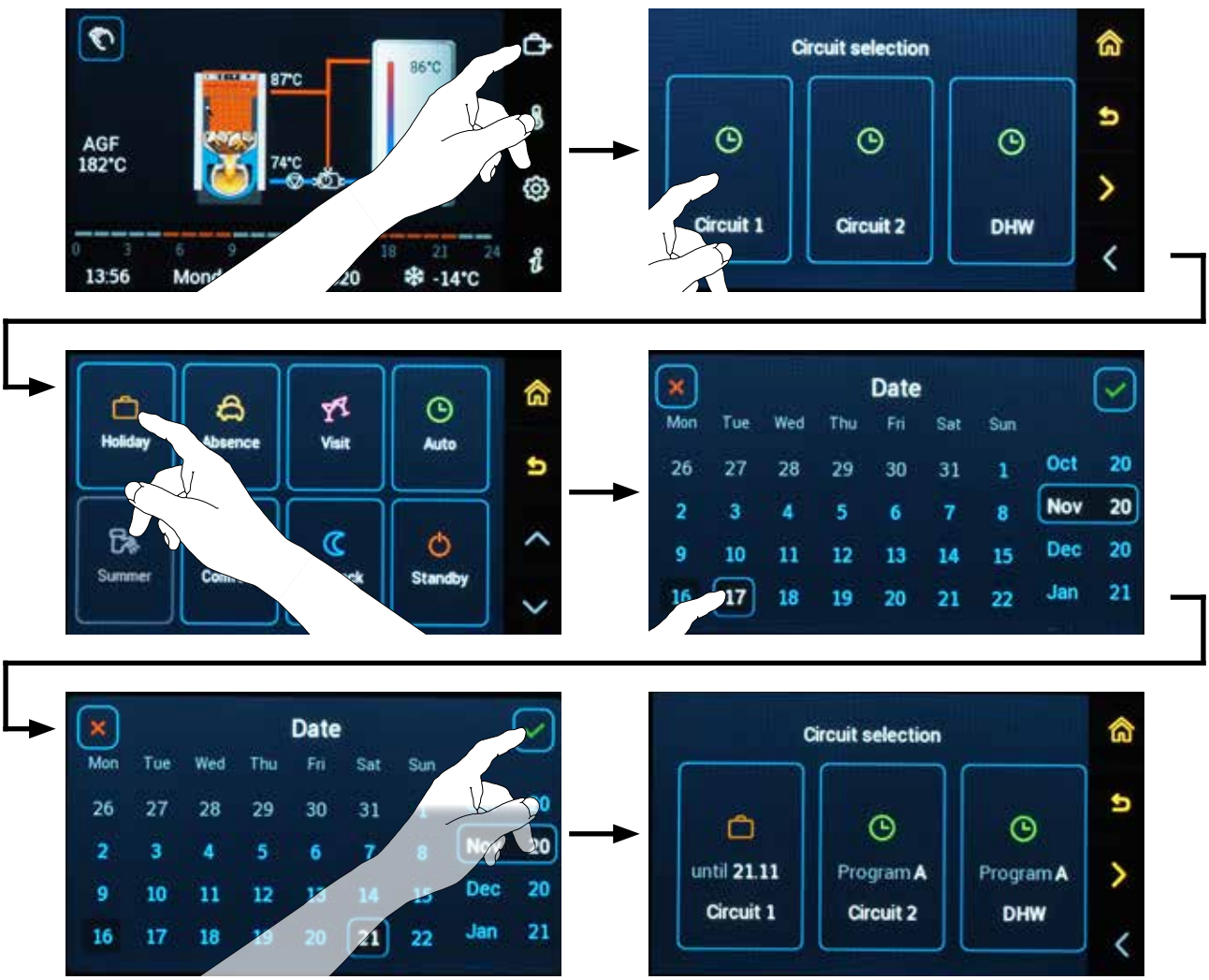
When the mode is set to **Holiday**, the controller remains in mode **Standby** with antifreeze protection (unless set otherwise - Setback mode) for a preset period of time (depending on its setting, e.g. antifreeze temperature).

When the holiday mode switches off, the controller automatically returns to the previously set mode (e.g. **Auto**).

Setting range: current date plus 1 to 250 following calendar days

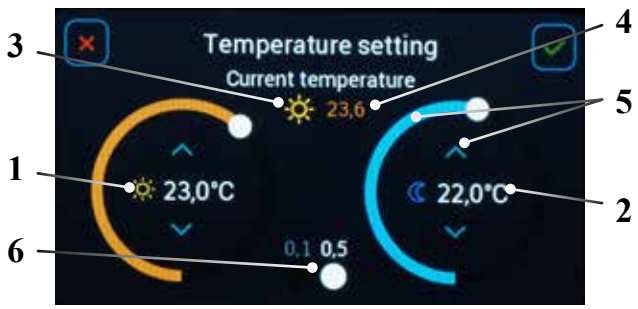
INFO - INFO - The **Information** for the circuit shows the current and required room temperature or DHW temperature (if detected), current date and time, time of the end of the working mode and the working mode.

Example setting



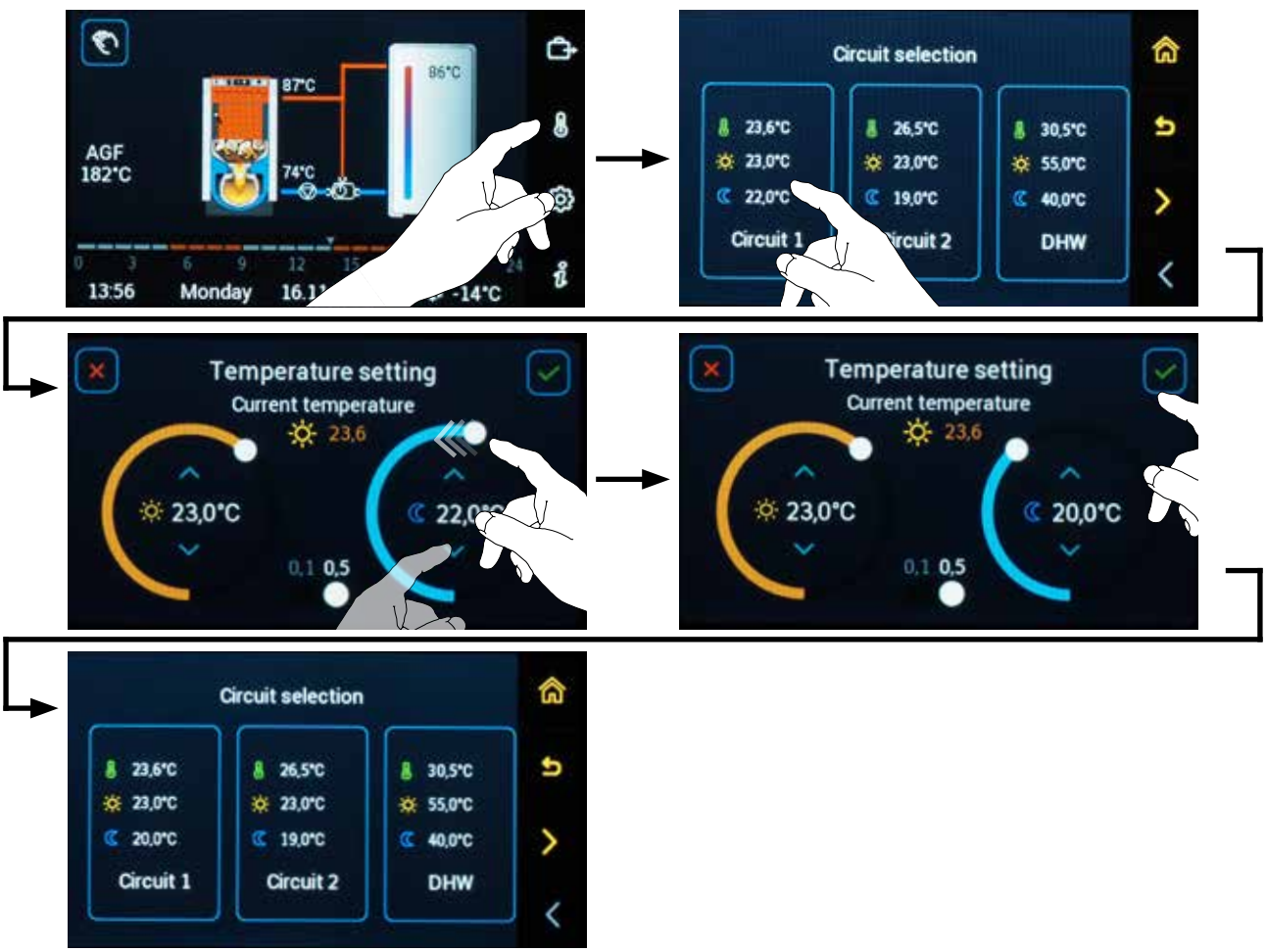
9. TEMPERATURE SETTING MENU

The ACD03 / 04 controller controls the individual circuits and the domestic hot water (DHW) heating to achieve the required temperatures. Set the temperatures for individual circuits using the button. Select the heating circuit and set the desired circuit.



1 - required comfort temperature (☼)
2 - required economic (setback) temperature (☾)
3 - current working mode
4 - Current temperature (measured)
5 - Gesture / arrow setting
6 - Sensitivity (step) switching - 0.1 / 0.5

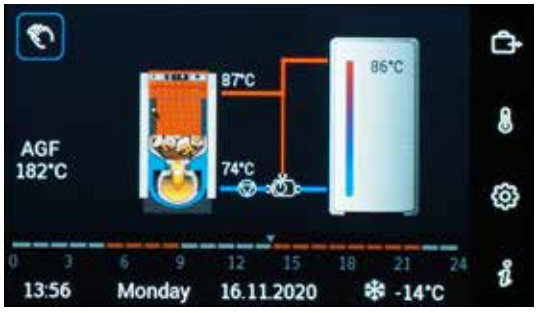
Example of the correct setting procedure

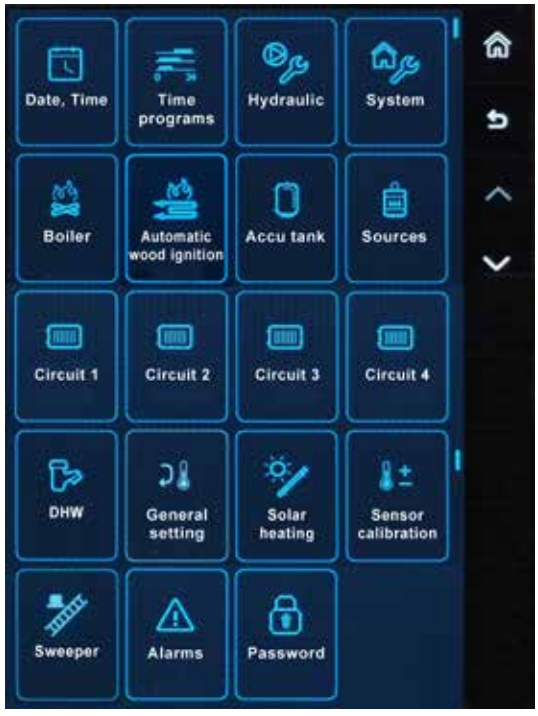


10. SETTING MENU

The parameters are organized into individual menus and allow to set the following items:

- **Date - Time** – setting date, time, summer / winter time
- **Time programs** – setting the time programs used in the AUTO working mode
- **Hydraulics** – setting of connected devices (boiler, heating circuit, DHW heating, definition of optional inputs, outputs, etc.)
- **System** – general parameters setting - where the boiler room with the controller is located
- **Boiler** – boiler parameters setting
- **Automatic wood ignition** – setting (planning) automatic wood ignition
- **Accumulation tank** – accumulation tank parameters setting
- **Sources** – parameters setting for control of alternative (additional) source
- **Heating circuit 1/2/3(4)** – parameters setting for MK heating circuits
- **DHW** – parameters setting for domestic hot water heating
- **General functions** – general function parameters setting
- **Solar heating** – solar heating parameters setting
- **Sensors calibration** – offset of individual sensors
- **Sweeper** – special functions for adjustment and measurement of the combustion source
- **Alarmy** – list (index) of the latest alarms
- **Password** – allows access to the service interface - service technician / manufacture



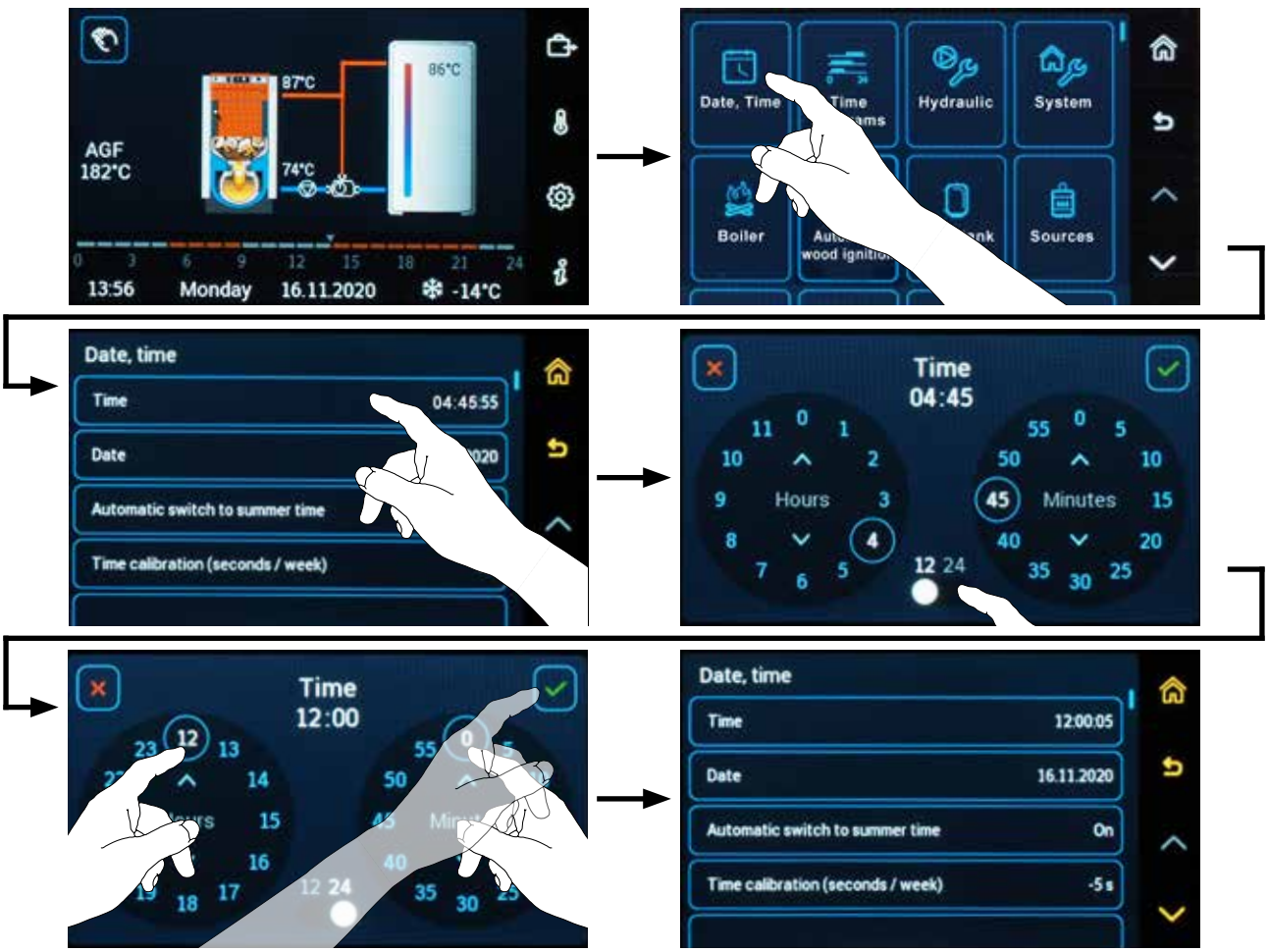


Date, Time

(Access level - User)

The setting is performed with the ⚙ button (to enter the menu), then click on the 🕒 symbol for Date and time.

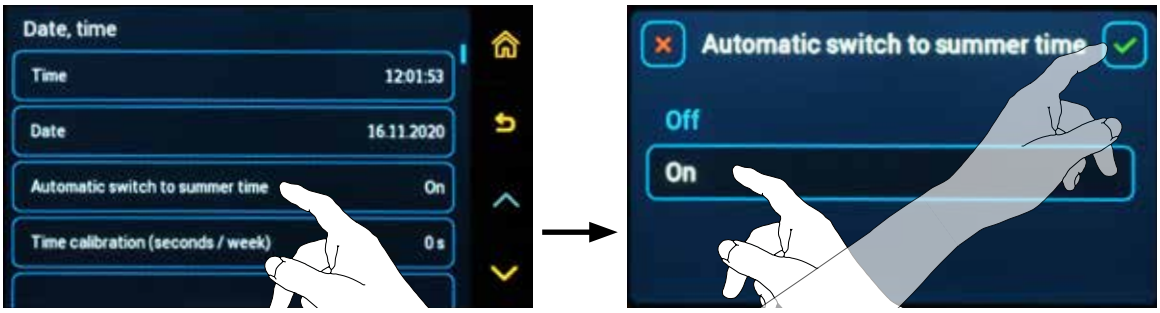
Setting the current time



Setting the current date

Setting automatic switching to summer time

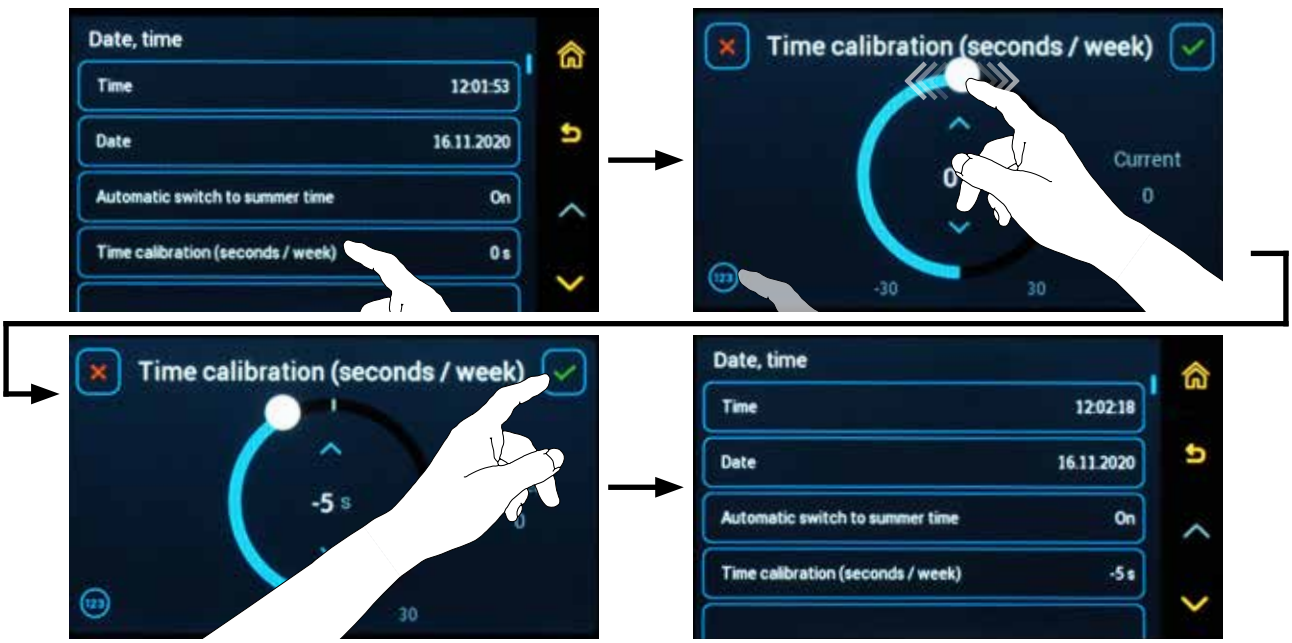
The function allows you to automatically switch between summer and winter time.



Time calibration setting (seconds/week)

The function allows you to set the time measurement deviation setting (number of seconds per week).

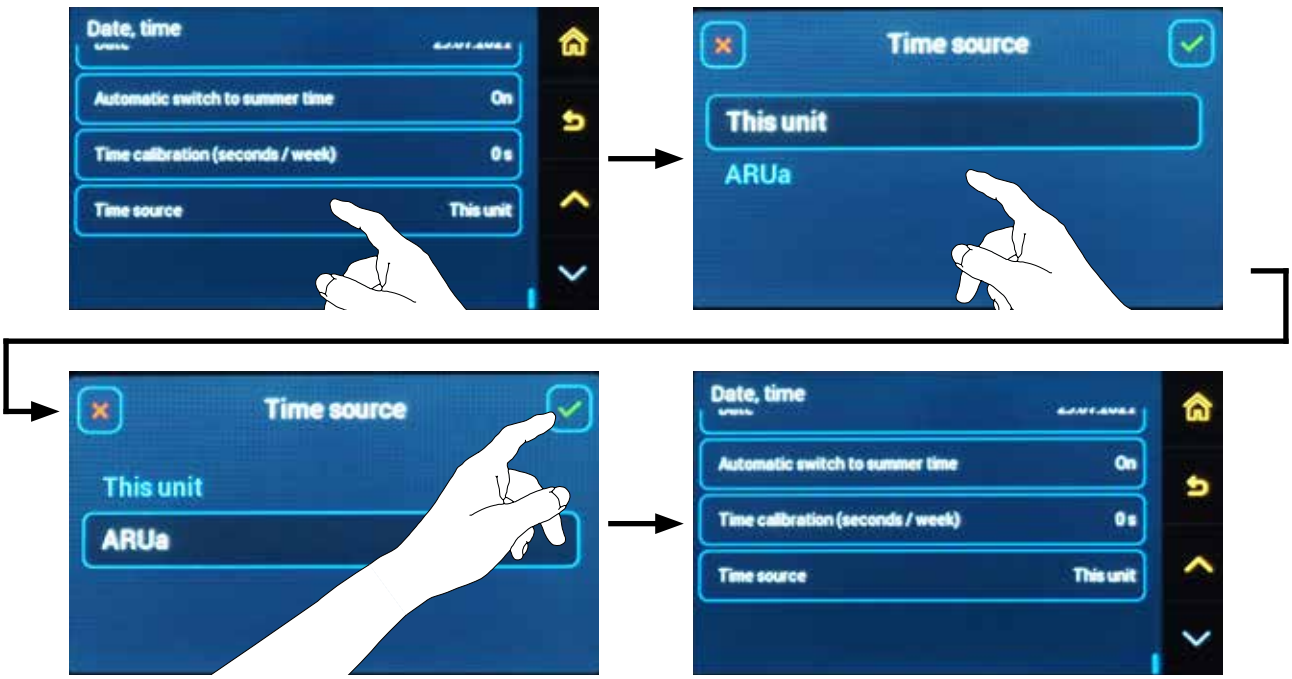
INFO - The controller works with real time, which may be delayed or accelerated due to the environment. By setting the incremental value, the time continually adjusts automatically.



Time source

The function is used to select the time source (controller ACD 03/04 or ARU30 room unit) according to which the other connected devices will be synchronized.

As the best time source, we recommend always using a selected and paired ARU30 room unit, which has the least time distortion (deceleration or acceleration) due to the surrounding temperature.



Time programs for Auto mode

(Access level - User)

The setting is performed with the ⚙ button (to enter the menu), then click on the symbol for Time programs.

The time programs are used in the **Auto** working mode, where according to the **timeline** of the relevant **day**, it is switched between **Comfort** ☼ (day) and **Setback** (Economic) ☾ (night) required temperature in the reference room.

The time programs are defined by setting the time of **start and end (stop) of the comfort block** of the relevant heating circuit on a relevant day of the weekly program of the relevant heating circuit.

Within one day (24 hours), it is possible to set 5 blocks of comfort demand, i.e. within one day it is
possible to set 5 pairs (start + end) of times. The beginning of the first time block must be equal to or greater than 00:00, the beginning of the second and third time blocks must be equal to or greater than the end of the previous block. The end of the last time block must be set to 23:59 (24:00) maximum.

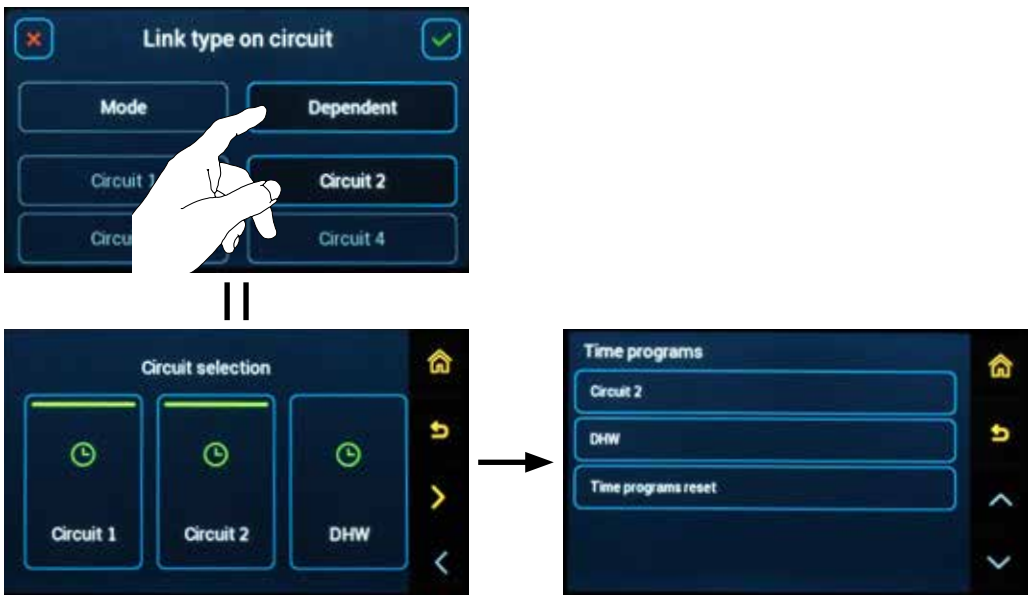
In each block, it is possible (according to ⚙→ P07^{System} Parameter setting) to set the required room day temperature.

The gap between the blocks means heating at **Setback** (Economic) temperature.

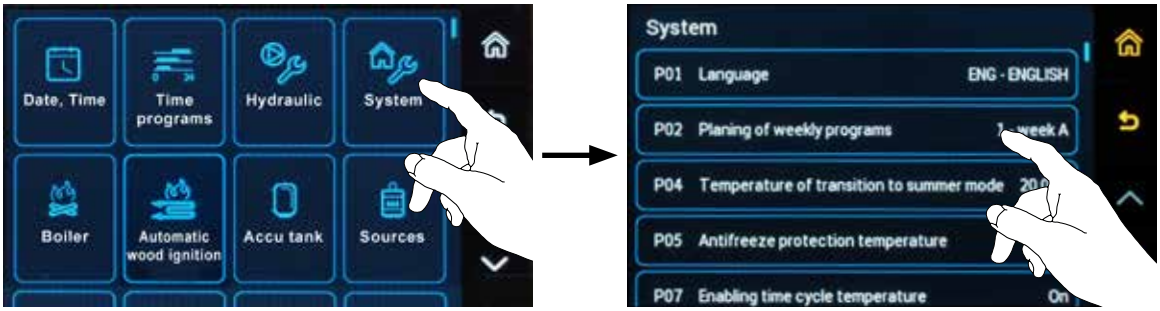
INFO - If we set the dependence of a circuit (multiple circuits) on another circuit, we set the time programs only for the Control circuit.

The dependent heating circuit(s) take(s) over all requirements and modes from the Control circuit (⚙ →Hydraulics / Function Configuration / Circuit Connection Type = Dependent).

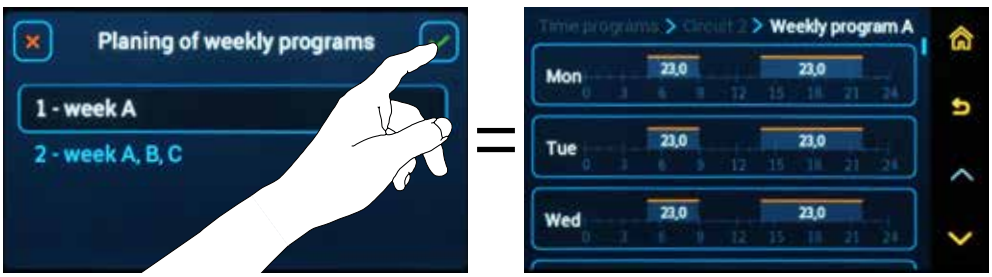
Control circuit connection setting:



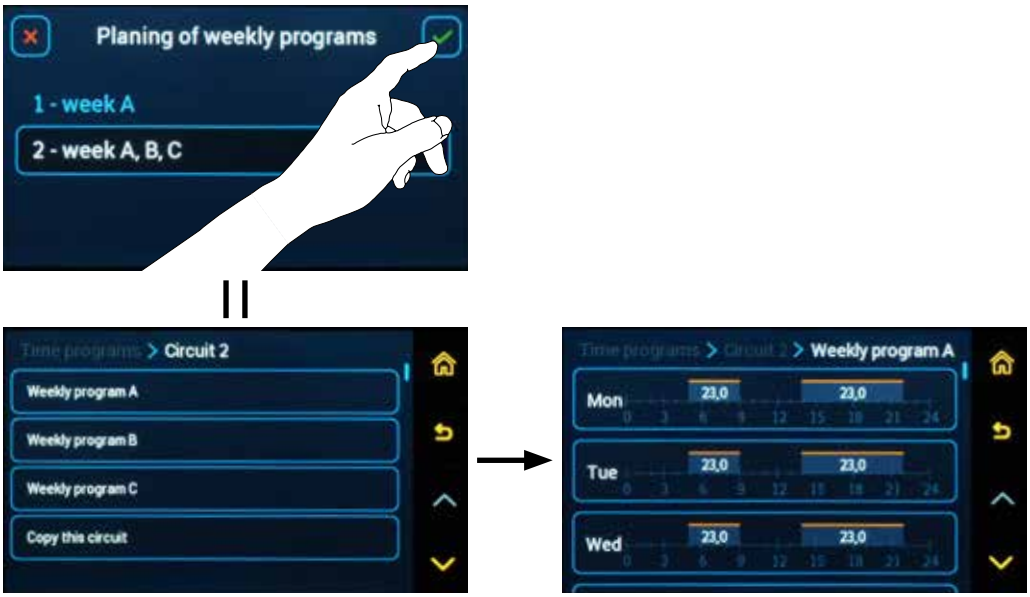
Weekly program selection (week A / week A, B, C)



If ⚙→ P02[System] Parameter is set to: **1 = week A**, only 1 week (7 day) time program can be set (edited).

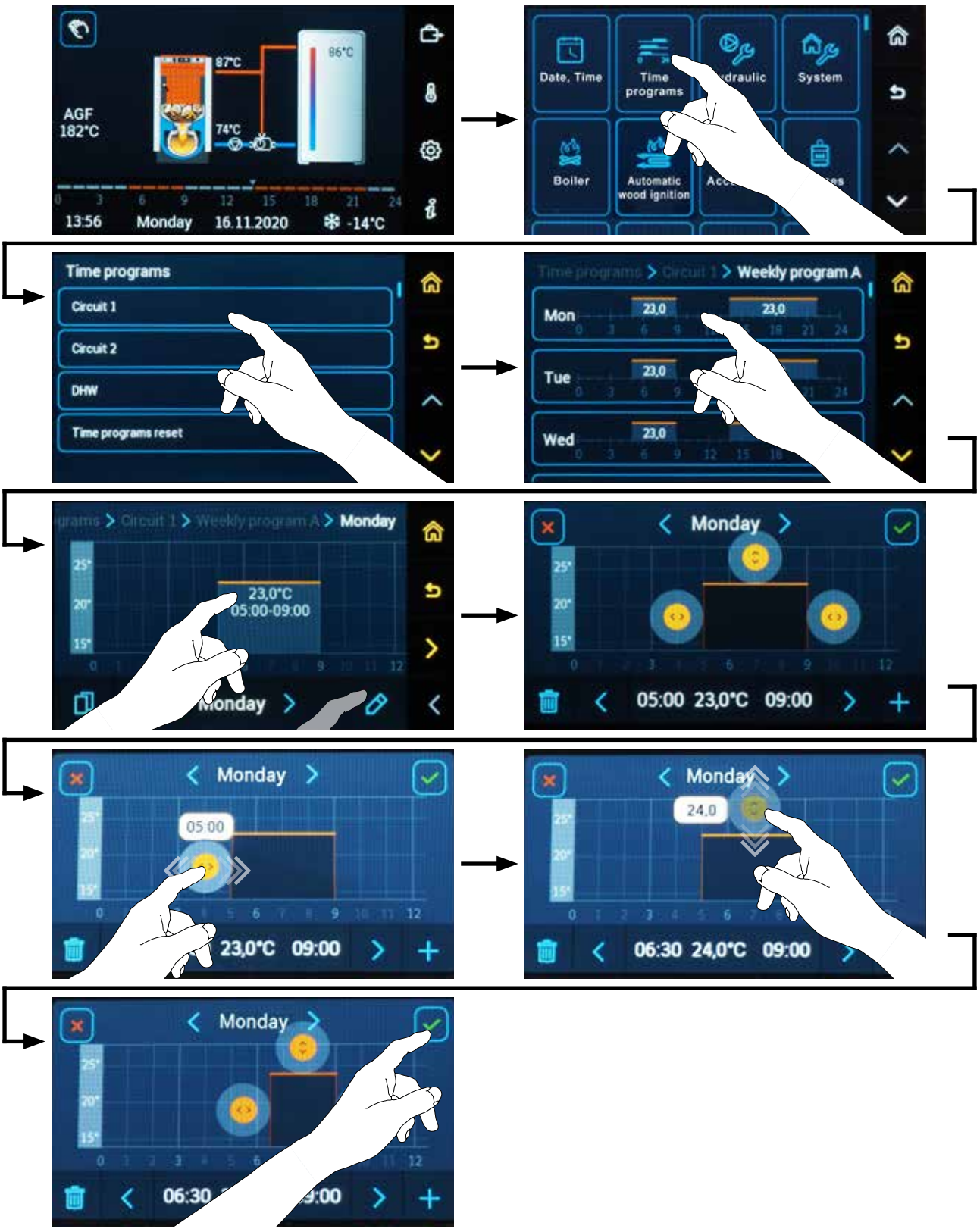


If ⚙→ P02[System] Parameter is set to: **2 - week A, B, C,** it is possible to set (edit) 3 different weekly time programs, which are used e.g. for shift work (morning - afternoon - night), where the user uses different time of day every week, or for holidays, where e.g. week A is set as standard normal week and week B is set for all-day heating to a comfortable temperature, etc.



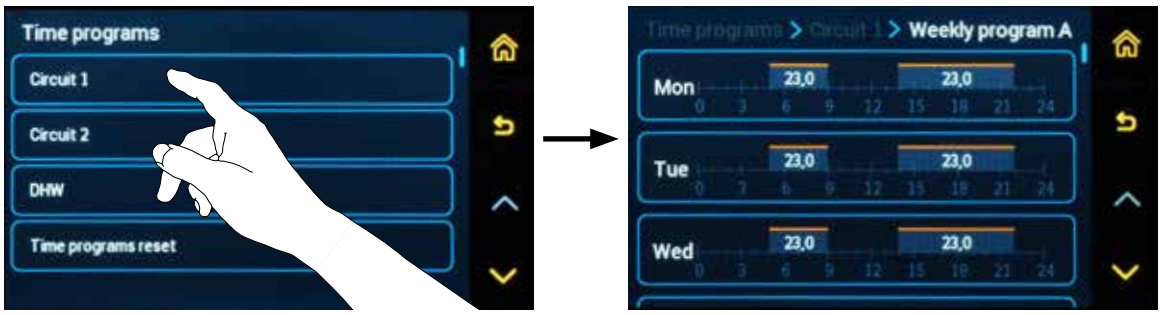
Time programs setting

After clicking on the displayed block or ✎ editing tool, it is possible to define individual blocks of comfort temperature of the relevant day.



Weekly time program overview

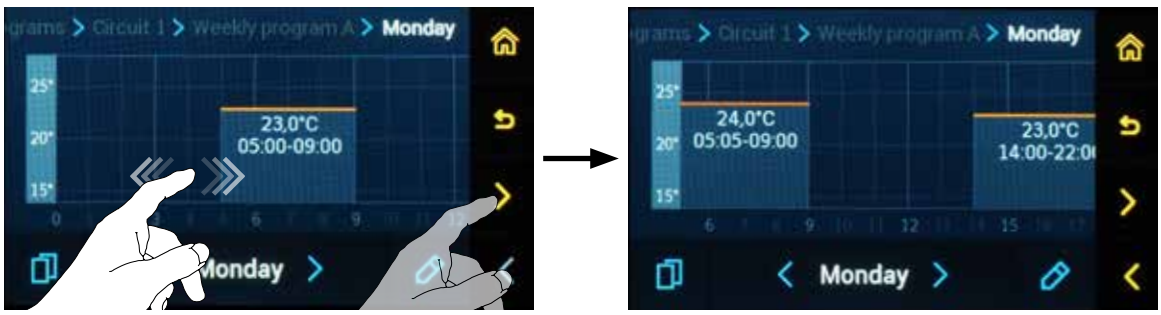
After entering the selected heating circuit (weekly program), an overview of individual days is displayed. For each day, the individual comfort temperature blocks are displayed on the timeline with the desired temperature indicated.
The gap between the blocks means that the demand to set the heating to the ☾ setback temperature.



Daily time program overview

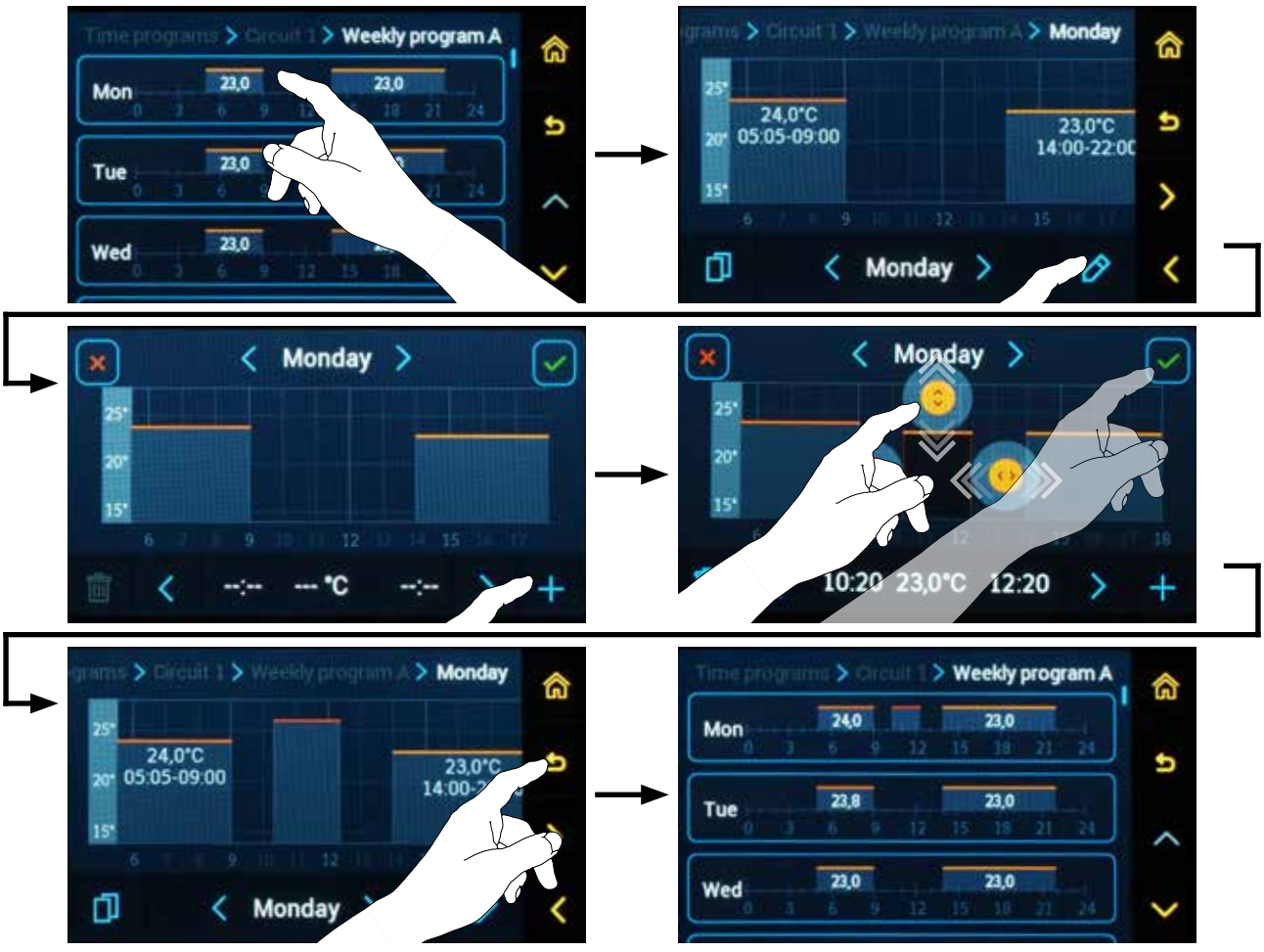
Click on a day to see the overview of the time program for the relevant day.
Use the arrows on the toolbar or the horizontal gesture to scroll the screen throughout the day to view individual blocks.

Use the arrows next to the relevant day in the status bar to switch the days within the selected week.



Adding time block:

With the + Add tool, it is possible to add another block to the day being edited, the maximum number of comfort temperature blocks is 5.



INFO - If the time block is short, the set temperature and time range are not displayed.

Deleting time block:

Use the Delete tool 🗑 to remove the selected block.

Temperature and time setting options:

click on the temperature

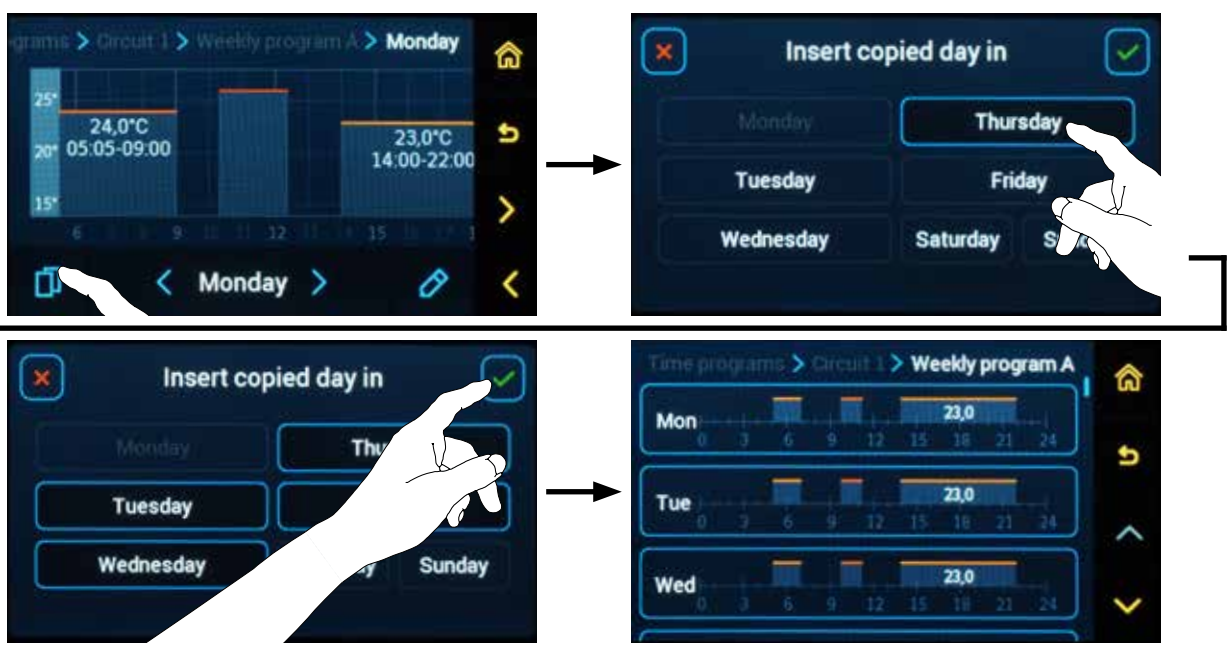
set the temperature

click on time

set the time

Copying the day

After clicking on the Copy tool, the displayed day can be copied to other days of the week; the selected day is highlighted, the selection is canceled after the next click.

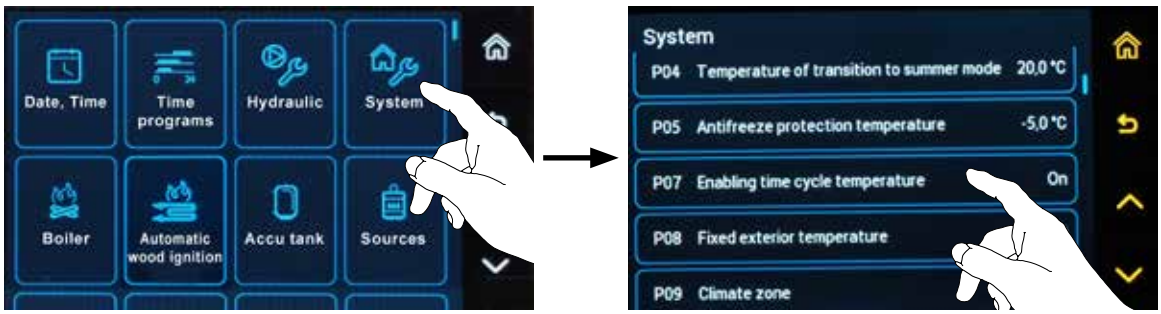


Copying weekly heating circuit program

For a faster definition, the entire heating circuit time program can be simply copied to another heating circuit or DHW.

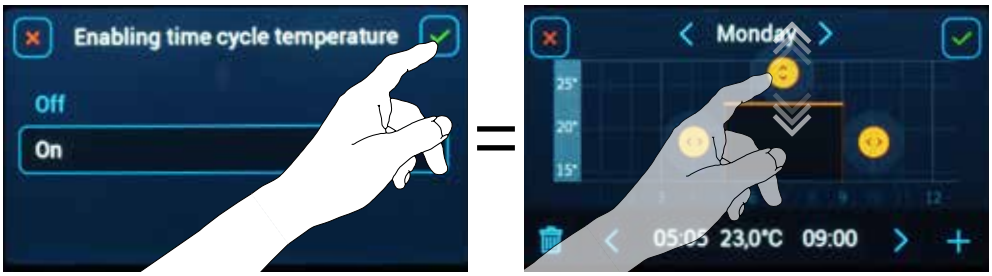
INFO - If no heating circuit is selected, you cannot exit the screen by pressing the OK button.

Limitations (link to other parameters):



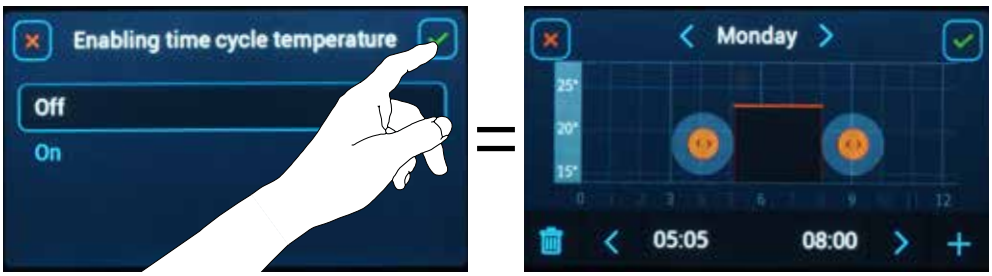
If ⚙→🏠 P07[System] Parameter is set to: **On**

On = The room required temperature is set within the time programs (the option is active and the room temperature item is displayed in the option). The currently set temperature under the Comfort ☼ button (Comfort temperature) only corrects the currently valid time block; i.e. the comfort temperature during the day may be different depending on the settings of the individual blocks.



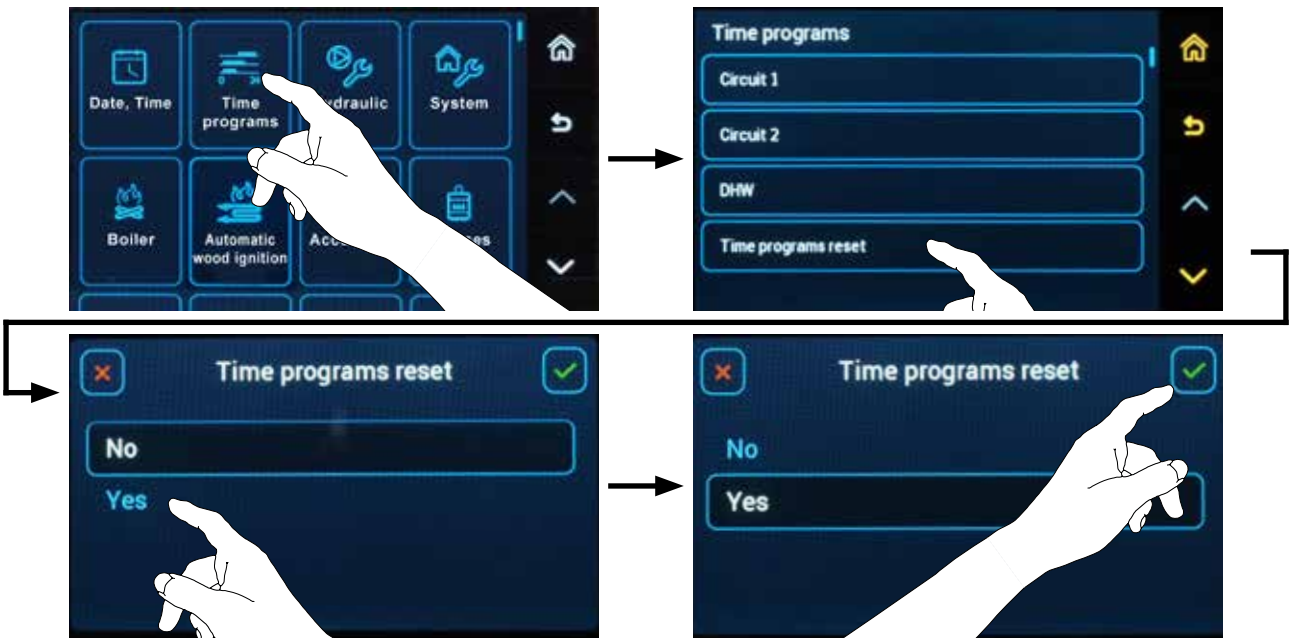
If ⚙→🏠 P07[System] Parameter is set to: **Off**

Off = The room required temperature is not set within the time programs (the option is not active and the room temperature item is not displayed in the option). The temperature set under the Comfort ☼ button (Comfort temperature) of the daytime temperature is maintained, which means that the comfort temperature is the same in all blocks.



Resetting time programs to their default state

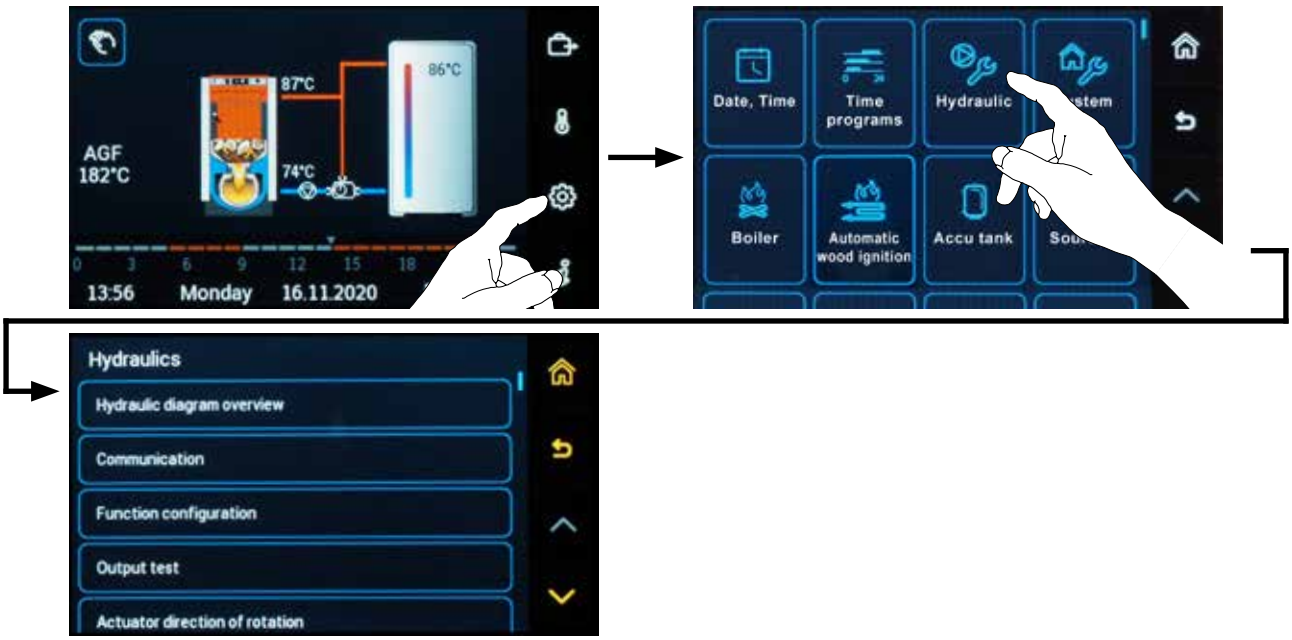
If necessary, you can return the current time program setting to the original **factory setting** using the tool - **Reset time programs** to the default state.



Hydraulics

(Access Level - Service Technician)

The setting is performed with the ⚙ button (to enter the menu), under which we click on the Hydraulics symbol.



Menu - **Hydraulic diagram overview:**

⚙→ Hydraulics/Hydraulic diagram overview

It is used to display the complete overview of defined parameters of the heating system, which the controller controls. This is the same overview that is displayed in the last step of the **Installation Guide** (Wizard):

Function configuration menu is used to change (correct) defined functions in the **Installation Guide.**

⚙→ Hydraulics/Hydraulic diagram overview

Boiler type designation (e.g. DC25GS) - the button allows you to select a different type of boiler from the list.

Controlled boiler - boiler controlled with the controller (**Yes / No**) - the button allows you to change the function.

For example, when adding a flue gas temperature sensor and the requirement to control the operation control of the boiler by the controller

ATTENTION - if the controlled boiler setting is **Yes**, it is necessary to install the AGF flue gas temperature sensor and assign a specific terminal ⚙→ Hydraulics/Function configuration/Boiler/AGF - boiler flue gas temperature.

Burner type designation (e.g. A25) - the button (active row) allows you to select a different type of burner from the list.

Hydraulic diagram number - the selected hydraulic diagram - the button allows you to change the hydraulic diagram (number).

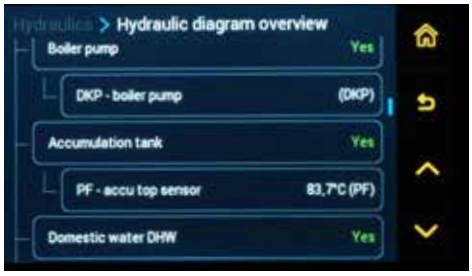
Information on settings (inputs, outputs) and required sensors (temperatures)

Information group - **Boiler** with the overview of required sensors and outputs - these functions are predefined in the selected boiler type in the **Installation Guide** (Wizard), other functions can be set in the **Function configuration** menu, if necessary.

Each sensor or output is listed as a function. For example, if the sensor is connected, the AGF flue gas temperature value is displayed for easy terminal check and designation

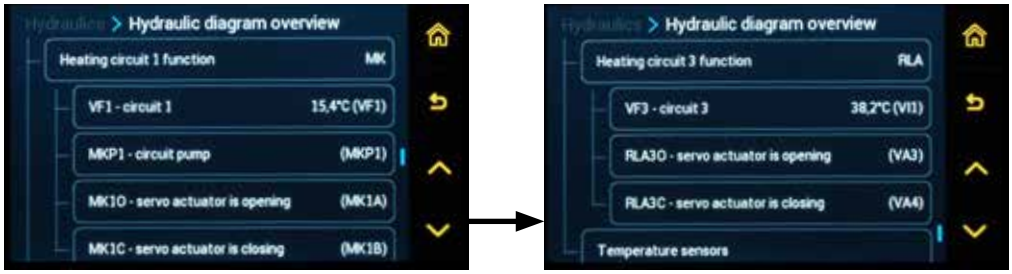
Information group - **Boiler pump**

Information group - **Accumulation tank**

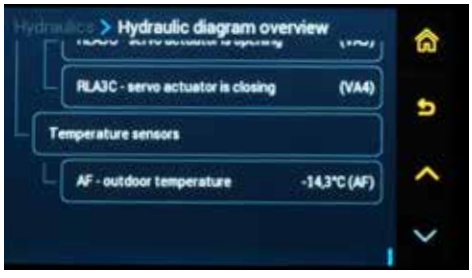


Information group - **Domestic water**

Information group - **Heating circuit 1 / 2 / 3 / 4** function (if activated)



Information group **- Temperatures**



INFO - Changes to these functions are performed with the **Function configuration** button (menu).

Menu - **Communication:**

⚙→ Hydraulics/Communication

(Access level - User - nothing / Service technician - everything)

The **Communication** menu is used to pair and set individual room units (devices) with the ACD 03/04 controller.

The controller allows the definition (setting) of up to 5 ARUa, ARUb, ARUc, ARUd and ARUe units (Circuit 1, 2, 3 and 4 and DHW).

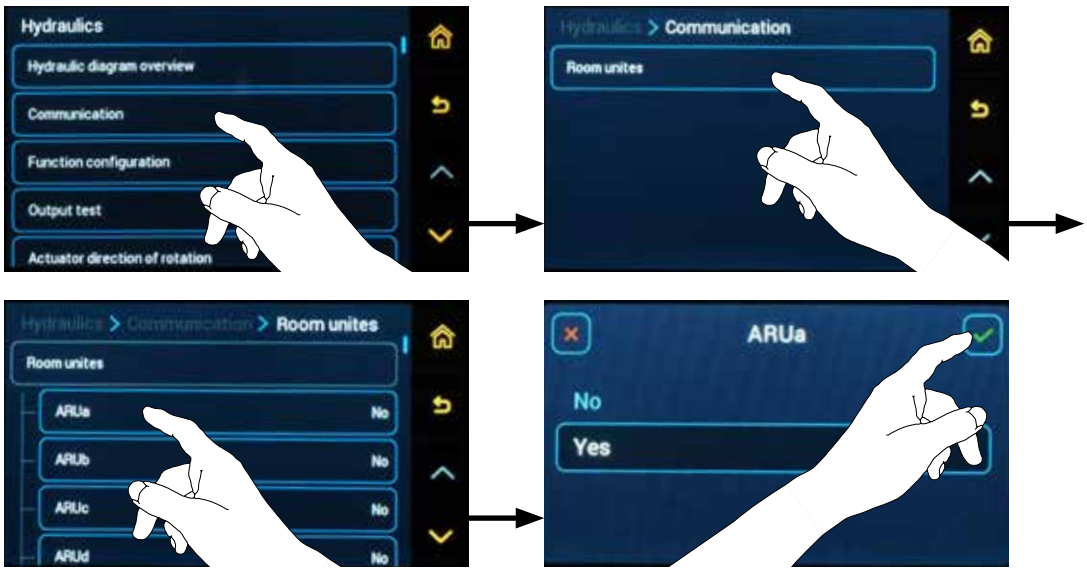
The basic concept counts on the setting **of one room unit for one heating circuit.** Therefore, for MK and DK circuit type after switching on the room unit (Yes), a predefined heating circuit is automatically assigned to the relevant room unit (Circuit 1 is assigned to ARUa, Circuit 2 is assigned to ARUb, Circuit 3 is assigned to ARUc, etc.). At the same time, the RSE room temperature sensor of the respective unit is automatically assigned to the circuit. All provided that no other sensor and unit have been already assigned.

The controller also allows you to set the **Room unit for more heating circuits or more room units for one heating circuit concept in the next steps.**

The setting is performed with the ⚙ button (to enter the menu), under which we click on the ⚙→ symbol for **Hydraulics** and then **Communication**.

Under the **Communication** button click on the **Room units** button (⚙→ Hydraulics/ Communication/Room Units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

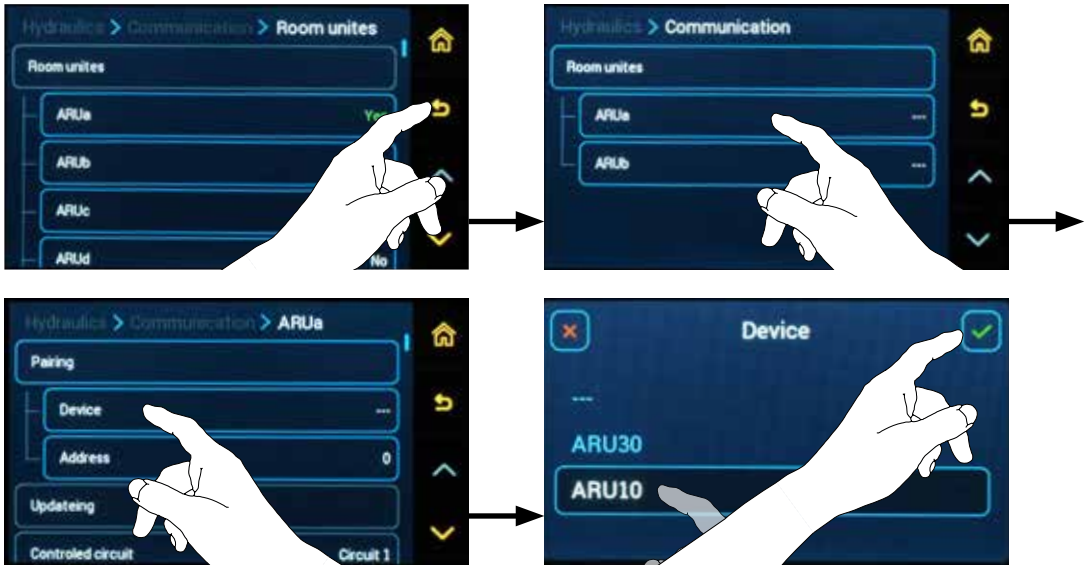
INFO - Predefined default setting: for circuit 1 - ARUa unit and RSEa sensor, for circuit 2 - ARUb unit and RSEb sensor , for circuit 3 - ARUc unit and RSEc sensor,...



Next, **pair the room unit** with the ACD03/04 controller.
Pairing can be **performed in several ways** depending on the type of device.

Pairing from the ACD 03/04 controller by entering the address

On the **ACD 03/04** controller, go back one step in the menu by clicking on the ⮌ symbol and click on (select) the activated unit, for example ARUa (b, c, d, e).
Click on the **Device** button and select the relevant type of room unit (device), for example **ARU10**, to be paired.



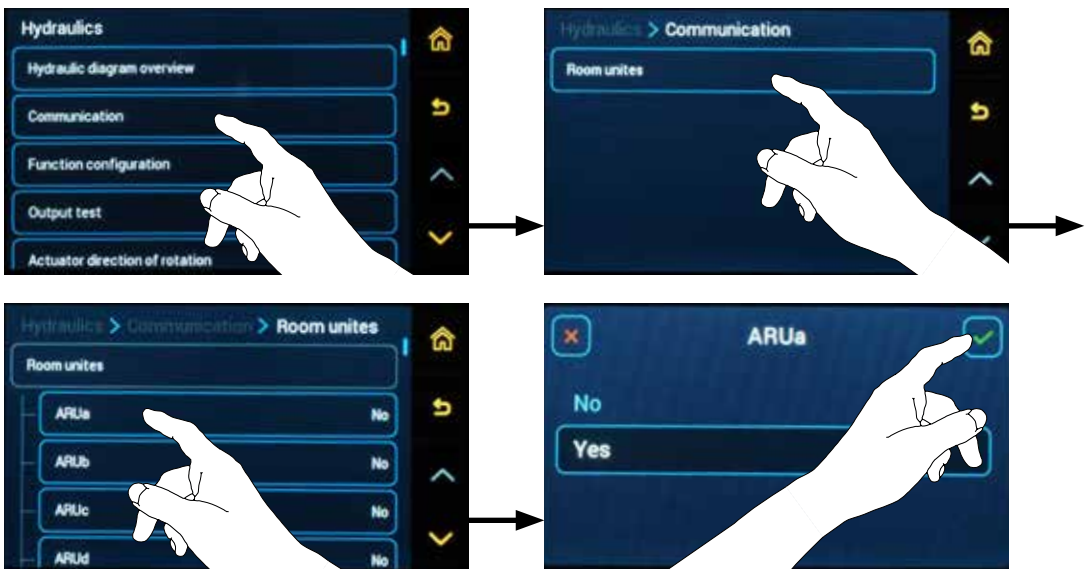
Click on the **Address** button and enter the **serial (production) number** of the room unit (device), which can be found inside the room unit (device), e.g. 0009.

This will automatically pair the room unit (device) with the ACD 03/04 controller, which is indicated, for example, on the ARU10 room unit by LED signaling change, displaying the **currently set working mode.**

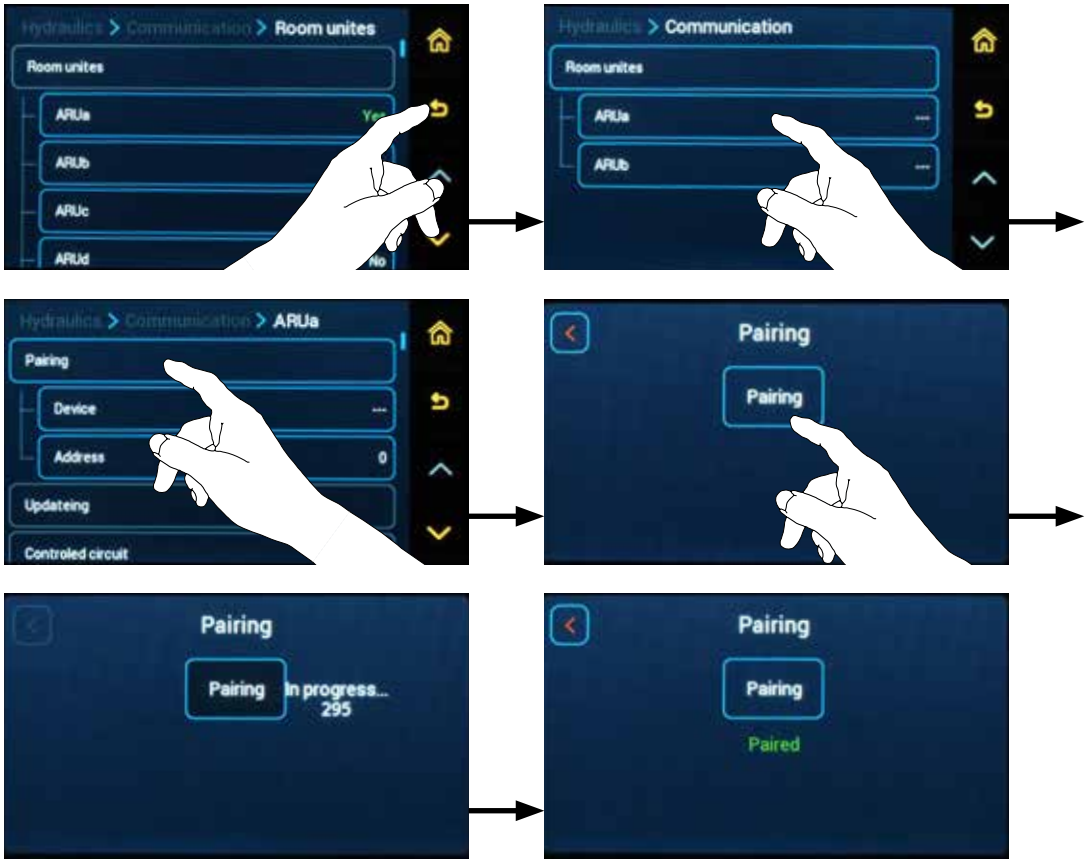
Pairing from the ACD03/04 controller using the pairing button

INFO - If the room units have not been activated yet, proceed as follows.

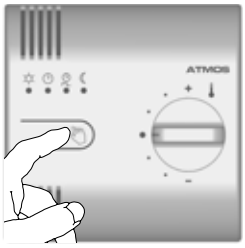
On the **ACD 03/04** controller (⚙→ Hydraulics/Communication/Room units), activate connected room units by setting them to **Yes**.



On the **ACD 03/04** controller, go back one step in the menu by clicking on the ⮌ symbol and click on (select) the activated unit, for example ARUa (b, c, d, e).
Click the **Pairing** button and go to the room unit or selected device that is to be paired (time limit to pair is **300 s** (5 minutes)).

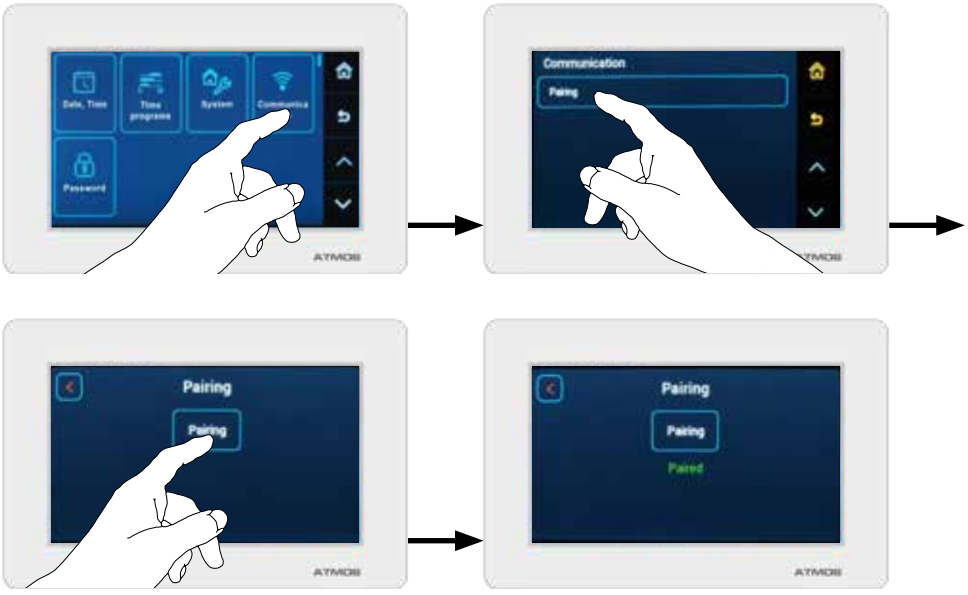


On the ARU10 room unit, press and hold the button with the ✋ **Hand** symbol for more than **3 seconds,** which will perform pairing (time limit to pair is **300 s** (5 minutes)).



- **the pairing of the ARU10** room unit with the ACD03/04 controller is **confirmed** by lighting up all 4 LEDs for 3 seconds and LED signaling change, **displaying the currently set working mode.**

On the ARU30 room unit, enter the ⚙→ **Communication** menu and click on the **Pairing** button. This will automatically pair the room unit with the **ACD03/04** controller.



INFO - Pairing of room units may only be performed by a trained service technician who is logged in both in the controller and the ARU30 room unit at the corresponding authorization level (⚙→ Hydraulics / Password / Authorization)!

- **the pairing of the ARU30** room unit with the ACD03/04 controller is **confirmed** by the display of ↓↑ or communication on display.

The pairing on the ACD 03/04 controller with the ARU10 and ARU30 room unit is **confirmed by the "Paired" inscription** (by terminating the time countdown before it expires).

For ARU10 and ARU30 room units, there are other methods of pairing:

Pairing from the ARU10 room unit using the pairing button

On the ARU10 room unit, press and hold the button with the **Hand** symbol for more than **3 seconds** and go to **ACD 03/04** controller to be paired.

This starts the pairing process, which is displayed on the ARU10 room unit (signaled) by gradual lighting the LEDs from left to right and back for 300 seconds (5 minutes).

INFO - If the room units have not been activated yet, proceed as follows.

On the **ACD 03/04** controller (⚙→ Hydraulics/Communication/Room units), activate connected room units by setting them to **Yes**.

On the **ACD 03/04** controller, go back one step in the menu by clicking on the ⮌ symbol and click on (select) the activated unit, for example ARUa (b, c, d, e).

Click on the **Pairing** button. This will automatically pair the room unit with the ACD03/04 controller.

With this pairing method, it is forbidden to invoke the pairing process on more than one unit.

Pairing from the ARU30 room unit using the pairing button

Before pairing, first log in to the ARU30 room unit at the **Service Technician** authorization level (⚙→ Hydraulics / Password / Authorization).

On the ARU30 room unit, enter the ⚙→ **Communication** menu and click on the **Pairing** button. This will automatically pair the room unit with the **ACD03/04** controller.

INFO - If the room units have not been activated yet, proceed as follows.

On the **ACD 03/04** controller (⚙→ Hydraulics/Communication/Room units), activate connected room units by setting them to **Yes**.

On the **ACD 03/04** controller, go back one step in the menu by clicking on the ⮌ symbol and click on (select) the activated unit, for example ARUa (b, c, d, e).

Click the **Pairing** button (time limit to pair is **300 s** (5 minutes)).

The pairing on the ACD 03/04 controller with the ARU30 room unit is **confirmed by the "Paired" inscription** (by terminating the time countdown before it expires).

With this pairing method, it is forbidden to invoke the pairing process on more than one unit.

ATTENTION - Each device (ARU10, ARU30, other devices) is **slightly different, so it requires a different pairing procedure!**

INFO - The pairing **process can be interrupted** on the ACD 03/04 controller (⚙→ Hydraulics / Communication) by clicking the **Pairing** button again (the time countdown disappears).

ATTENTION - **If the current room temperature is not displayed** on the ARU30 room unit, this means that the sensor of the selected room unit is not assigned to the relevant heating circuit.
The assignment is performed in the submenu ⚙→ Hydraulics / Function configuration / Heating circuit function / RS(E)x - Room sensors - **RSa (b, c) and RSEa (b, c, d, e)**.

RSa (b, c) button - for **ARU5** room unit (sensor)

RSEa (b, c, d, e) button - for **ARU10 and ARU30** room units (external room temperature sensor).

Update - The button is used to update the program in the room unit using the SW program stored on the SD card in the controller.
The update is performed only by the Service Technician in necessary cases (new SW version, malfunctions, etc.)**.**

INFO - For the **ARU10** room unit, the **update takes 30 s** and is signaled on the room unit by simultaneous flashing of the 1st and 2nd LEDs or the 3rd and 4th LEDs.
For the **ARU30** room unit, the update **takes a longer time** and depends on the length of the wires.

Controlled circuit - the button allows you to change the default setting (assignment) of the relevant heating circuit to the relevant room unit.

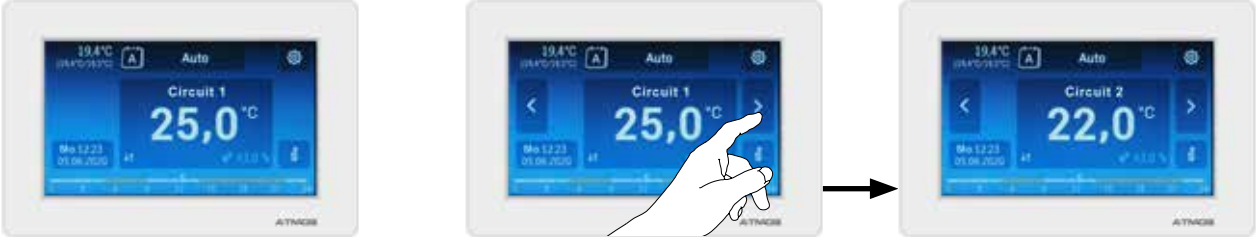
Predefined default setting:

- **Circuit 1 is predefined for the ARUa unit**
- **Circuit 2 is predefined for the ARUb unit**
- **Circuit 3 is predefined for the ARUc unit**
- **Circuit 4 is predefined for the ARUd unit**
- **Circuit DHW is predefined for the ARUe unit**

INFO - Circuits can only be assigned to room units if they are defined as DK or MK.

ATTENTION - For the **ARU10** room unit (unit without display), it is **possible to select only one circuit to be controlled under the Controlled circuit button.**
If control of more circuits by the ARU10 unit is required, the additional circuits must be set as **Dependent** on the circuit currently assigned to the unit. The setting of the dependence is performed in the ⚙→ Hydraulics / Function configuration / Heating circuit functions / Type of connection to the circuit menu.

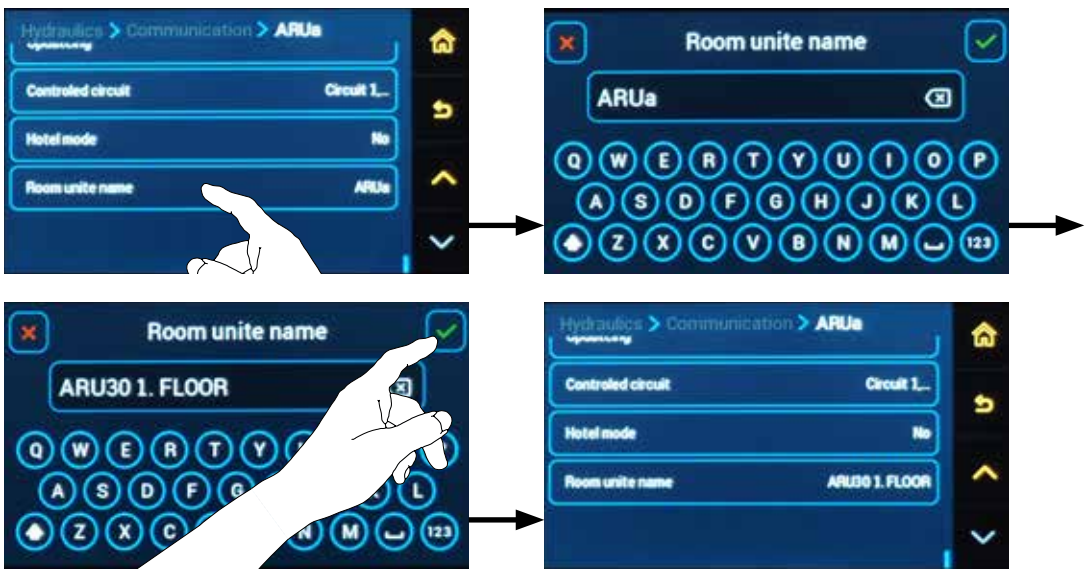
For the **ARU30** room unit, it is possible to select **more circuits** under the **Controlled circuit** button, which will be displayed on the room unit display and for which we can change the required room temperatures (Comfort temperature ☼, Setback temperature☾).



Hotel mode - The button deactivates the display of the ARU30 room unit (ARU10 controls) so that the set values can only be read but not changed (used in common rooms of hotels, companies, schools, etc.).

INFO - In you want to keep the possibility of control (activated functions) of the ARU30 room unit (for selected users), select the Password for user (Child protection) function instead of the "Hotel mode" function, see ⚙→ P15[System] parameter - Password for user (Child protection).

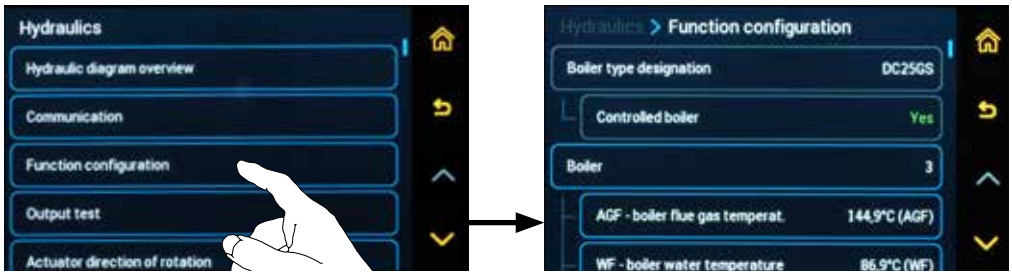
Room unit name - button allows custom naming of the room unit (sensor) ARU10 and ARU30 after its activation.
The name of the room unit (sensor) is then displayed in the controller in **Information** ℹ (Group - External sensors).
ARU30 room unit name is also displayed when selecting the time source ⚙→ Date and time/Time source.



Menu - **Function configuration:**

⚙→ Hydraulics/Function configuration

It is used to change the defined functions in the **Installation Guide** (Wizard) or to modify the settings of the heating system that the controller controls (addition of sensors, activation of pump control, activation of the solar heating, etc.).



For example, the addition of an AGF flue gas temperature sensor for a pellet boiler, where it is not required as standard for boiler operation.
⚙→ Hydraulics/Function configuration/Boiler/AGF - activation of flue gas temperature measuring

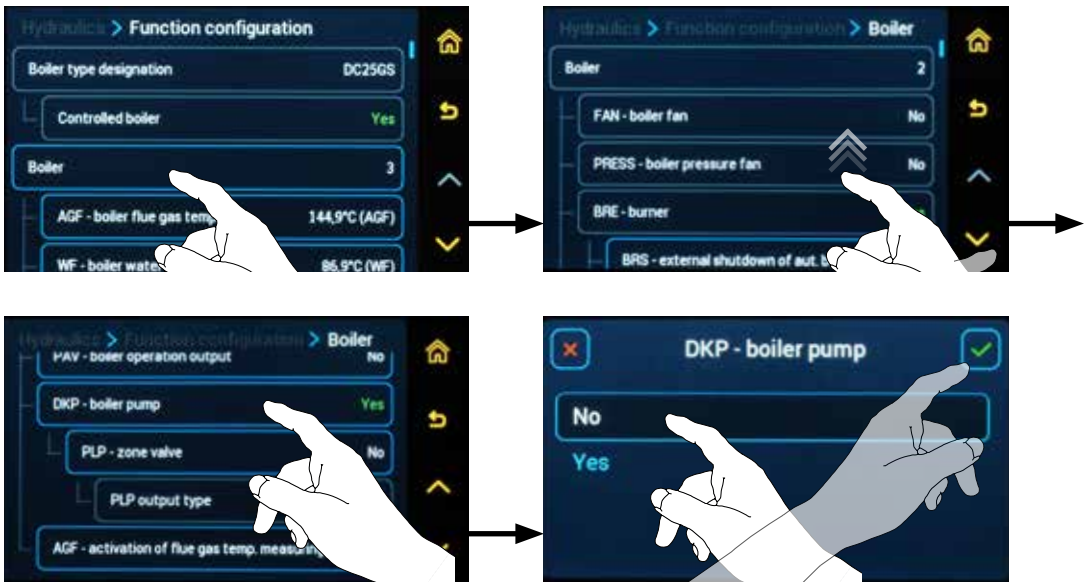
AGF function - switch the activation of flue gas temperature measuring from NO to YES.

INFO - Corresponding sensors must be connected for the individual functions of the controller. Sensors are connected to free inputs, ideally according to the manufacturer's (controller) recommendations.

ATTENTION - Always make changes after careful consideration to prevent the system from collapsing!

For example, removal (deactivation) of pump control in the DKP boiler circuit.
⚙→ Hydraulics/Function configuration/Boiler/DKP - boiler pump

DKP function - switch the boiler pump from YES to NO.



INFO - Corresponding devices must be connected for the individual functions of the controller. Devices are connected to free inputs, ideally according to the manufacturer's (controller) recommendations.

ATTENTION - Always make changes after careful consideration to prevent the system from collapsing!

Terminal assignment

ATTENTION - When adding a function (at the input or output), it is necessary to assign a terminal to the function on the controller!

INFO - An undefined function (unassigned terminal (input - sensor) / (output - device)) is displayed with an ⚠ warning sign, which indicates that it is not active.

E.g.: **Terminal assignment - input** - when adding another (informative) sensor to the accumulation tank..

After pressing the selected input, for example PF3 - 3. accu button, select the free terminal VI3, to which the required sensor shall be connected, and confirm.

E.g.: **Terminal assignment - output** - when adding electric heating of EHP accu tank.

After pressing the selected output, for example the EHP - electric heating of accu tank, select the free terminal VA1, to which the required device shall be connected, and confirm.

Colour codes of the terminals

The **recommended terminal assignment** is displayed in **green**

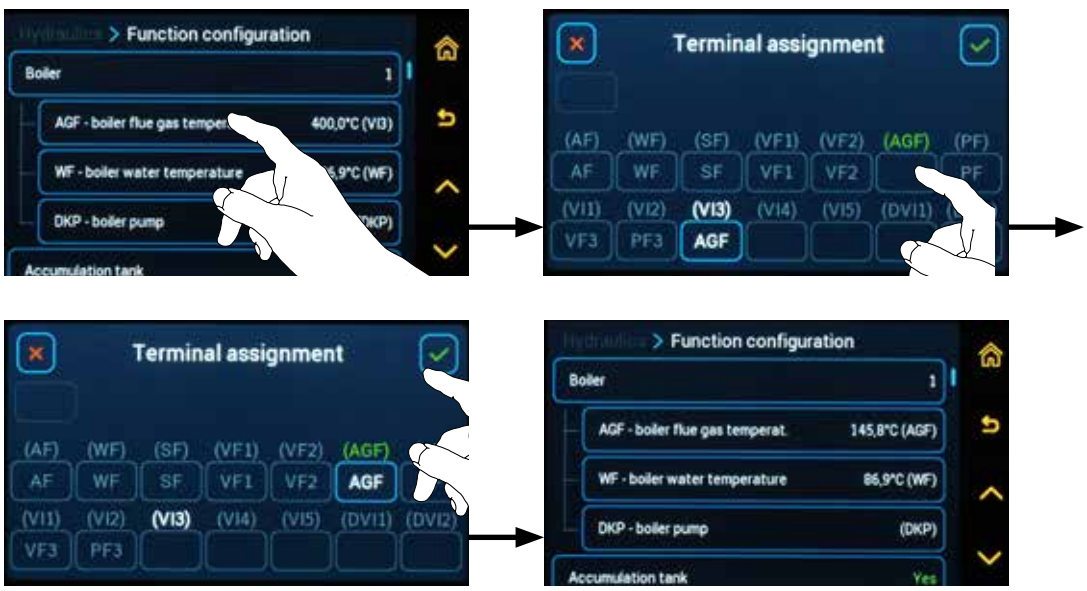
Free terminals are displayed in **white**

Used or unusable terminals are displayed in **gray**

Free but unsuitable terminals are displayed in **yellow** (use for other functions)

Terminal change

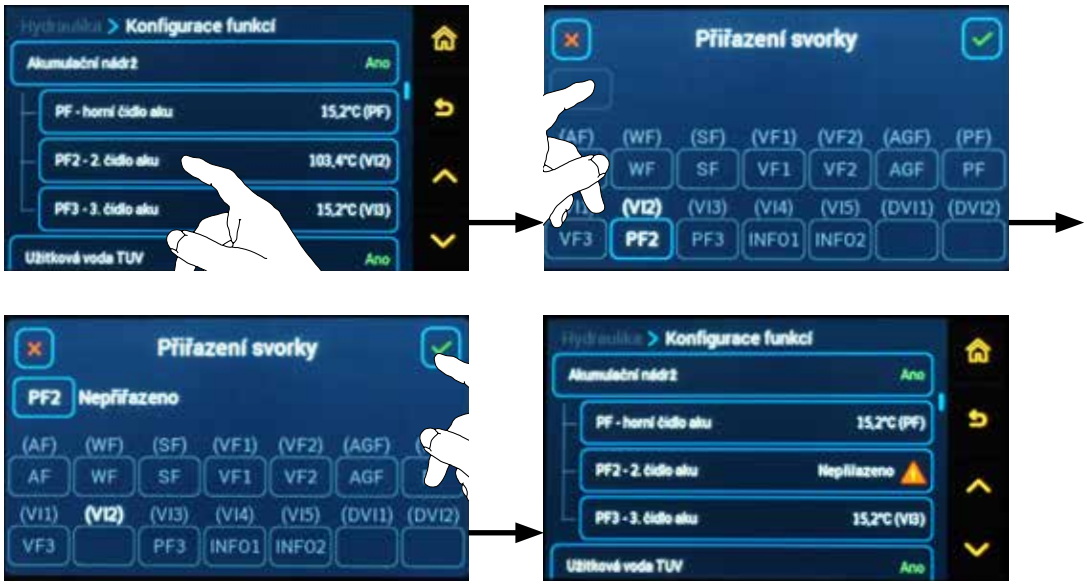
Select the sensor to be transferred to a different terminal
Select the new terminal, confirm, and the sensor is transferred to the new location.
Use this function, for example, in case of incorrect placement (connection) of the sensor on the terminal block.



ATTENTION - If a sensor or output is transferred to a different position (terminal), the original hydraulic diagram no longer matches and **the hydraulic diagram number can be automatically adjusted.**
If you **reset the original hydraulic diagram number,** the sensors or outputs are redefined (returned) **to the original terminals.**
Therefore, make changes with the utmost caution!

Release the clamp

Select the clamp you want to remove. Click on the free rectangle below the symbol ☒ and confirm ☑.
We use the function most often in the case of fully occupied terminals, when the terminal cannot just be switched (changed) to another.



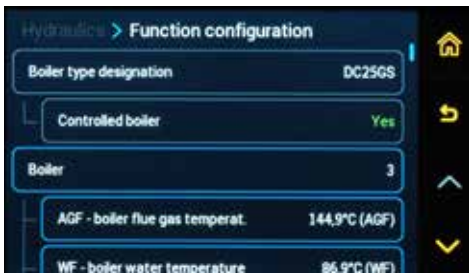
INFO - An undefined function (unassigned terminal (input - sensor) / (output - device)) is displayed with an ⚠ warning sign, which indicates that it is not active.

⚙→ Hydraulics/Function configuration

Boiler type designation

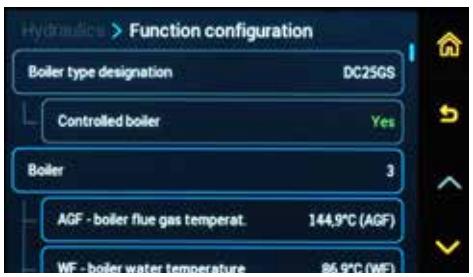
- serves only to provide information, e.g. DC25GS - button is not active.

INFO - To change the settings go to ⚙→ Hydraulics/Hydraulic diagram overview/ Boiler type designation.



Controlled boiler - (Yes / No) - the button is not active (information only).

INFO - To change the function go to ⚙→ Hydraulics/Hydraulic diagram overview/ Controlled boiler menu.



⚙→ Hydraulics/Function configuration

Boiler submenu- definition of additional functions for the boiler**:**

FAN – **exhaust boiler fan -** the function is based on the boiler type set in the **Installation Guide** (Wizard). As standard, it is the exhaust boiler fan that removes the flue gases from the boiler. However, some boilers use a PRESS pressure fan (e.g. ATMOS DC100, DC70S), see the following functions.

The fan is operated by the ✋ button (hand) on the controller display. When the boiler is cold, start the fan for firing up by pressing the button with the ✋ (hand) symbol.

The time for **firing up** a boiler with manual stoking is factory-set to the maximum of 60 minutes (P08^{Boiler} parameter). The controller remains in **firing up** mode until it reaches the **minimum flue gas temperature** defined in P18^{Boiler} parameter. If the minimum flue gas temperature is not reached, the boiler (fan) will be shut down.

During boiler operation, the fan is controlled automatically according to the water temperature (WF sensors) set in the Boiler menu. When the temperature defined by P02^{Boiler} parameter is reached, the fan is switched off, when the boiler water temperature drops by the difference defined by P06^{Boiler} parameter, it is switched on again.

When all fuel is burnt out (defined by the flue gas temperature - lower than P18^{Boiler} parameter), **the fan** (boiler circuit pump - according to P17^{Boiler} parameter setting) **is shut down**.

INFO - Always **start the exhaust boiler fan** before **opening** the door (e.g. when stoking) with the ✋ (hand) button for the time specified by P09^{Boiler} parameter.

PRESS – **pressure boiler fan**

The fan is operated by the ✋ button (hand) on the controller display. When the boileris cold, start the fan for firing up by pressing the button with the ✋ (hand) symbol.
The time for **firing up the boiler** with manual stoking is factory-set to a maximum of 60 minutes (P08^{Boiler} parameter). The controller remains in **firing up** mode until it reaches the minimum flue gas temperature defined in P18^{Boiler} parameter. If the **minimum flue gas temperature** is not reached, the boiler (fan) will be shut down.
During boiler operation, the fan is controlled automatically according to the water temperature (WF sensors) set in the Boiler menu. When the temperature defined by P02^{Boiler} parameter is reached, the fan is switched off, when the boiler water temperature drops by the difference defined by P06^{Boiler} parameter, it is switched on again.
When all fuel is burnt out (the flue gas temperature - lower than P18^{Boiler} parameter), the fan (boiler circuit pump - according to P17^{Boiler} parameter setting) is shut down.

INFO - Always **stop** the **pressure** boiler **fan** before **opening** the door (e.g. when stoking) with the ✋ (hand) button for the time specified by P09^{Boiler} parameter.

BRE – **automatic boiler with burner** (for pellets/fuel oil). The boiler operates in automatic mode according to the defined logic (WF boiler water temperature, PF and FPF accumulation tanks, as required by the heating system). **The boiler can be switched off by pressing the ⏻ button on the controller display**, e.g. to be cleaned.

For automatic boilers with BRE function, additional functions can be activated:

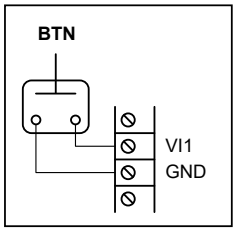
- **BRS** – external control (switch on/switch off) of the boiler by the controller, GSM gateway, pressure sensor of the heating system, CO alarm, etc., via the terminal of one of the free inputs (except DVI1 or DVI2)
- **BRSH** – the same function as BRS using DVI1 or DVI2 terminals (voltage input 230V)

INFO - The logic of the burner control according to the sensors in the PF accumulation tank (upper) and FPF accumulation tank (lower) is the same as for the ATMOS pellet burners, the control according to the TV sensor (upper) and TS sensor (lower). The temperature is not set up, it is automatically calculated according to the requirements of the heating system. Only the minimum required temperature can be set, which is defined by P18$^{Accumulation\ tank}$ parameter.

SEKGS – **Belimo servo flap** on the combustion air supply to the DCxxGSE, DCxxGSP boiler controlled by AGF flue gas temperature

BREO – output of the turned on boiler (230 V) - e.g. boiler operating hours counter, monitoring of controlled boiler operation, signal for fuel supply (external pellet feeder), etc.
When the condition of burner operation is met, the output is switched on.

BTN – **external button -** low voltage (e.g. VI1) - the function allows you to control the boiler fan (FAN, PRESS) or burner (BRE) when placing the ACD03 controller on the wall.



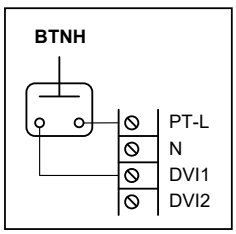
To change the status (switch on/off), press and hold the button for more than 1 second.

For a boiler with a burner (type 2 - BRE) pressing the external button shall call up the same function as pressing the button (hand symbol) of the ACD03/04 controller. It disables or enables burner (BRE) operation.

For a boiler with a fan (type 3, 4, 5 - FAN or PRESS), pressing the external button shall call up the same function as pressing the button (hand symbol) of the ACD03/04 controller, it only switches the boiler fan on or off according to the boiler function logic.

ATTENTION - For combined boilers (DCxxSP(X), CxxSP, DCxxGSP - type 6, 7), the BTN (BTNH) button function only works in boiler mode with manual stoking (as for 3, 5 type). However, the BTN (BTNH) button has no connection to the boiler burner (long press of the button only invokes a secondary function on the controller display). **The burner must always be switched off on the ACD03 controller display.**

BTNH – **external button -** 230 V/50 Hz (DVI1, DVI2) - the function allows you to control the boiler fan (FAN, PRESS) or burner (BRE) when placing the ACD03 controller on the wall.



To change the status (switch on/off), press and hold the button for more than 1 second.

For a boiler with a burner (type 2 - BRE) pressing the external button shall call up the same function as pressing the button (hand symbol) of the ACD03/04 controller. It disables or enables burner (BRE) operation.

For a boiler with a fan (type 3, 4, 5 - FAN or PRESS), pressing the external button shall call up

the same function as pressing the ✋ button (hand symbol) of the ACD03/04 controller, it only switches the boiler fan on or off according to the boiler function logic.

ATTENTION - For combined boilers (DCxxSP(X), CxxSP, DCxxGSP - type 6, 7), the BTN (BTNH) button function only works in boiler mode with manual stoking (as for 3, 5 type). However, the BTN (BTNH) button has no connection to the boiler burner (long press of the button only invokes a secondary function on the controller display). **The burner must always be switched off on the ACD03 controller display.**

PAV – **boiler operation output -** output (230V) of the turned on boiler - e.g. boiler operating hours counter (in operation mode), output for boiler failure alarm, etc.
Output closed when the condition of operation of the boiler fan is met and the boiler operating temperature is reached..

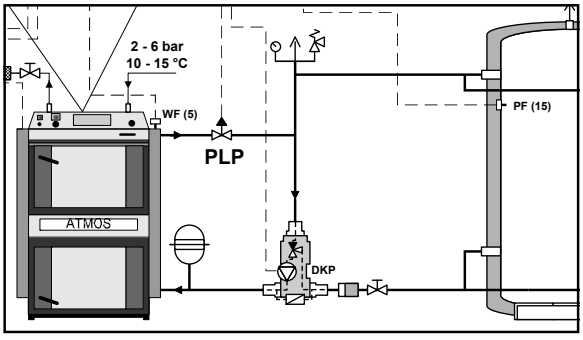
DKP – **boiler circuit pump** - pump is controlled according to the settings (P17^{Boiler} parameter)
- according to the WF boiler water temperature
- according to the AGF flue gas temperature
- according to the BRE burner function
- according to the temperature in the upper part of the accumulation tank (PF)

For DKP function, additional function can be activated:

PLP – zone valve - a function (valve) can be added to the boiler circuit. This function separates the boiler circuit from the accumulation tank, if the boiler pump is switched off and the minimum operating temperature of the boiler is not reached. This provides protection against unintentional cooling of the accumulation tank via the boiler (do not use the function with the boiler return water control function - RLA)

PLP output type - NO - zone valve without electric current open

PLP output type - NC - zone valve without electric current closed



AGF – activation of flue gas temperature measuring (AGF / PT1000 sensor) - designed for not controlled boilers (hydraulic diagram 1xxxx) and boilers with BRE burner (for pellets) (hydraulic diagram 2xxxx), which do not require flue gas temperature measuring for their function (AGF sensor is not automatically defined for these boilers).

INFO - To measure high temperatures, it is necessary to use a suitable sensor with a sufficient temperature range and install this sensor in a suitable place to prevent damage.

ATTENTION - If the AGF **flue gas temperature sensor is not** connected for a boiler with manual stoking, the controller is **not able** to control the fan operation (boiler function). The **boiler must be set up and connected as "Not controlled"**. Setting is performed only in the ⚙→ Hydraulics/Hydraulic diagram overview/Controlled boiler = **Yes / No** menu.

Depending on the location of the sensor, the reference (on the flue-gas duct) or real (in the pocket of the flue-gas duct) flue gas temperature is displayed on the controller display.

An undefined function (unassigned terminal) is displayed with a warning sign.

INFO - In case of addition of a new function to the input or output, it is always necessary to assign a specific terminal (define location) to the function.

AIW – automatic wood ignition – function designed for 3 and 5 boiler types. When selecting the type of **boiler with ignition**, the function is automatically activated. To set the type of the boiler, go to the menu ⚙→ Hydraulics/Hydraulic diagram overview/Boiler type designation (e.g. DC25GD with ignition). The function can be additionally switched on in the menu ⚙→ Hydraulics/Function configuration/Boiler/AIW – Automatic wood ignition.

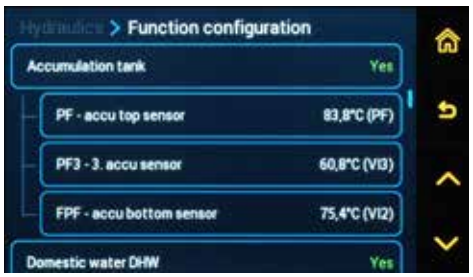
For boilers with AIW function, additional functions can be activated:

- **SAI – switching contact for AIW** (for terminals – VI1, VI2, VI3, VI4, VI5) – allows remote control by any potential-free device (GSM, WiFi). In ON states – closed terminals / in OFF states – open terminals.

- **SAIH – switching contact for AIW** (for terminals – DVI1, DVI2) – allows remote control by any device (GSM, WiFi – voltage 230 V / 50 Hz). In ON / OFF mode.

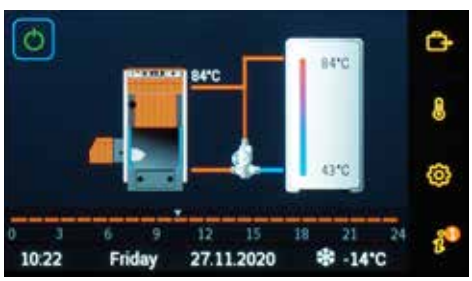
⚙→ Hydraulics/Function configuration

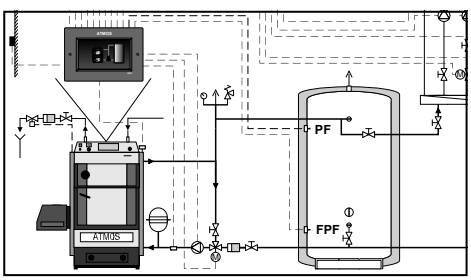
Accumulation tank submenu- overview of defined elements:



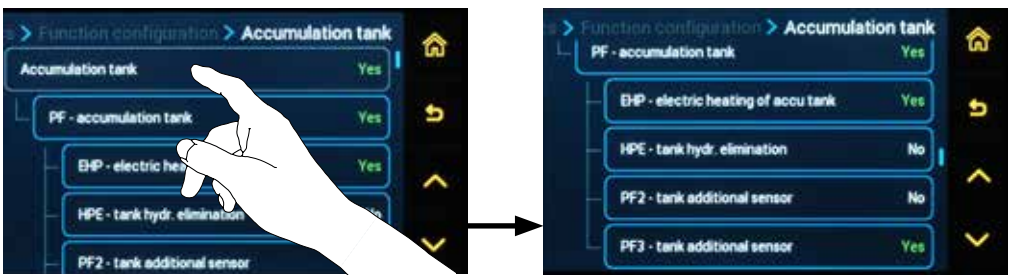
PF sensor - upper accumulation tank sensor (NTC sensor 20 kΩ) - temperature necessary to control the operation of the entire heating system. It has a fundamental effect on the switching on of the boiler circuit pump, the DHW pump and the heating circuits (see Accumulation tank menu).

FPF sensor - lower accumulation tank sensor (NTC sensor 20 kΩ) - sensor is activated and used for **boilers with pellet burner** (with BRE function). Boiler control function (burner - on/off) according to two sensors, PF (upper) and FPF (lower) on the accumulation tank. The temperature is not set up, it is automatically calculated according to the requirements of the heating system. Only the minimum required temperature can be set, which is defined by P18[Accumulation tank] parameter.



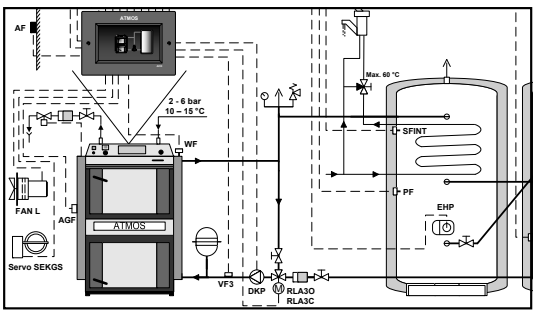


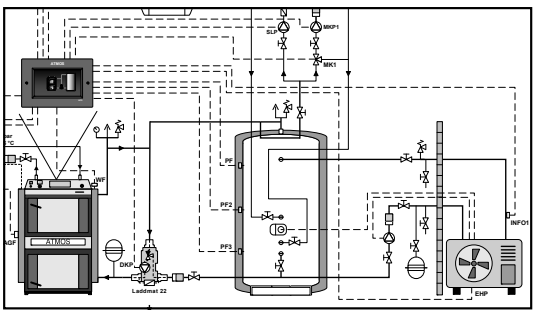
Additional functions can be defined in the <u>Accumulation tank</u> submenu:



- EHP output - electric heating of the accumulation tank is used to switch on electrical heating cartridges located in the accumulation tank or heat pump in case the boiler is not in operation for some reason. The tank is heated to the temperature according to the current requirement of the heating circuits (according to the temperature on the PF sensor).

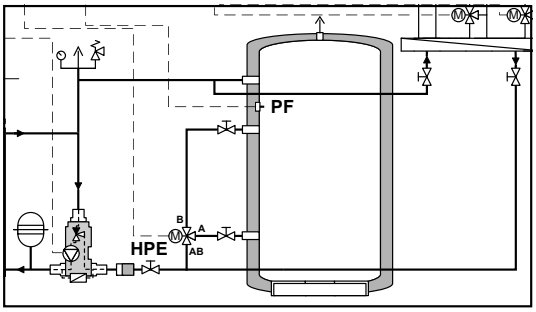
Start of the electric heating or heat pump can be delayed (⚙→ Parameter P11 Sources). Electric heating (heating cartridge, heat pump) is switched off when the DKP pump is switched on (the boiler is switched on).



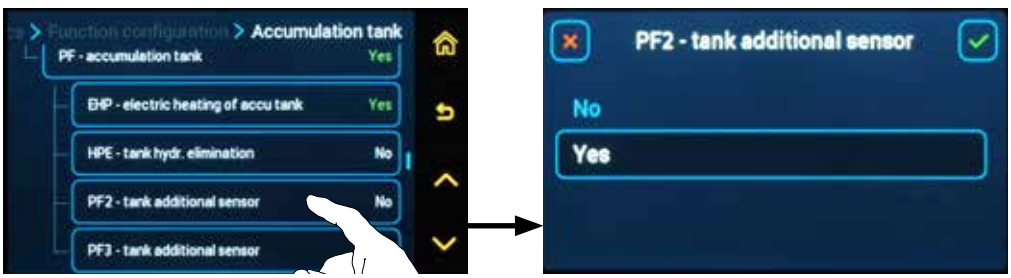


- HPE output - hydraulic tank elimination - if the required temperature defined by the PF sensor is not reached on the accumulation tank, its volume is reduced by means of a three-way valve for faster heating of the boiler and the upper part of the accumulation tank to the required temperature.

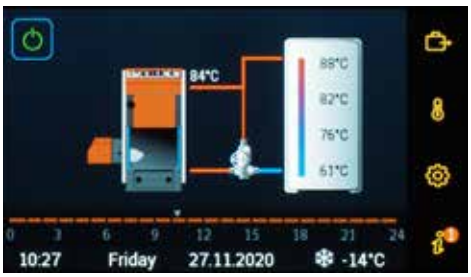
The function can also be used as a simplified electric heating of the accumulation tank (electric cartridge switching in the tank) without connection to other devices in the circuit.

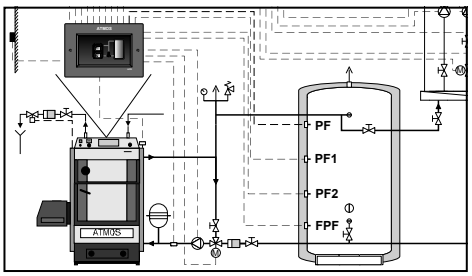


- PF2 and PF3 sensors (NTC sensor 20 kΩ) - tank additional sensors serve for better overview of charging or discharge of the accumulation tank. The values are displayed on the main screen on the accumulation tank and in the ℹ **Information.**

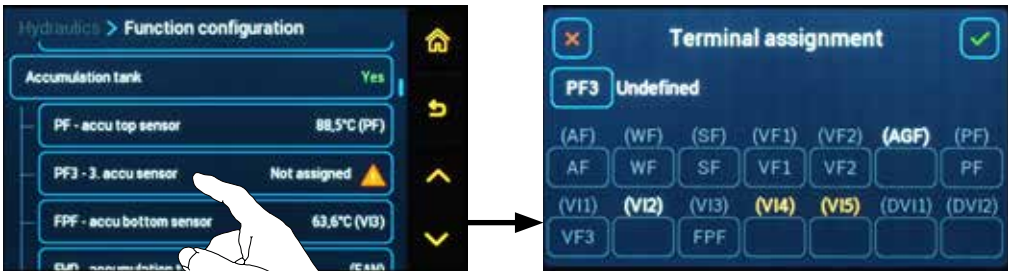


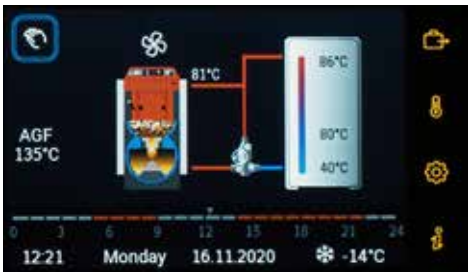
INFO - example of positions of individual sensors (PF, PF1, PF2, FPF) on the main screen. The displayed value depends on the physical location of the sensor on the accumulation tank.
Lower FPF sensor is displayed only for pellet **boilers with burner** with BRE function.





ATTENTION - in case of addition of a new sensor to the accumulation tank, it is necessary to assign a specific terminal (location) to the function, where the function is connected.
An unconnected function (unassigned terminal) will not work and will be displayed with a ⚠ warning sign.

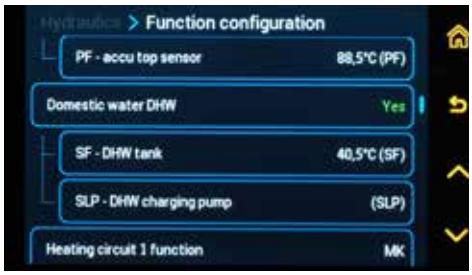




⚙→ Hydraulics/Function configuration

Domestic water DHW (2) submenu - overview of defined elements:

The controller allows the control of two tanks for DHW heating (DHW and DHW2).
All functions and control methods are the same for both DHW tanks.



Activation or deactivation of the domestic hot water (DHW) control is set in the submenu
DHW domestic water / DHW - tank = Yes / No
DHW2 domestic water / DHW2 - tank = Yes / No

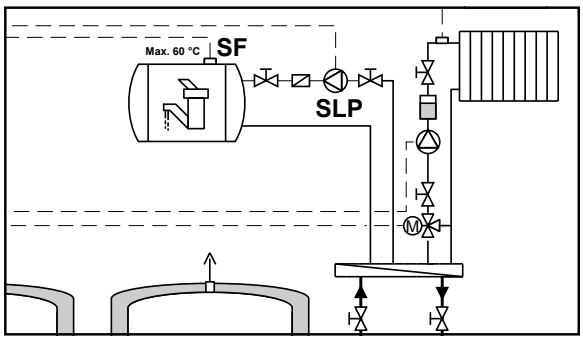
Circuit connection type - allows setting the type of DHW circuit connection to one heating circuit.
The function can be set (visible) only after its activation in the submenu - **Domestic water DHW (2)/Control circuit connection = Yes**

WARNING - The DHW circuit can never be the control circuit for the MK and DK heating circuits. Requirement for DHW domestic hot water heating is in practice completely different from the requirements for heating circuits.

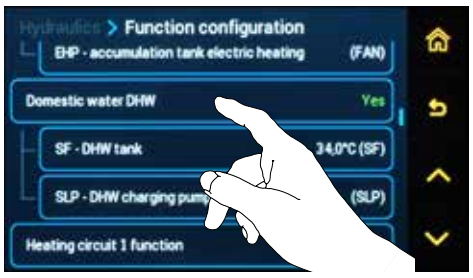
SF sensor **- DHW tank sensor (NTC sensor 20 kΩ)** - temperature required to control the heating of the domestic hot water tank (DHW). Installation of the sensor in the middle or in the upper half of the domestic hot water tank (DHW boiler).

SF2 sensor - **DHW 2nd tank sensor (NTC sensor 20 kΩ)** - temperature required to control the heating of the domestic hot water tank (DHW). Installation of the sensor in the middle or in the upper half of the domestic hot water tank (DHW boiler).

SLP (SLP2) - charging pump for the DHW tank heating - function is controlled by parameters in DHW menu (SLP terminal)



Click on the **Domestic water DHW** submenu to define additional functions:



Control circuit connection - activation of circuit connection **- Yes / No**

- the button allows you to activate or deactivate the connection function to one heating circuit, which allows their joint control. Activate control circuit connection = **Yes**
Next, go a step back by clicking on the ⮌ symbol and set - **Circuit connection type**.

INFO - With regard to the simplicity of operation, we always recommend connect the DHW heating to the most used heating circuit.

DHW (DHW2) - tank - DHW heating activation **- Yes / No**
- the button allows you to switch on and off the function defined in the hydraulic diagram

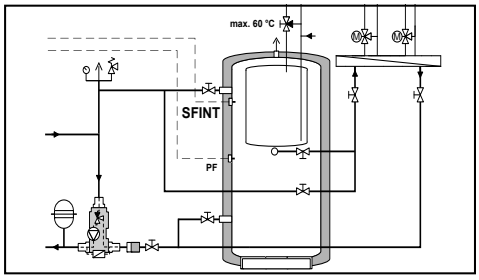
ATTENTION - by activation or deactivation domestic hot water heating, the hydraulic diagram number can be automatically adjusted.

Type of DHW temperature measurement - setting the method of measuring and controlling domestic hot water heating (DHW)..

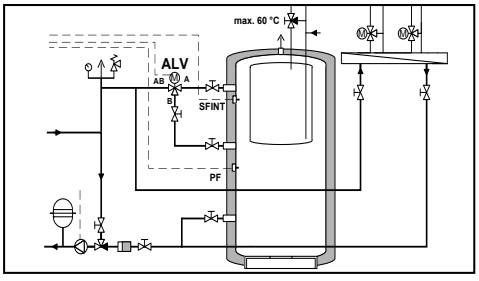
Measurement and control options:

1 - NTC sensor 20 kΩ - measures the current temperature
2 - contact (thermostat) - switching/circuit-opening contact (e.g. capillary thermostat)

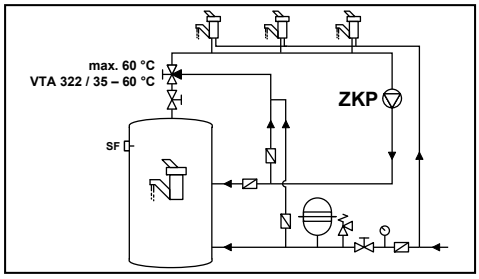
SFINT – temperature sensor of DHW inner tank (NTC sensor 20 kΩ) - inner tank (inner boiler) is a DHW tank located inside the upper part of the accumulation tank.
The DHW temperature corresponds to the temperature in the upper part of the accumulation tank (SFNT).



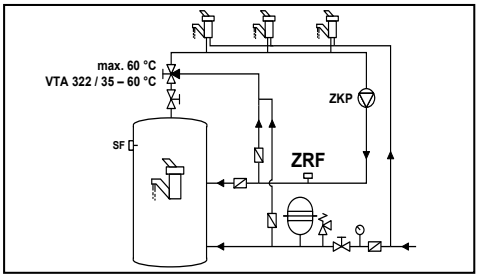
- ALV – DHW inner tank switch in the accumulation tank - the valve switches between charging the entire volume of the accumulation tank and charging only the part under the floating boiler. When discharging the accumulation tank, it provides protection against cooling of the DHW inner tank.



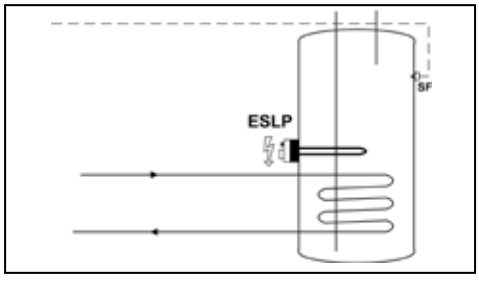
ZKP (ZKP2) – circulating pump - ensures the circulation of hot water in the domestic water distribution (DHW) up to the last supply point (water tap). For settings see DHW menu.



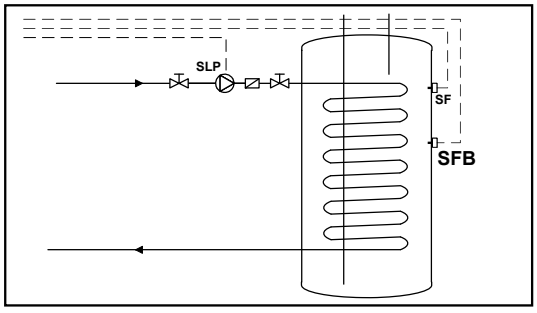
- ZRF (ZRF2) – return water temperature sensor from the DHW circulation circuit - the sensor "switches off" the operation of the circulating pump if the temperature of the return water from the DHW circuit (ZRF sensors) approaches the difference in temperature not greater than the value defined in $P20^{DHW}$ parameter (e.g. 5 K).



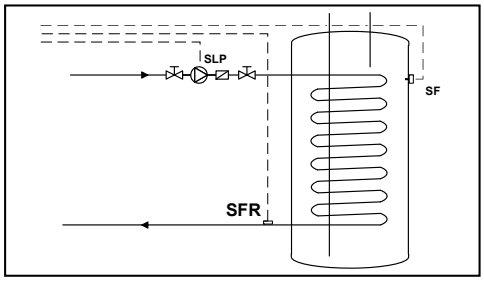
ESLP (ESLP2) – DHW electric heating - by switching on the function, DHW heating is started using the electric heating coil in the DHW tank.
DHW electric heating is on only if there is no energy in the boiler (defined by $P14^{Boiler}$ parameter - connection without tank) or accumulation tank (defined by $P01^{Accumulation\ tank}$ parameter - connection with accumulation tank).



SFB (SFB2) – additional (second) sensor of tank for DHW heating (NTC sensor 20 kΩ) - sensor improves the charging logic of the DHW tank.
The function is especially suitable for a larger DHW tank. The controller maintains the required (same) DHW temperature in the tank at the level of the SF and SFB sensors (SF2 and SFB2).



SFR (SFR2) – return water sensor from tank exchanger for DHW heating (NTC 20 kΩ sensor) - the sensor reduces the DHW charging (operation of the SLP pump), if water flowing from the exchanger when heating the DHW tank is too hot.



ANF(H) 5 - switching contact - allows simple control of the heating circuit in ON / OFF mode.

ANFa (b) – switching contact (for terminals - VI1, VI2, VI3, VI4, VI5) - allows easy control of the heating circuit by any device (potential-free thermostat) in **ON** mode - switched terminals (e.g. Comfort ☼) **/ OFF -** disconnected terminals (switched off).

ANFHa (b, c ,d, e) – switching contact (for terminals - DVI1, DVI2) - allows easy control of the heating circuit by classic room thermostat (230 V / 50 Hz) in **ON** mode (e.g. Comfort ☼) / **OFF** (switched off).

MDM (H) 5 - remote working mode switching by modem - allows simple control of the heating circuit in ON / OFF mode.

MDMHa (b) – remote working mode switching using modem - 2nd status logic for switching operating modes remotely using an external device (230V) that changes the status at the selected input (DVI1, DVI2):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08[Heating circuit] parameter and circuit for DHW is heating to a constant temperature = 5 °C.

MDMa (b, c ,d, e) – remote working mode switching using modem - 4th status (potential-free) logic for switching operating modes remotely using an external device that changes the status at the selected input (VI1, VI2, VI3, VI4, VI5 terminals):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08[Heating circuit] parameter and circuit for DHW is heating to a constant temperature = 5 °C.

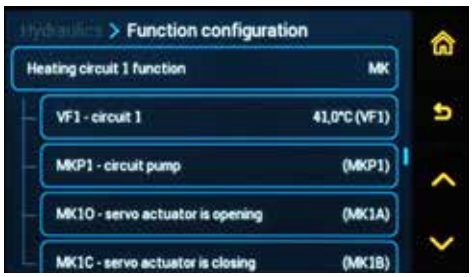
Input - **resistance 2.2kΩ** (2200 Ohms) = **Comfort** ☼ status - status when the Comfort working mode is forced, i.e. operation at Comfort room temperature.

Input - **resistance 3kΩ** (3,000 Ohms) = **Setback** ☾ status - status when the Setback working mode is forced, i.e. operation at setback (attenuation) room temperature.

INFO - If the modem forces the **Setback** ☾, **Comfort** ☼ or **STBY** ⏻ mode, the circuit tile in the mode selection is not active, i.e. the circuit mode cannot be changed, if the mode of the relevant circuit is changed on the ARU10 or ARU30 room unit, this selection is not accepted.

⚙→ Hydraulics/Function configuration

Heating circuit 1 function submenu:



INFO - displayed defined elements depend on the type of selected circuit.

Circuit connection type - used to set the connection type (connection function) of the heating circuit to another (control) circuit, which will allow their joint control.

The control can be set to two different variants:

Mode - the subordinate circuit only takes over the **working mode** from the control circuit; the set temperatures for Comfort ☼ and Setback ☾ mode, time programs, etc. are independent.

Dependent - the subordinate circuit takes over all requirements (modes, temperatures, time programs, etc.).

INFO - When setting up, always select the variant of joint control and control circuit.

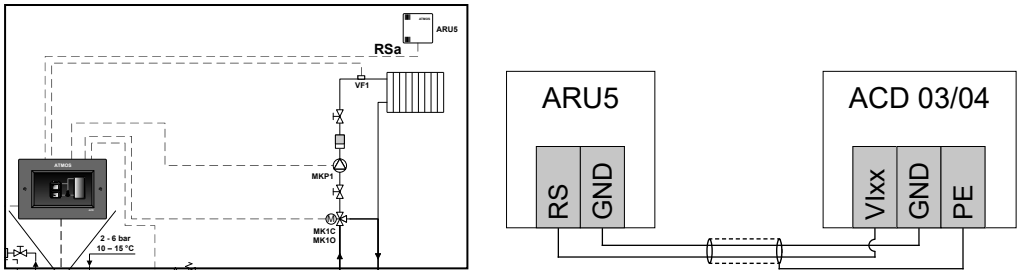
Setting the **Circuit connection type** function is possible (is visible) only after the function is switched on, ⚙→ Hydraulics / Function configuration / Heating circuit 1 function / Control circuit connection = Yes.

VF1 - circuit 1 – **heating circuit sensor 1** (MK, FR, KR, RLA type) - is used for the temperature measurement (media) of water flowing into the mixed (heating) circuit. The VF1 temperature is decisive for the actuator of the mixed circuit 1 (MK1O and MK1C) control.
An attached NTC 20 kΩ sensor (SF20) is required.

RSa (b, c, d) – room temperature - the button is used to assign the terminal of the connected **ARU5** room unit (sensor) to the selected heating circuit.
Before assigning the terminal, the room unit must be connected and assigned to the relevant heating circuit ⚙→🔧 Hydraulics / Function configuration / Heating circuit 1 function / RS(E)1 - Room sensors.

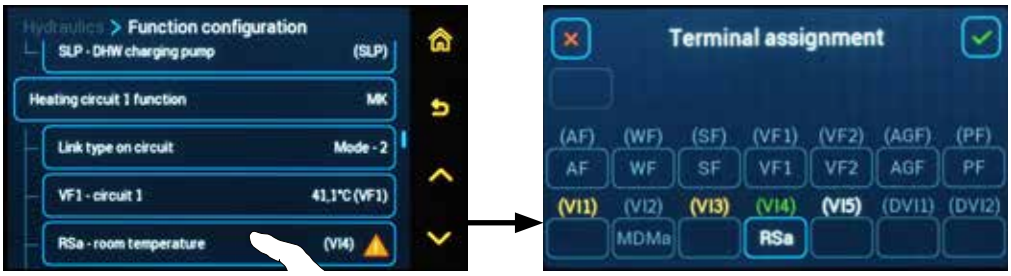
After assigning the terminal, the temperature of the relevant sensor is displayed.

Connection of ARU5 room unit (sensor) to ACD 03/04 controlle



INFO - The connection of the ARU5 room unit (sensor) is always made with a shielded wire (double line) to one of the variable inputs.

Sensor terminal assignment (ARU5) - RSa (b, c, d)



RSEa (b, c, d, e) - room temperature - type of room sensor and its current temperature (information only) for **ARU10 and AR30 room units**

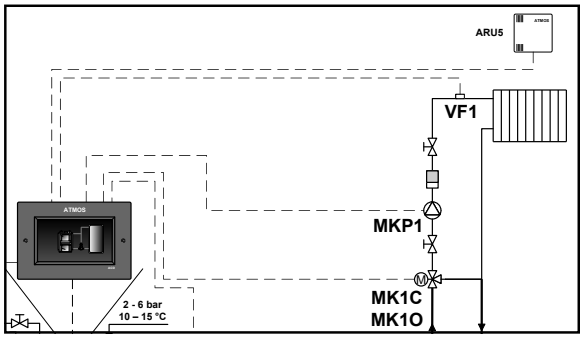
INFO - The current room temperature **RSEa (b, c, d, e)** is visible only after the ARU10 and ARU30 room unit activation and its assignment to the heating circuit (menu ⚙→🔧 Hydraulics / Communication / ARUa (b, c, d, e) / Controlled circuit).

MKP1 – **pump of mixed (heating) circuit 1** (except for RLA circuit).

MK1O – **actuator of mixed (heating) circuit 1** - opening phase of actuator of mixed (heating) circuit 1 (except DK type).

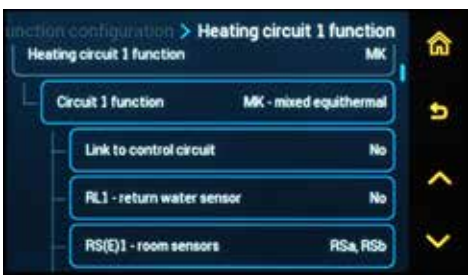
MK1C – **actuator of mixed (heating) circuit 1** - closing phase of actuator of mixed (heating) circuit 1 (except DK type).

ATTENTION - For the circuit to function properly, specific terminals must be assigned to the sensor (VF1), the pump (MKP1) and the three-way valve actuator (MK1O and MK1C). An inactivated function (unassigned terminal) is displayed with the ⚠ warning sign.



INFO - If necessary, the actuator direction of rotation can be easily reversed without the need for physical re-wiring of the actuator (terminals). To change the rotation direction, go to ⚙ →⚙ Hydraulics/Function configuration/Actuator direction of rotation. More information in Menu - Actuator direction of rotation.

Additional functions can be defined in the <u>Heating circuit 1 function</u> submenu:

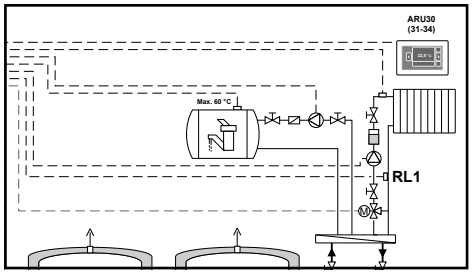


Control circuit connection - activation of circuit connection **- Yes / No**

- the button allows you to activate or deactivate the function of connecting the heating circuit to another heating circuit, which allows their joint control.
To activate control circuit connection, switch it on = **Yes**

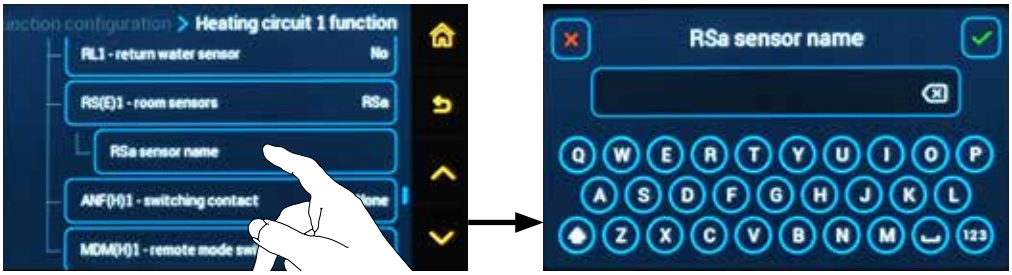
Go a step back by clicking on the symbol ⮌ **and set - Circuit connection type.**

RL1 – return water sensor from heating circuit 1 (NTC 20 kΩ sensor) - sensor ensures shutdown of the heating circuit (pump) at a small temperature gradient between the outlet and return from the heating system (e.g. 2 K) (⚙→ P17[Heating circuit] parameter).

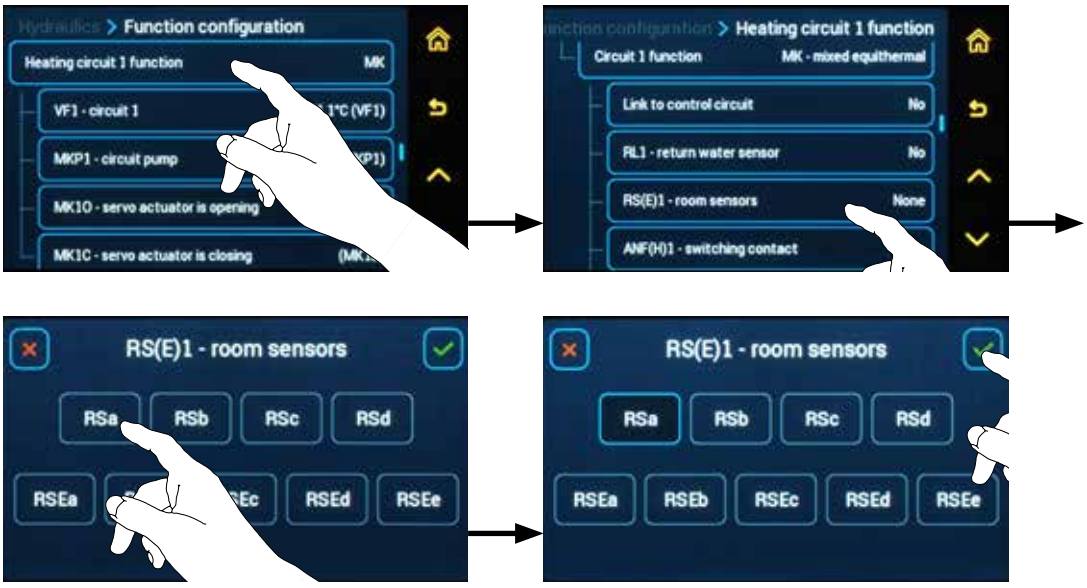


RS(E)1 – room sensors - the function is used to **adjust** the assignment of sensors of **ARU10 and ARU30** room units **(RSEa (b, c, d, e)) for heating circuit 1** or to activate (assign) **ARU5** room unit (sensors) - **RSa (b, c, d)**) for heating circuit 1.

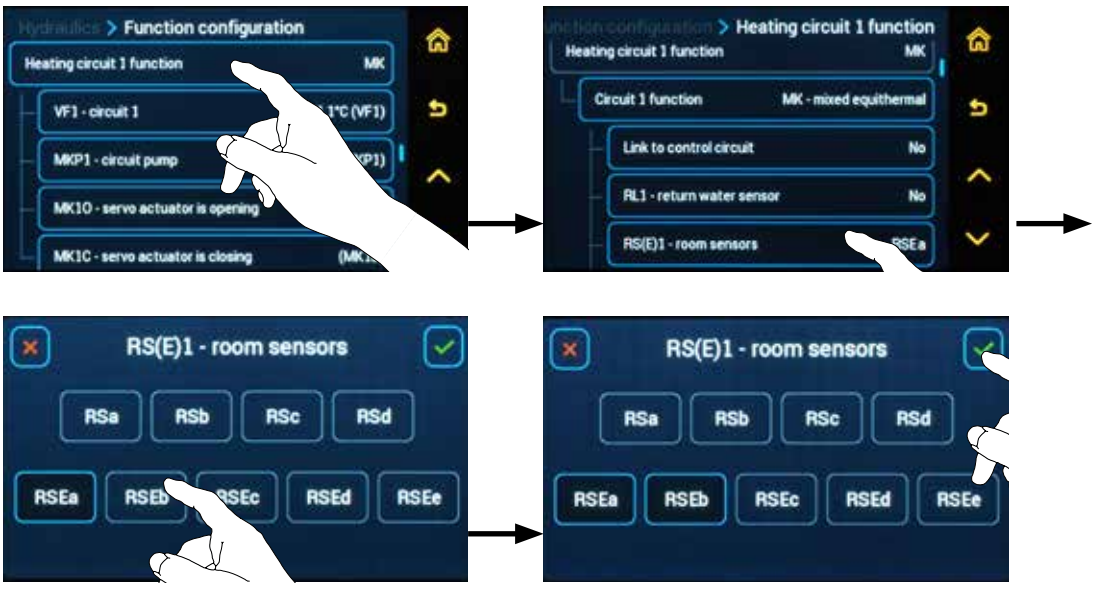
RSa (b, c, d) sensor name - allows custom naming of the room unit (sensor) **ARU5** after its activation.
The name of the room unit (sensor) is then displayed in the controller in **Information** ℹ (Group - Room temperatures).



Example of activation (assignment) of ARU5 room unit (sensors) - RSa (b, c, d)



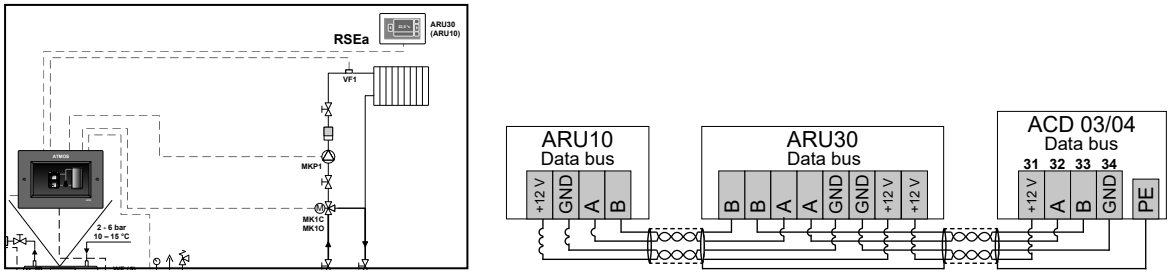
Example of assignment of sensors for temperature measurement for ARU10 and ARU30 room units for heating circuit 1



INFO - If more sensors (from more room units for one heating circuit) are selected, the controller shall work with their average value (T_{RSEa} + T_{RSEb} / 2).

ATTENTION - The default setting when using **ARU10 and ARU30** room units for **circuit 1** is the **ARUa unit** and **RSEa sensor.**

Connection of ARU10 or ARU30 room units to ACD 03/04 controller



INFO - Connection is made with a shielded wire (shielded four-wire cable (two twisted pairs) J-Y (ST) Y 2x2x0.8) to the communication line (12 V, A, B, GND (31 - 34)).

ANF(H)1 – switching contact - allows simple control of the heating circuit in ON / OFF mode.

ANFHa (b) – switching contact (for terminals - DVI1, DVI2) - allows easy control of the heating circuit by classic room thermostat (230 V / 50 Hz) in **ON** mode (e.g. Comfort ☼ / **OFF** (switched off).

ANFa (b, c ,d, e) – switching contact (for terminals - VI1, VI2, VI3, VI4, VI5) - allows easy control of the heating circuit by any device (potential-free thermostat) in **ON** mode - switched terminals (e.g. Comfort ☼ / **OFF** - disconnected terminals (switched off).

MDM(H)1 – remote working mode switching by "modem" - enables simple control of the heating circuit in ON / OFF mode.

MDMHa (b) – remote working mode switching using modem - 2nd status logic for switching operating modes remotely using an external device (230V) that changes the status at the selected input (DVI1, DVI2):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.

MDMa (b, c ,d, e) – remote working mode switching using modem - 4th status (potential-free) logic for switching operating modes remotely using an external device that changes the status at the selected input (VI1, VI2, VI3, VI4, VI5 terminals):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

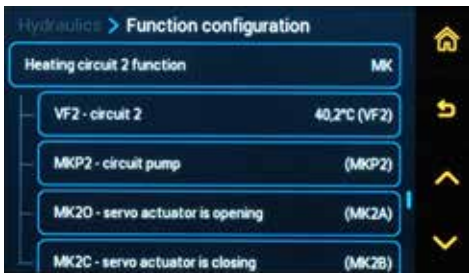
Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.
Input - **resistance 2.2kΩ** (2200 Ohms) = **Comfort** ☼ status - status when the Comfort working mode is forced, i.e. operation at Comfort room temperature.

Input - **resistance 3kΩ** (3,000 Ohms) = **Setback** ☾ status - status when the Setback working mode is forced, i.e. operation at setback (attenuation) room temperature.

INFO - If the modem forces the **Setback** ☾, **Comfort** ☼ or **STBY** ⏻ mode, the circuit tile in the mode selection is not active, i.e. the circuit mode cannot be changed, if the mode of the relevant circuit is changed on the ARU10 or ARU30 room unit, this selection is not accepted.

⚙→ Hydraulics/Function configuration

Heating circuit 2 function submenu:



INFO - displayed defined elements depend on the type of selected circuit.

Circuit connection type - used to set the connection type (connection function) of the heating circuit to another (control) circuit, which will allow their joint control.

The control can be set to two different variants:

Mode - the subordinate circuit only takes over the **working mode** from the control circuit; the set temperatures for Comfort ☼ and Setback ☾ mode, time programs, etc. are independent.

Dependent - the subordinate circuit takes over all requirements (modes, temperatures, time programs, etc.).

INFO - When setting up, always select the variant of joint control and control circuit.

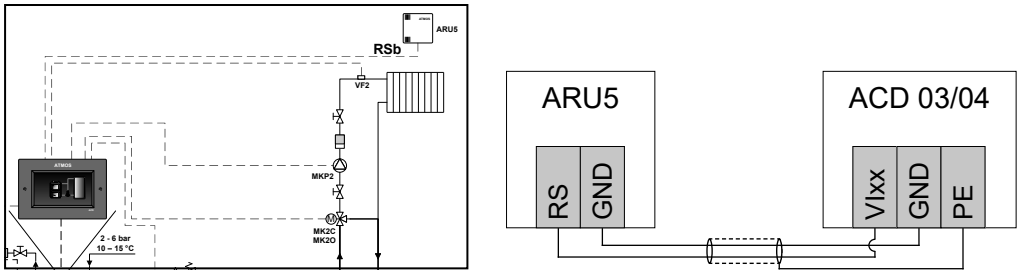
Setting the **Circuit connection type** function is possible (is visible) only after the function is switched on, ⚙→ Hydraulics / Function configuration / Heating circuit 2 function / Control circuit connection = Yes.

VF2 - circuit 2 – **heating circuit sensor 2** (MK, FR, KR, RLA type) - is used for the temperature measurement (media) of water flowing into the mixed (heating) circuit. The VF2 temperature is decisive for the actuator of the mixed circuit 2 (MK2O and MK2C) control.
An attached NTC 20 kΩ sensor (SF20) is required.

RSb (a, c, d) – room temperature - the button is used to assign the terminal of the connected **ARU5** room unit (sensor) to the selected heating circuit.
Before assigning the terminal, the room unit must be connected and assigned to the relevant heating circuit ⚙→🔧 Hydraulics / Function configuration / Heating circuit 2 function / RS(E)2 - Room sensors.

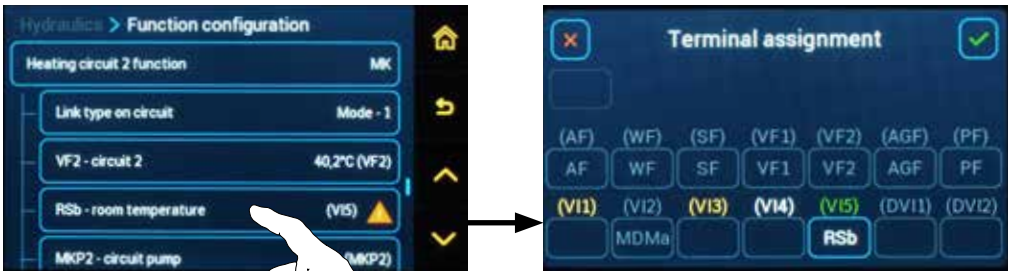
After assigning the terminal, the temperature of the relevant sensor is displayed.

Connection of ARU5 room unit (sensor) to ACD 03/04 controlle



INFO - The connection of the ARU5 room unit (sensor) is always made with a shielded wire (double line) to one of the variable inputs.

Sensor terminal assignment (ARU5) - RSb (a, c, d)



RSEb (a, c, d, e) - room temperature - type of room sensor and its current temperature (information only) for **ARU10 and AR30 room units**

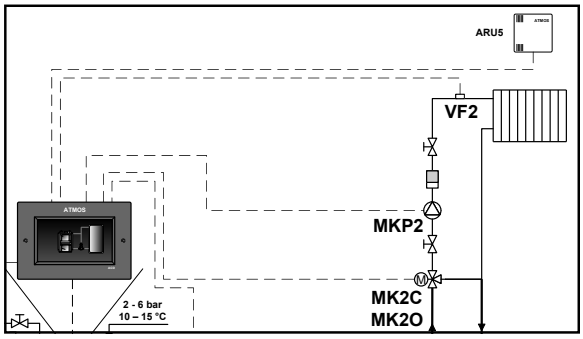
INFO - The current room temperature **RSEb (a, c, d, e)** is visible only after the ARU10 and ARU30 room unit activation and its assignment to the heating circuit (menu ⚙→🔧 Hydraulics / Communication / ARUb (a, c, d, e) / Controlled circuit).

MKP2 – **pump of mixed (heating) circuit 2** (except for RLA circuit).

MK2O – **actuator of mixed (heating) circuit 2** - opening phase of actuator of mixed (heating) circuit 2 (except DK type).

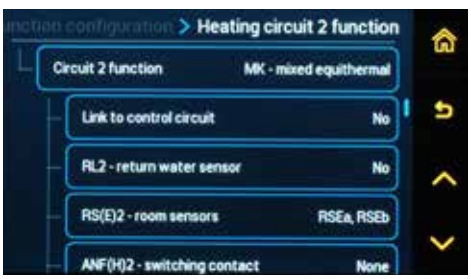
MK2C – **actuator of mixed (heating) circuit 2** - closing phase of actuator of mixed (heating) circuit 2 (except DK type).

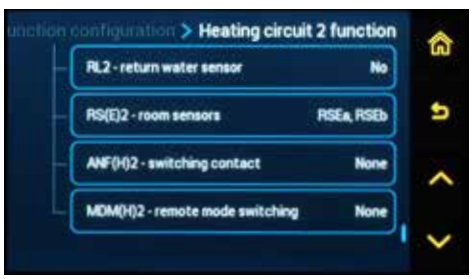
ATTENTION - For the circuit to function properly, specific terminals must be assigned to the sensor (VF2), the pump (MKP2) and the three-way valve actuator (MK2O and MK2C). An inactivated function (unassigned terminal) is displayed with the ⚠ warning sign.



INFO - If necessary, the actuator direction of rotation can be easily reversed without the need for physical re-wiring of the actuator (terminals). To change the rotation direction, go to ⚙ →⚙ Hydraulics/Function configuration/Actuator direction of rotation. More information in Menu - Actuator direction of rotation.

Additional functions can be defined in the <u>Heating circuit 2 function</u> submenu:



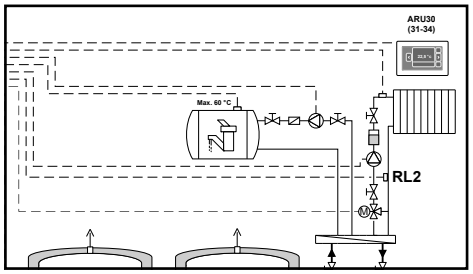


Control circuit connection - activation of circuit connection **- Yes / No**

- the button allows you to activate or deactivate the function of connecting the heating circuit to another heating circuit, which allows their joint control.
To activate control circuit connection, switch it on = **Yes**

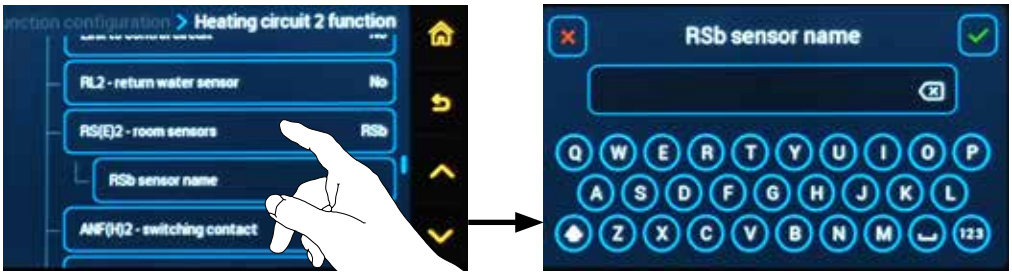
Go a step back by clicking on the symbol ⮌ **and set - Circuit connection type.**

RL2 – return water sensor from heating circuit 2 (NTC 20 kΩ sensor) - sensor ensures shutdown of the heating circuit (pump) at a small temperature gradient between the outlet and return from the heating system (e.g. 2 K) (⚙→ P17[Heating circuit] parameter).

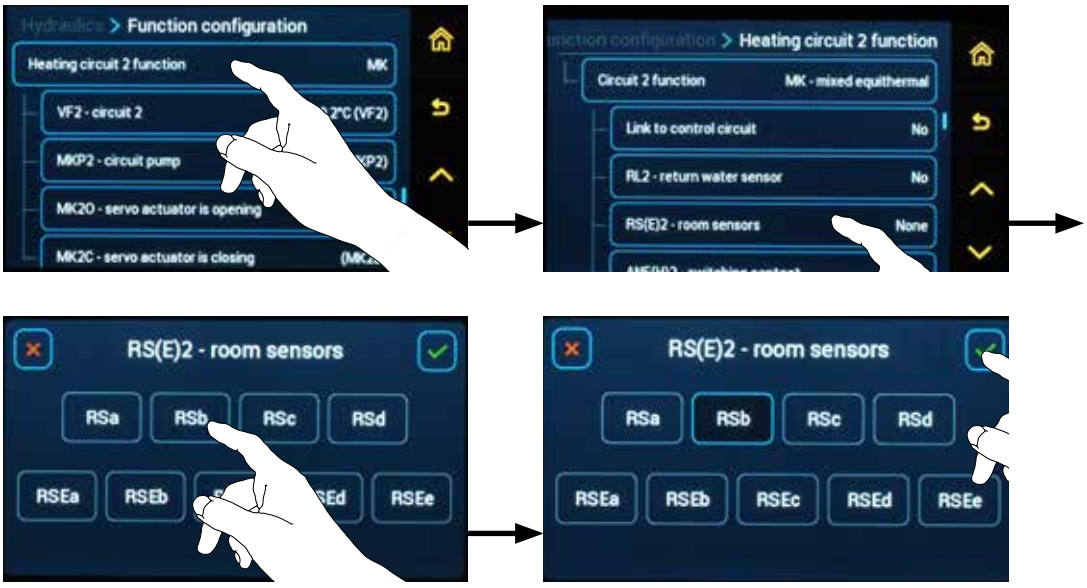


RS(E)2 – room sensors - the function is used to **adjust** the assignment of sensors of **ARU10 and ARU30** room units **(RSEb (a, c, d, e)) for heating circuit 2** or to activate (assign) **ARU5** room unit (sensors) - **RSb (a, c, d)**) for heating circuit 2.

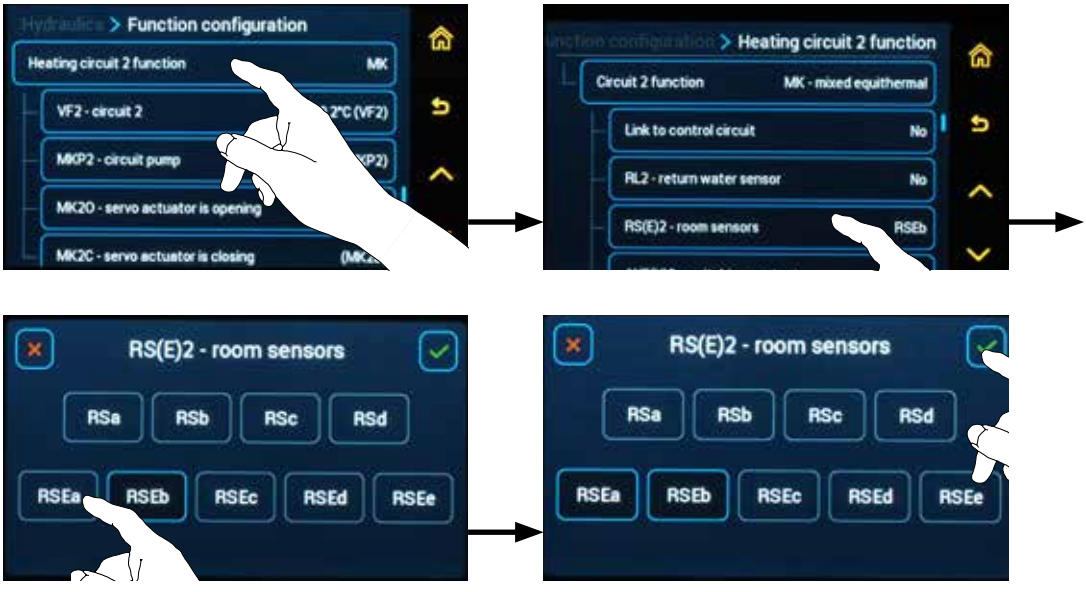
RSb (a, c, d) sensor name - allows custom naming of the room unit (sensor) **ARU5** after its activation.
The name of the room unit (sensor) is then displayed in the controller in **Information** 𝒾 (Group - Room temperatures).



Example of activation (assignment) of ARU5 room unit (sensors) - RSb (a, c, d)



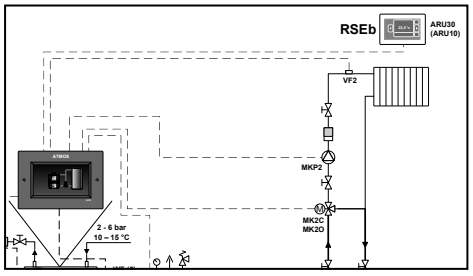
Example of assignment of sensors for temperature measurement for ARU10 and ARU30 room units for heating circuit 2

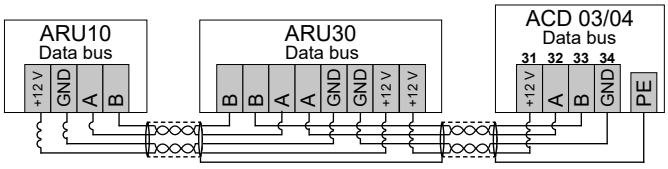


INFO - If more sensors (from more room units for one heating circuit) are selected, the controller shall work with their average value ($T_{RSEa} + T_{RSEb} / 2$).

ATTENTION - The default setting when using **ARU10 and ARU30** room units for **circuit 2** is the **ARUb unit** and **RSEb sensor**.

Connection of ARU10 or ARU30 room units to ACD 03/04 controller





INFO - Connection is made with a shielded wire (shielded four-wire cable (two twisted pairs) J-Y (ST) Y 2x2x0.8) to the communication line (12 V, A, B, GND (31 - 34)).

ANF(H)2 – switching contact - allows simple control of the heating circuit in ON / OFF mode.

ANFHa (b) – switching contact (for terminals - DVI1, DVI2) - allows easy control of the heating circuit by classic room thermostat (230 V / 50 Hz) in **ON** mode (e.g. Comfort ☼ / **OFF** (switched off).

ANFa (b, c ,d, e) – switching contact (for terminals - VI1, VI2, VI3, VI4, VI5) - allows easy control of the heating circuit by any device (potential-free thermostat) in **ON** mode - switched terminals (e.g. Comfort ☼ / **OFF** - disconnected terminals (switched off).

MDM(H)1 – remote working mode switching by "modem" - enables simple control of the heating circuit in ON / OFF mode.

MDMHa (b) – remote working mode switching using modem - 2nd status logic for switching operating modes remotely using an external device (230V) that changes the status at the selected input (DVI1, DVI2):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.

MDMa (b, c ,d, e) – remote working mode switching using modem - 4th status (potential-free) logic for switching operating modes remotely using an external device that changes the status at the selected input (VI1, VI2, VI3, VI4, VI5 terminals):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.

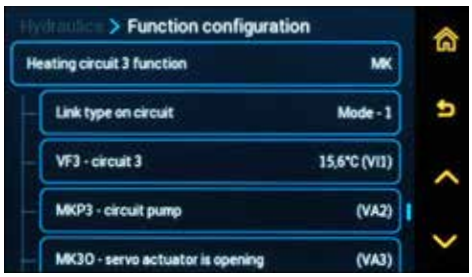
Input - **resistance 2.2kΩ** (2200 Ohms) = **Comfort** ☼ status - status when the Comfort working mode is forced, i.e. operation at Comfort room temperature.

Input - **resistance 3kΩ** (3,000 Ohms) = **Setback** ☾ status - status when the Setback working mode is forced, i.e. operation at setback (attenuation) room temperature.

INFO - If the modem forces the **Setback** ☾, **Comfort** ☼ or **STBY** ⏻ mode, the circuit tile in the mode selection is not active, i.e. the circuit mode cannot be changed, if the mode of the relevant circuit is changed on the ARU10 or ARU30 room unit, this selection is not accepted.

⚙→ Hydraulics/Function configuration

Heating circuit 3 function submenu:



INFO - displayed defined elements depend on the type of selected circuit.

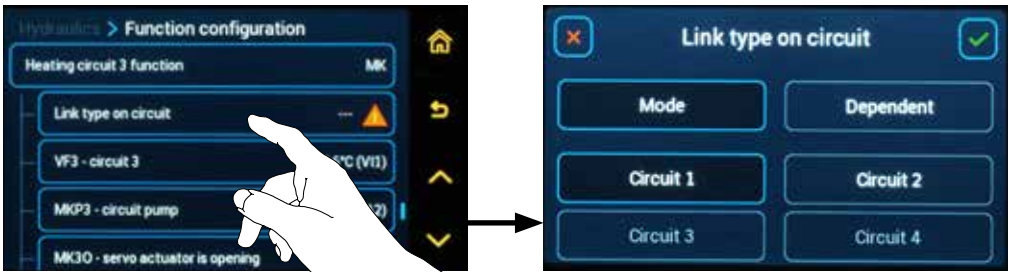
Circuit connection type - used to set the connection type (connection function) of the heating circuit to another (control) circuit, which will allow their joint control.

The control can be set to two different variants:

Mode - the subordinate circuit only takes over the **working mode** from the control circuit; the set temperatures for Comfort ☼ and Setback ☾ mode, time programs, etc. are independent.

Dependent - the subordinate circuit takes over all requirements (modes, temperatures, time programs, etc.).

INFO - When setting up, always select the variant of joint control and control circuit.



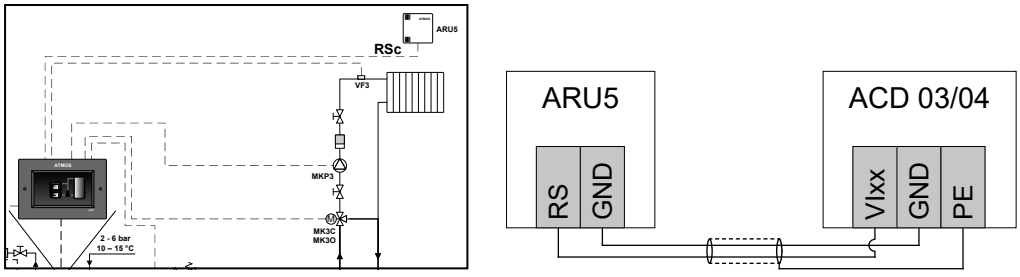
Setting the **Circuit connection type** function is possible (is visible) only after the function is switched on, ⚙→ Hydraulics / Function configuration / Heating circuit 3 function / Control circuit connection = Yes.

VF3 - circuit 3 – **heating circuit sensor 3** (MK, FR, KR, RLA type) - is used for the temperature measurement (media) of water flowing into the mixed (heating) circuit. The VF3 temperature is decisive for the actuator of the mixed circuit 3 (MK3O and MK3C) control.
An attached NTC 20 kΩ sensor (SF20) is required.

RSc (a, b, d) – room temperature - the button is used to assign the terminal of the connected **ARU5** room unit (sensor) to the selected heating circuit.
Before assigning the terminal, the room unit must be connected and assigned to the relevant heating circuit ⚙→🔧 Hydraulics / Function configuration / Heating circuit 3 function / RS(E)3 - Room sensors.

After assigning the terminal, the temperature of the relevant sensor is displayed.

Connection of ARU5 room unit (sensor) to ACD 03/04 controlle



INFO - The connection of the ARU5 room unit (sensor) is always made with a shielded wire (double line) to one of the variable inputs.

Sensor terminal assignment (ARU5) - RSc (a, b, d)

RSEc (a, b, d, e) - room temperature - type of room sensor and its current temperature (information only) for **ARU10 and AR30 room units**

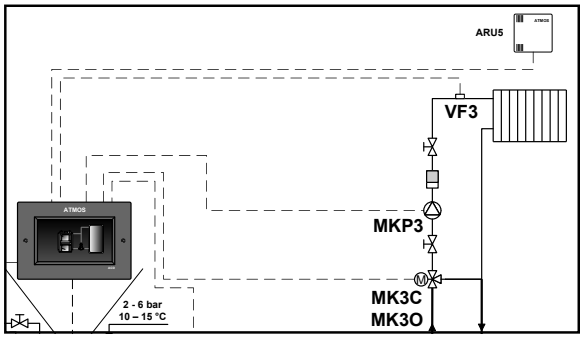
INFO - The current room temperature **RSEc (a, b, d, e)** is visible only after the ARU10 and ARU30 room unit activation and its assignment to the heating circuit (menu ⚙→🔧 Hydraulics / Communication / ARUc (a, b, d, e) / Controlled circuit).

MKP3 – **pump of mixed (heating) circuit 3** (except for RLA circuit).

MK3O – **actuator of mixed (heating) circuit 3** - opening phase of actuator of mixed (heating) circuit 3 (except DK type).

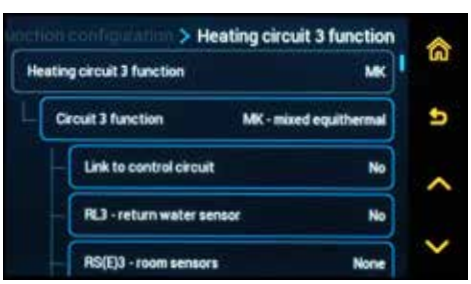
MK3C – **actuator of mixed (heating) circuit 3** - closing phase of actuator of mixed (heating) circuit 3 (except DK type).

ATTENTION - For the circuit to function properly, specific terminals must be assigned to the sensor (VF3), the pump (MKP3) and the three-way valve actuator (MK3O and MK3C). An inactivated function (unassigned terminal) is displayed with the ⚠ warning sign.



INFO - If necessary, the actuator direction of rotation can be easily reversed without the need for physical re-wiring of the actuator (terminals). To change the rotation direction, go to ⚙ → Hydraulics/Function configuration/Actuator direction of rotation. More information in Menu - Actuator direction of rotation.

Additional functions can be defined in the <u>Heating circuit 3 function</u> submenu:

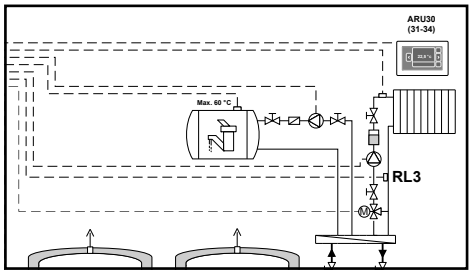


Control circuit connection - activation of circuit connection **- Yes / No**

- the button allows you to activate or deactivate the function of connecting the heating circuit to another heating circuit, which allows their joint control.
To activate control circuit connection, switch it on = **Yes**

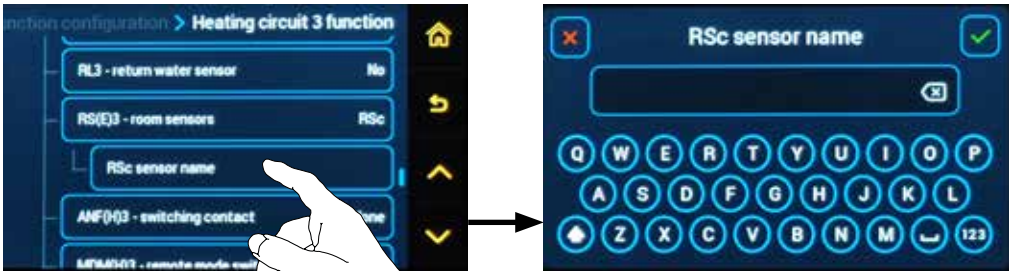
Go a step back by clicking on the symbol ⮌ **and set - Circuit connection type.**

RL3 – return water sensor from heating circuit 3 (NTC 20 kΩ sensor) - sensor ensures shutdown of the heating circuit (pump) at a small temperature gradient between the outlet and return from the heating system (e.g. 2 K) (⚙→▥ P17[Heating circuit] parameter).

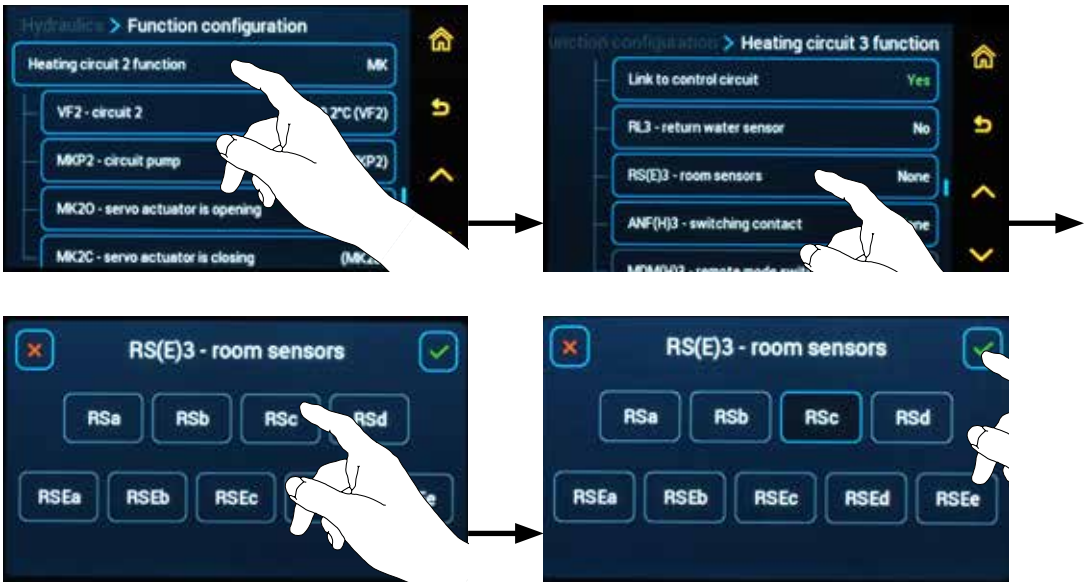


RS(E)3 – room sensors - the function is used to **adjust** the assignment of sensors of **ARU10 and ARU30** room units **(RSEc (a, b, d, e)) for heating circuit 2** or to activate (assign) **ARU5** room unit (sensors) - **RSc (a, b, d)**) for heating circuit 2.

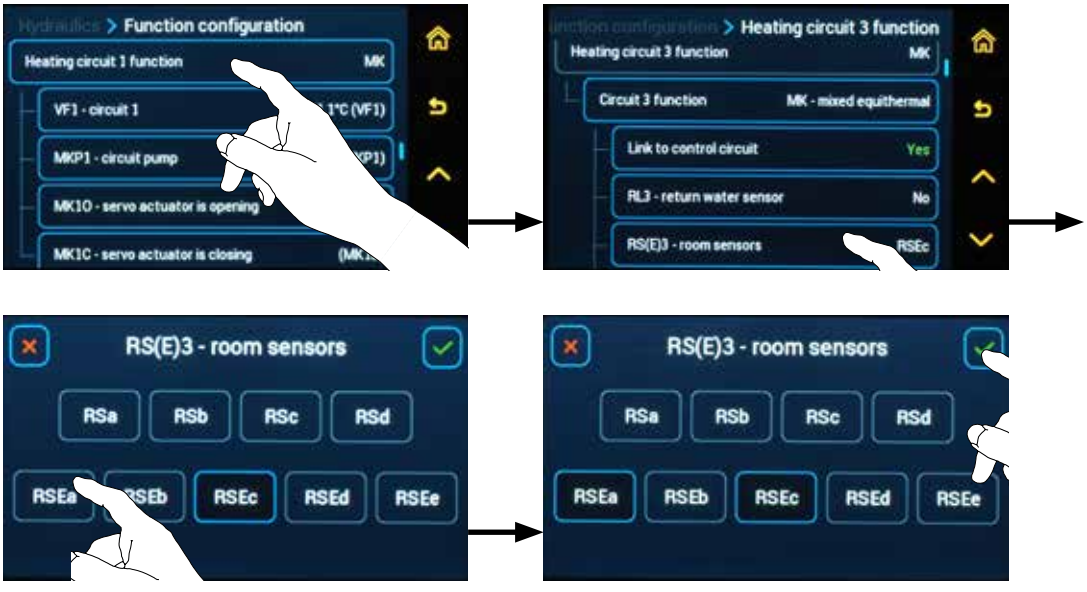
RSc (a, b, d) sensor name - allows custom naming of the room unit (sensor) **ARU5** after its activation.
The name of the room unit (sensor) is then displayed in the controller in **Information** i (Group - Room temperatures).



Example of activation (assignment) of ARU5 room unit (sensors) - RSc (a, b, d)



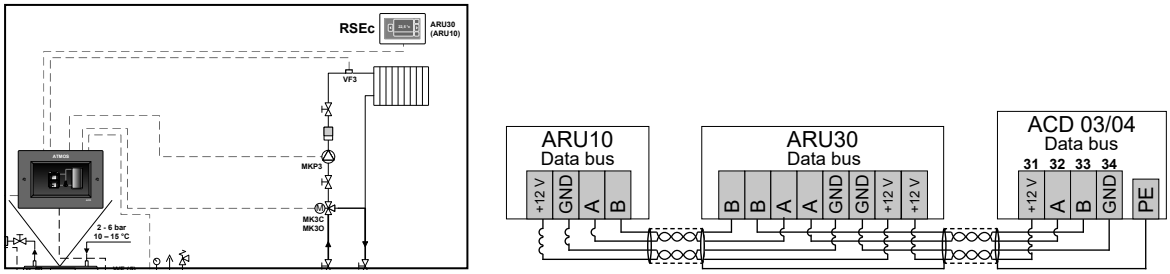
Example of assignment of sensors for temperature measurement for ARU10 and ARU30 room units for heating circuit 3



INFO - If more sensors (from more room units for one heating circuit) are selected, the controller shall work with their average value ($T_{RSEa} + T_{RSEb} / 2$).

ATTENTION - The default setting when using **ARU10 and ARU30** room units for **circuit 3** is the **ARUc unit** and **RSEc sensor**.

Connection of ARU10 or ARU30 room units to ACD 03/04 controller



INFO - Connection is made with a shielded wire (shielded four-wire cable (two twisted pairs) J-Y (ST) Y 2x2x0.8) to the communication line (12 V, A, B, GND (31 - 34)).

ANF(H)2 – switching contact - allows simple control of the heating circuit in ON / OFF mode.

ANFHa (b) – switching contact (for terminals - DVI1, DVI2) - allows easy control of the heating circuit by classic room thermostat (230 V / 50 Hz) in **ON** mode (e.g. Comfort ☼ / **OFF** (switched off).

ANFa (b, c, d, e) – switching contact (for terminals - VI1, VI2, VI3, VI4, VI5) - allows easy control of the heating circuit by any device (potential-free thermostat) in **ON** mode - switched terminals (e.g. Comfort ☼ / **OFF** - disconnected terminals (switched off).

MDM(H)1 – remote working mode switching by "modem" - enables simple control of the heating circuit in ON / OFF mode.

MDMHa (b) – remote working mode switching using modem - 2nd status logic for switching operating modes remotely using an external device (230V) that changes the status at the selected input (DVI1, DVI2):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.

MDMa (b, c ,d, e) – remote working mode switching using modem - 4th status (potential-free) logic for switching operating modes remotely using an external device that changes the status at the selected input (VI1, VI2, VI3, VI4, VI5 terminals):

Input **disconnected** = **AUTO** ⏲ status - status when it is possible to manually switch between operating modes or let the controller run according to the time programs.

Input **short-circuited** = **STBY** ⏻ status - status when the STBY working mode is forced, when the heating circuit is heating to the room temperature defined by ⚙→▥ P08Heating circuit parameter and circuit for DHW is heating to a constant temperature = 5 °C.

Input - **resistance 2.2kΩ** (2200 Ohms) = **Comfort** ☼ status - status when the Comfort working mode is forced, i.e. operation at Comfort room temperature.

Input - **resistance 3kΩ** (3,000 Ohms) = **Setback** ☾ status - status when the Setback working mode is forced, i.e. operation at setback (attenuation) room temperature.

INFO - If the modem forces the **Setback** ☾, **Comfort** ☼ or **STBY** ⏻ mode, the circuit tile in the mode selection is not active, i.e. the circuit mode cannot be changed, if the mode of the relevant circuit is changed on the ARU10 or ARU30 room unit, this selection is not accepted.

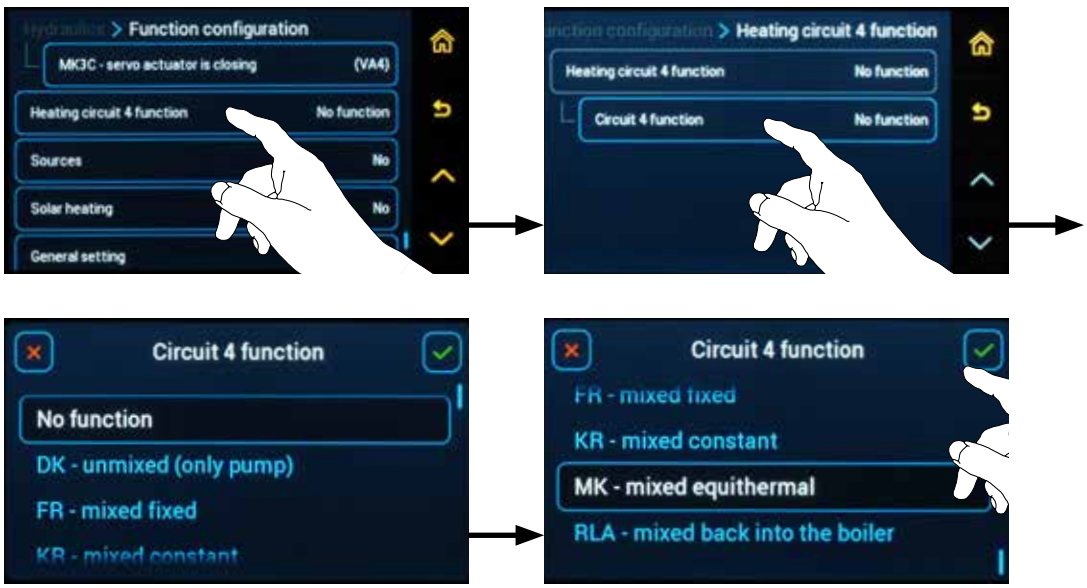
⚙→ Hydraulics/Function configuration

Heating circuit 4 function submenu:

The controller allows the creation of the 4th heating circuit from free inputs and outputs in the controller.

In the absence of a sufficient number of inputs and outputs, the controller itself reports:
"Function can not be added, check free IO terminals!"

The circuit can be activated in ⚙→ Hydraulics/Function configuration/Heating circuit 4 function/ Circuit 4 function, by assigning its function.



You can select from the menu:

- **no function**
- **DK** .... unmixed (only pump)
- **MK** ... mixed equithermal (control according to outdoor (and room) temperature)
- **KR** .... mixed constant (with requirement for source temperature (boiler))
- **FR** ..... mixed fixed (without requirement for source (boiler))
- **RLA** .. mixed back into the boiler (return check)

After selecting the correct (possible) function, go back one step and define (assign) the terminals for new functions.

Unassigned terminals for selected functions are displayed with a ⚠ warning mark.

INFO - All other circuit functions are the same as for previous 1, 2, 3 heating circuits.

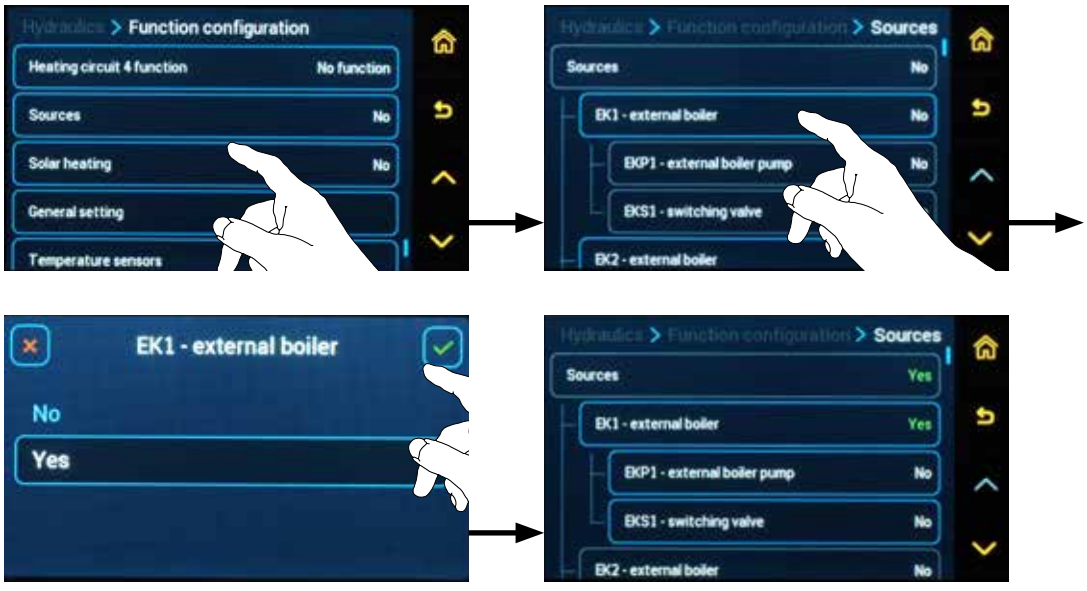
⚙→ Hydraulics/Function configuration

Sources submenu:

The controller allows you to define one external boiler in the Sources submenu (if it was not already defined when installing the controller (Wizard)).
The external boiler can be defined (activated) only in case of free inputs and outputs.

In the Sources submenu, the controller offers three options of the designation of the external boiler - EK1, EK2 and EK3. Select one of them.
For better later orientation, select the designation of the external boiler according to the free (unused) heating circuit (e.g. EK1).

Activate EKx external boiler – Yes



Activate the EKPx external boiler pump (if it shall be controlled from ACD 03/04 controller) - Yes

Go back one step and define (assign) the terminals for new functions (e.g. EKF1 external boiler temperature sensor, EK1 external boiler control output and EKP1 external boiler pump output)

INFO - Unassigned terminals for selected functions are displayed with a ⚠ warning mark.

EKF1 / EKF2 / EKF3 – external boiler temperature sensor - (NTC sensor 20 kΩ) - temperature sensor to control the operation of external (backup) boiler according to the parameters set in the ⚙→ **Sources** menu and heating system requirements. The digit at the end means the number of the selected (free) circuit of the external boiler.

EK1 / EK2 / EK3 – external boiler output - serves for external (backup) boiler (gas, electric, etc.) switching, according to the parameters in the ⚙→ **Sources** menu (output 230V/50Hz) according to the heating system requirement. The digit at the end means the number of the selected (free) circuit of the external boiler.

Additional function can be defined for the <u>Sources</u> submenu:

- EKP1 / EKP2 / EKP3 – external boiler pump - controlled according to the parameters in the ⚙→ **Sources** menu. The digit at the end means the number of the selected (free) circuit of the external boiler.

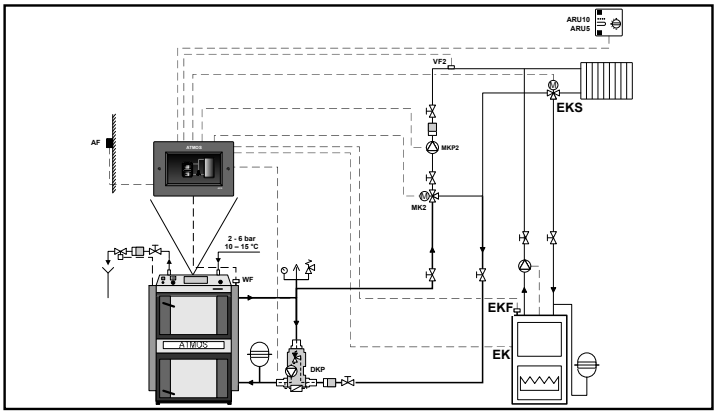
- EKS1 / EKS2 / EKS3 – switching valve - this is a variant of connection with a three-way valve, which allows switching the source water supply to the heating system (to the distributor) **from the EK external boiler (EKS = On) or from the main boiler, or from the accumulation tank (EKS = Off).**

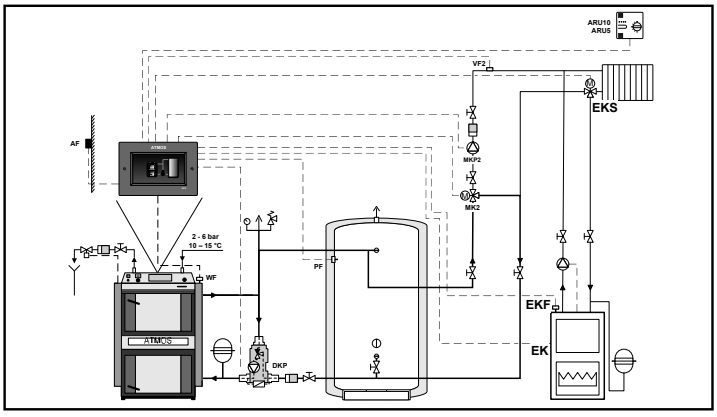
The EKS valve is switched to the position for transfer of energy from the EK external boiler (EKS = On) when the DKP boiler pump is not running (connection without accumulation tank), or the accumulation tank is discharged to the minimum temperature (temperature of PF sensor < P01$^{\text{Amulation tank}}$ parameter).

INFO - The method of connecting the EK external boiler, the EKP pump and the **EKS switching valve** is defined in ⚙→ P28$^{\text{Heating circuit}}$ Parameter.

Variants of connection of the EK external boiler to the heating system:

Example of the installation of the external boiler (EK) connected in the heating circuit

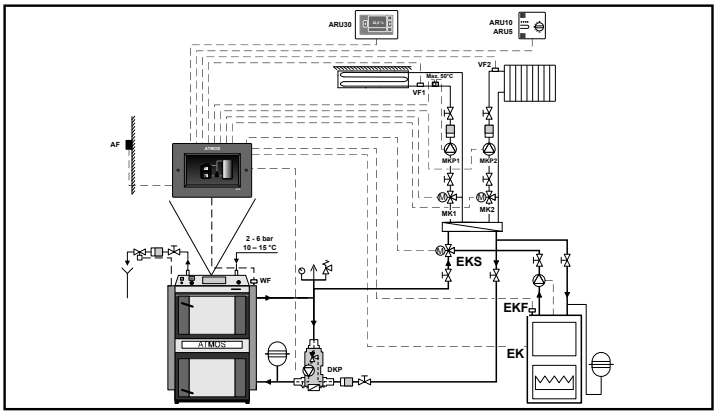


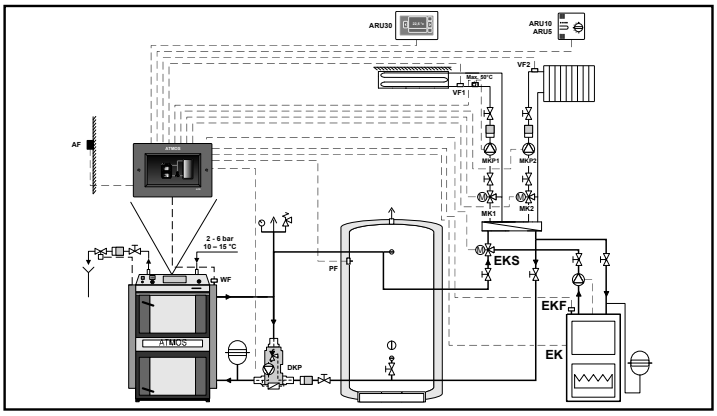


The request for operation of the EK external boiler will be issued by the heating circuit in which the EK external boiler is installed.
Circuits (1, 2, 3, 4) are enabled (started) according to the standard logic, i.e. the temperature of the WF boiler (connection without the accumulation tank) or the PF accumulation tank temperature (connection with the accumulation tank).

When operating the EK external boiler, the heating circuit pump is switched off and the three-way valve is closed. The circulation of the heating medium in the circuit is performed only by the EK external boiler pump.

Example of the installation of the external boiler (EK) connected in front of the heating circuits (distributor)



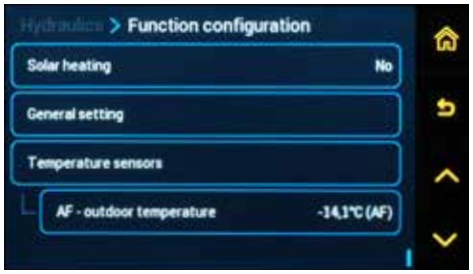


Each of the circuits (1, 2, 3, 4) will issue requirement for the operation of the EK external boiler. Circuits are enabled (started) according to the standard logic, i.e. the temperature of the WF boiler (connection without the accumulation tank) or the PF accumulation tank temperature (connection with the accumulation tank) and when the condition ⚙→ P04[Sources] parameter (reaching the EKstart minimum temperature) is met.

INFO - The method of connecting the EK external boiler, the EKP pump and the **EKS switching valve** is defined in ⚙→ P28[Heating circuit] Parameter.

⚙→ Hydraulics/Function configuration

Solar heating submenu:



The controller allows you to control solar heating depending on the temperature of the solar panel and the temperature in the solar tank (DHW boiler / accumulation tank).

If solar heating was not defined during the controller installation (Wizard), it is possible to define and activate the function, if there are free inputs and outputs on the controller.

To activate solar heating, click on the ⚙→ Hydraulics/Function configuration/**Solar heating** button, then click on the **KVLF/KSPF/SOLP - solar heating** button and activate the function by setting it to **YES**.

KVLF – **solar panel sensor** (PT1000 sensor) - source energy sensor

KSPF – **solar tank sensor** (NTC 20 kΩ sensor) - sensor of stored energy

SOLP – **solar circuit pump -** if the panel has a gain and the tank is not charged, the pump is started

In addition to the basic functions of the solar panel, it is possible to activate additional functions (if there are free inputs and output

Additional functions can be defined for the <u>Solar</u> submenu:

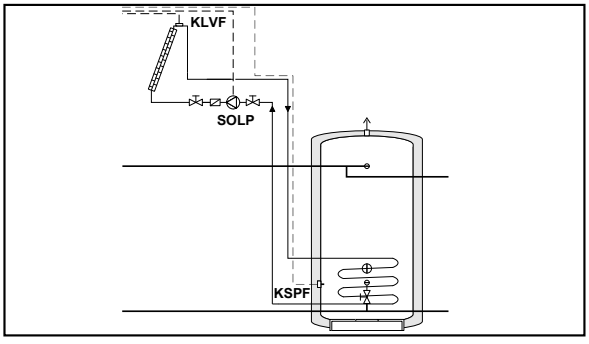
- **KLV/KVLF2** – **solar panel switch -** is intended for the installation of solar panels with different gains depending on the movement of the sun (morning/afternoon, installation on the eastern/western side of the roof). The switch evaluates the situation and activates the solar panel with the greatest gain.

- **KRLF** – **solar return -** sensor of return temperature from the solar tank (NTC 20 kΩ sensor) - sensor is used for more accurate calculation of solar gain - for parameters see ⚙→☼ SOLAR menu.

- **SLV/SLVF** – **solar tank switch -** is intended to switch between 2 solar tanks (e.g. a bivalent DHW tank and an accumulation tank, or 2 DHW tanks, etc.) **The tank with SLVF sensor is charged as a priority.**

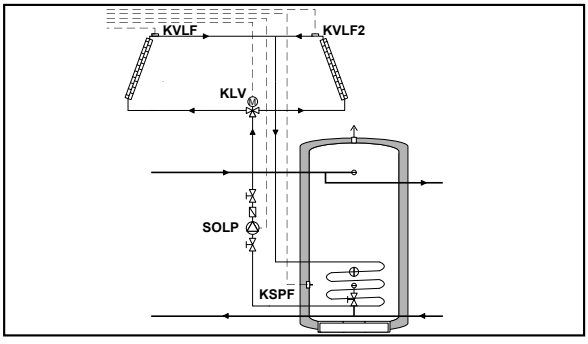
- **SZV** – **solar losses valve -** function is intended in case of the solar circuit overheating to open the valve and remove excess energy (release of pressure).

Basic functions n



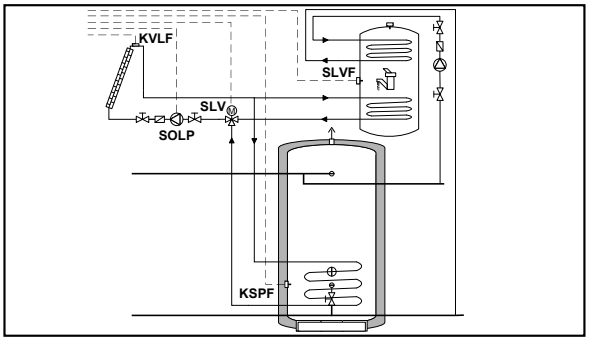
1 - KVLF + KSPF + SOLP

KLV/KVLF2 extension



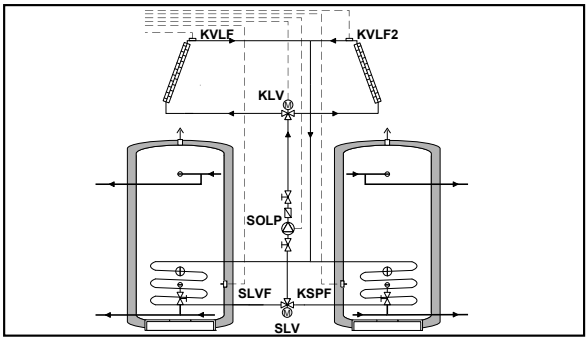
2 - KVLF + KSPF + SOLP + KLV/KVLF2

SLV/SLVF extension



3 - KVLF + KSPF + SOLP + SLV/SLVF

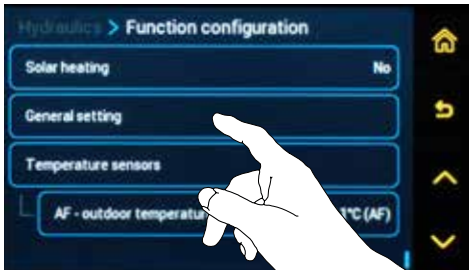
KLV/KVLF2 + SLV/SLVF extension

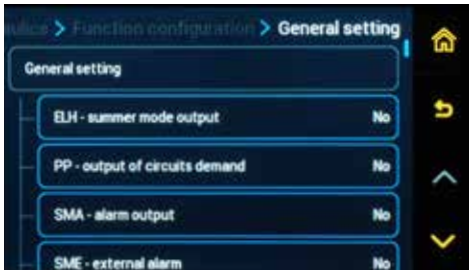


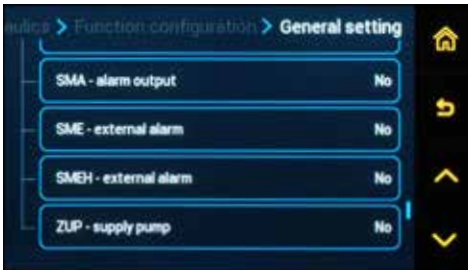
4 - KVLF + KSPF + SOLP + KLV/KVLF2 + SLV/SLVF

⚙→ Hydraulics/Function configuration

General setting submenu - definition of additional functions:







The controller allows you to activate and use (if there are free inputs and outputs) additional functions. To activate them, set the function to **Yes**.

SME – **external alarm (input) -** is connected to voltage-free inputs (except for DVI1, DVI2) - if the input is closed (short-circuited), an alarm is switched on.
The function can be used as an input connected to a Home Security Alarm or CO Alarm. Subsequently, the alarm is signaled on the ACD03/04 controller display and the ARU30 room units in ℹ Information.

SMEH – **external alarm (input) -** is connected to DVI1, DVI2 voltage inputs - if the input is closed (under voltage), an alarm is switched on.
The function can be used, for example, to display alarm information from the ATMOS A25, A45 and A85 pellet burner from R reserve outputs (R2, R5, R6).

ELH – **summer mode output -** at the moment of switching to summer mode, the output is permanently closed. The function can be used, for example, to switch on the electric boiler for DHW heating.

PP – **output of circuits demand** - at the moment of heating circuits demand, the output is closed.
The output is switched off with a delay after the demand is canceled, see ⚙→ General setting menu - P01 General setting parameter.
The function can be used to open the backup energy supply for heating the building (for example, district heating).

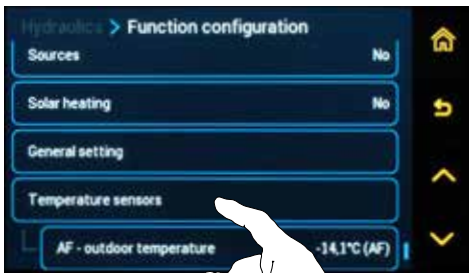
SMA – **alarm output -** at the moment of occurrence of any alarm, the output is closed. The function can be used to send error information via the GSM gateway.

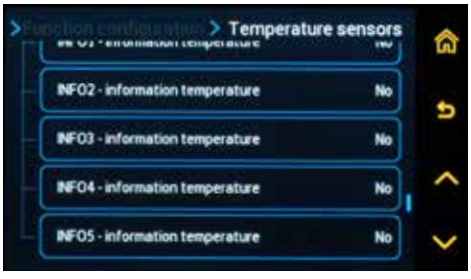
ZUP – **output of circuits demand and DHW** - at the moment of demand of the circuits heating and DHW heating, the output is closed.
The function can be used to open the backup energy supply for heating the building (for example, district heating). After the demand is canceled, it is switched off with a delay defined by ⚙→🌡 General setting menu - P01[General setting] parameter.

TIMER 1, 2, 3 or 4 – **comfort mode output** - the function is the comfort time output of AUTO, VISIT or COMFORT mode, i.e. the assigned **output is closed** whenever ☼ **Comfort mode** is active.
The function has no connection to the heating system, it can be used, for example, to switch the electric heating in the bathroom, pool technology, heating the driveway, turning on the lights, etc. The function does not create any requirement for heat source. The setting of the working mode is the same as for the heating circuit - selection in the working mode window, definition, copying in the ⚙→ Time programs submenu, etc.

⚙→ Hydraulics/Function configuration

Temperature sensors submenu - definition of additional sensors





The controller allows you to add a second outdoor sensor (AF2) for better control of heating circuits and add additional information sensors (INFO1 to INFO5).

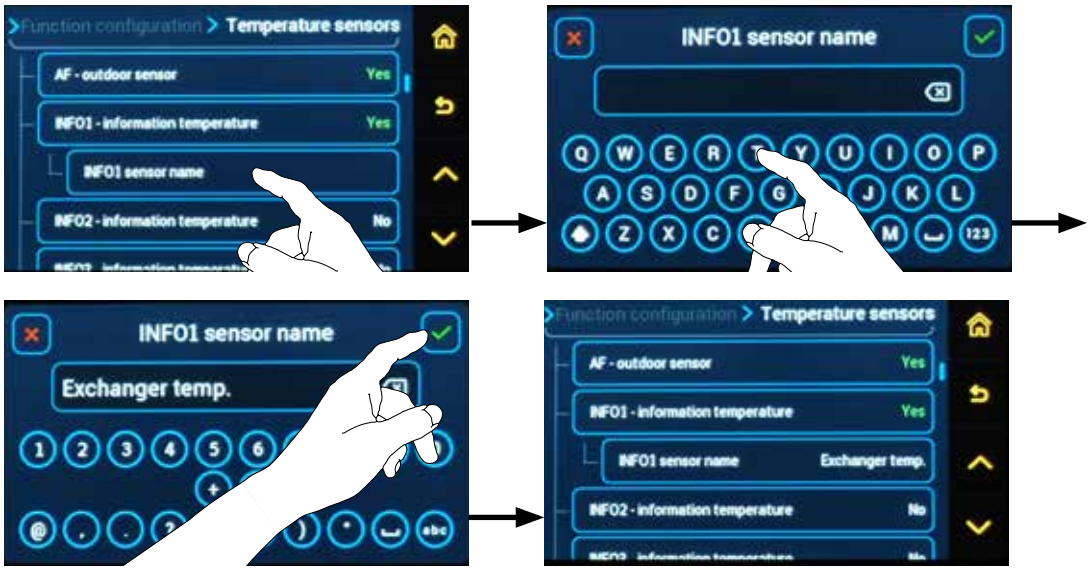
To activate them, set the function to **Yes**.

AF – **outdoor temperature sensor -** basic temperature (information) for control of heating circuits. It is automatically defined when defining the function of heating circuits with equithermal control (NTC 20 kΩ sensor required). Inputs AF, VI4 and VI5 are recommended for the outdoor temperature sensor.

AF2 – **additional outdoor sensor -** second outdoor temperature sensor (on the other side of the house). It allows you to use the average outdoor temperature calculated from AF and AF2 values.

INFO1 to INFO5 – **information temperature -** information sensors 1 to 5 can be used to measure information temperatures that do not affect any of the functions.

Possibility to name INFOrmation temperature (sensor), which is then displayed in Information $\hat{i}$.



Menu - **Output test:**

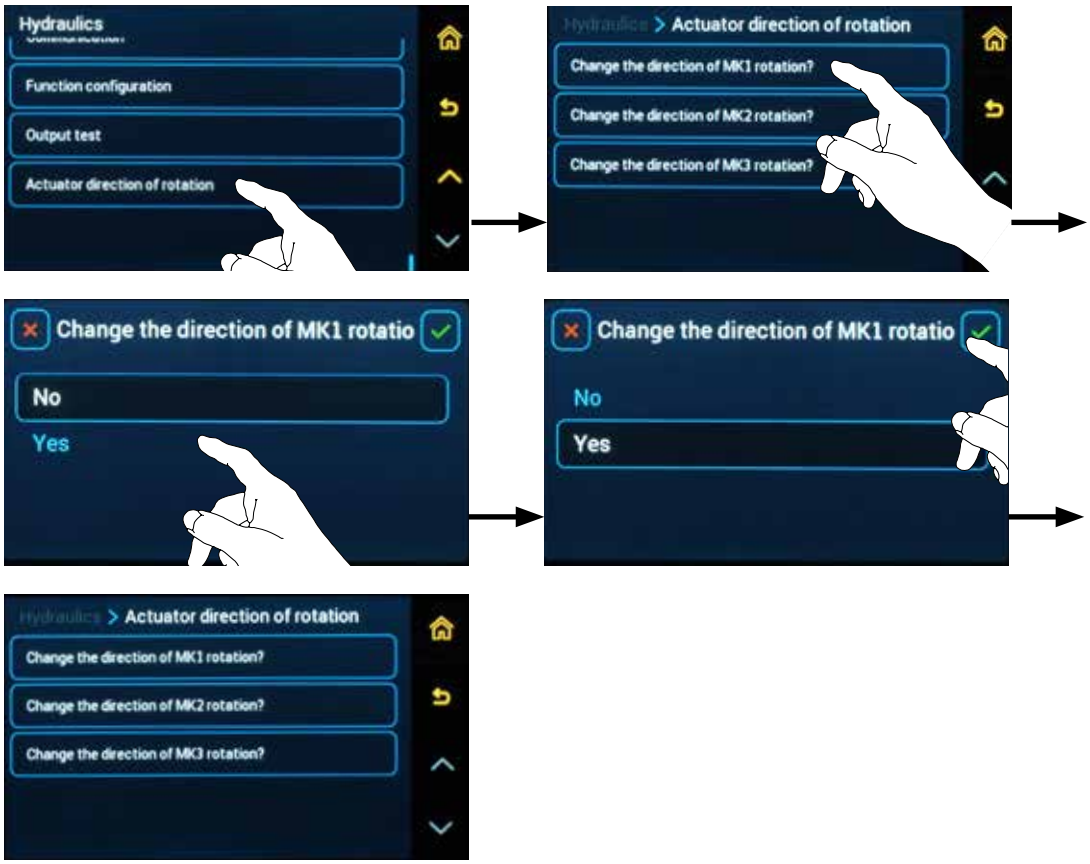
⚙→ Hydraulics/Output test

The output test is used to check and test the correct connection of connected devices. The testing itself is performed by switching on the individual outputs and visually checking their function (operation, correct rotation, etc.).

ATTENTION - Never test the outputs during operation of the device (after firing up the boiler). There's a risk of the boiler overheating.

Menu - **Actuator direction of rotation**:

⚙→ Hydraulics/Actuator direction of rotation



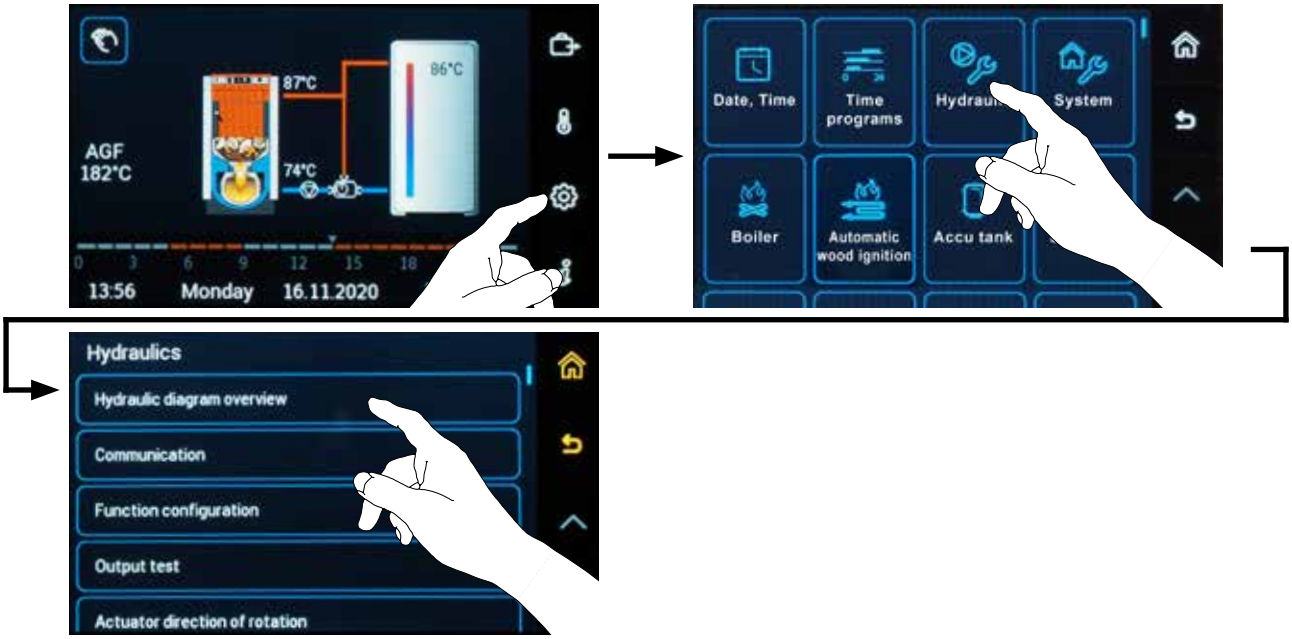
The **actuator direction of rotation** function is used to change the direction of rotation of the actuator of the selected circuit so that it is not necessary to switch the actuator in case of incorrect connection (without the need for physical re-wiring of the actuator (terminals)).

To change the direction of rotation itself, select the MK1, MK2, MK3 or MK4 heating circuit and confirm the change of direction of rotation (**Yes**).

ATTENTION - after each change of the direction of rotation, check the function using the ⚙→ Hydraulics/Output test.

Hydraulic diagram

Parameter access level - Service technician



The hydraulic diagram is created according to the requirements of the heating system. Change the hydraulic diagram number of the controller parameters in the ⚙→🔧 Hydraulics/Hydraulic diagram overview/Hydraulic diagram number menu.

The hydraulic diagram is defined by a 5-digit number in the range 00000 to 99999, where the individual positions characterize the function of the individual elements of the heating system, inputs and outputs.

More complex functions and special function configurations must be **defined separately in the ⚙→🔧 Hydraulics/Function configuration menu.**

Hydraulic diagram number

Key to define hydraulic diagram number

BOILER type	DKP / ACC / TUV	CIRCUITS		
		Circuit 3	Circuit 2	Circuit 1
X x x x x	x **X** x x x	x x **X** x x	x x x **X** x	x x x x **X**
without boiler = 0	**no function = 0**	**no function = 0**	**no function = 0**	**no function = 0**
NOT CONTROLLED = 1 Boiler with its own controller (the controller does not control the boiler)	**DKP = 1** Boiler circuit pump	**DK3 = 1** Heating circuit Direct unmixed	**DK2 = 1** Heating circuit Direct unmixed	**DK1 = 1** Heating circuit Direct unmixed
BRE = 2 Automatic boiler with burner	**DHW = 2** Domestic hot water	**EK = 2** * (ONLY xxxx2 or xxx2x or xx2xx) External boiler		
FAN = 3 Boiler with manual stoking and exhaust fan	**DKP + DHW = 3** Boiler circuit pump and Domestic hot water	**MK3 = 3** Heating circuit Mixed according to outdoor temperature (equitherm/actuator) ****(NOT POSSIBLE WITH SEKGSE, SEKGSP)**	**MK2 = 3** Heating circuit Mixed according to outdoor temperature (equitherm/actuator)	**MK1 = 3** Heating circuit Mixed according to outdoor temperature (equitherm/actuator)
PRESS = 4 Boiler with manual stoking and pressure fan	**ACC = 4** Accumulation tank	**DHW2 = 4** Heating of the second domestic hot water tank (DHW)	-	-
FAN + SEKGSE = 5 Boiler with manual stoking, exhaust fan and servo flap (GSE)	**DKP + ACC = 5** Boiler circuit pump and accumulation tank	**SOL = 5** Solar heating	-	-
FAN + BRE = 6 Combined boiler with exhaust fan and burner (SP / boilers with modification for pellet burner)	**DHW + ACC = 6** Domestic hot water and accumulation tank	**KR3 = 6** Heating circuit Mixed with constant (fixed) temperature with source requirement ****(CANNOT BE USED WITH SEKGSE, SEKGSP)**	**KR2 = 6** Heating circuit Mixed with constant (fixed) temperature with source requirement	**KR1 = 6** Heating circuit Mixed with constant (fixed) temperature with source requirement
FAN + BRE + SEKGSP = 7 Combined boiler with exhaust fan and burner and servo flap (GSP)	**DKP + DHW + ACC = 7** Boiler circuit pump, domestic hot water and accumulation tank	**FR3 = 7** Heating circuit Mixed with fixed temperature without requirement for source ****(CANNOT BE USED WITH SEKGSE, SEKGSP)**	**FR2 = 7** Heating circuit Mixed with fixed temperature without requirement for source	**FR1 = 7** Heating circuit Mixed with fixed temperature without requirement for source
-	-	**RLA3 = 8** Mixed return temperature to the boiler	**RLA2 = 8** Mixed return temperature to the boiler	**RLA1 = 8** Mixed return temperature to the boiler
***Custom Definition = **9**	***Custom Definition = **9**	***Custom Definition = **9**	***Custom Definition = **9**	***Custom Definition = **9**

The boiler type is defined according to the selection in the setup wizard after the first start of the controller.

* The EK function can only be defined by default for one circuit (output).

** The pump terminals of MK, KR and FR mixed circuits are assigned in circuit 3 in the hydraulic connection of the boiler with the SEKGSE and SEKGSP servo flap. The function is not supported by the hydraulic diagram number (cannot be set up). Moving the MKP3, KRP3 or FRP3 pump to another terminal is possible using your own definition during manual configuration.

*** If during the first configuration of the controller (Wizard) the number of a specific function cannot be defined, set the **number 0** to the relevant position. After completion of the configuration wizard, enter the **Hydraulics** menu and then the **Function configuration** menu and manually set (adjust) the required function for the boiler and the mixed (heating) circuit. If the manually defined function does not correspond to any function (number) in the key (table) of the hydraulic diagram, the **number 9** is automatically entered in the hydraulic diagram number.

INFO - When compiling the hydraulic diagram, it is necessary to pay attention to the functionality of the basic elements of the heating system, which form the hydraulic diagram. If the hydraulic diagram is created senselessly, some outputs may not be active and never switch on, e.g.:

- **if the boiler is not define**d, i.e. a hydraulic scheme in the format of **0xxxx**, the **DKP boiler pump never switches on** (the WF boiler temperature is not known).

- **if no heat source is defined** for heating circuits (boiler - **WF**, accumulation tank - **PF** or external boiler - EK), the **heating circuits will not work**, because the necessary temperature of the **WF, PF or EK** source is not known

- **if the heating circuits with the requirement for a heat source** (DHW, DK, MK, KR) are not properly defined in hydraulic diagrams with a **controlled automatic boiler** with **BRE** (burner) or **EK** (external boiler) function, the boiler output will **never be switched on**, because no requirement for operation is created.

- **if** a heating circuit without the **FR** requirement (mixed constant) and domestic hotwater heating (**DHW**) is defined in hydraulic diagrams with **BRE automatic boiler** (burner) or **EK** (external boiler) **without an accumulation tank**, the heating circuit will be set to the **FR** function (mixed constant) **in operation only at the time of heating the DHW**, for example, the number of the hydraulic diagram: 22007, 22077, 22087, 22078, 22777, 22778, 22787, 22877, 23007, 23077, 23087, 23078, 23777, 23778, 23787 or 23877**.**

- **if** the heating circuit with relation to the outdoor temperature (DK (unmixed) or MK (mixed)) **is not** defined, the AF outdoor temperature sensor will not be automatically defined. If necessary, it can be defined manually using manual configuration, but only for information purposes.

ATTENTION - RLA function (e.g. xx8xx) - mixing return water (temperature) into the boiler does not include pump control in the boiler circuit (the function only opens and closes the mixing valve according to the VF temperature sensor). Therefore, it is recommended to define the RLA function as a function of heating circuit 3, because the pump in the DKP boiler circuit is defined together with the heat source - boiler e.g. x18xx, x38xx, x58xx and x78xx.

INFO - Inputs and outputs are used according to individual functions. When selecting them, follow our recommendations by highlighted color:

The recommended terminal assignment is displayed in **green**

Free terminals are displayed in **white**

Used or unusable terminals are displayed in **gray**

Free but unsuitable terminals are displayed in **yellow** (use for other functions)

Overview of connection terminals of ACD 03/04 controller

Terminal	Abbreviation	Terminal name - Description - Special INPUT	Log.	Sensor type, note
FAN	FAN	fan speed sensing (special function)	input	--

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
1	10 V	0 - 10 V - voltage regulation of EK external boiler temperature	output	--
2	GND			
3	PWM	PWM controller output for solar pump control	output	--

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
4	AF	outdoor temperature sensor (GND terminal 6 - together with WF sensor)	input	NTC20
5	WF	boiler water temperature sensor	input	**NTC20** / **PT**1000
6	GND			
7	SF	domestic hot water temperature sensor (DHW.)	input	**NTC20** / **PT**1000
8	GND			
9	VF1	heating circuit temperature sensor 1	input	**NTC20** / **PT**1000
10	GND			
11	VF2	heating circuit temperature sensor 2	input	**NTC20** / **PT**1000
12	GND			
13	AGF	flue gas sensor (flue gas duct)	input	**PT 1000** / NTC20
14	GND			
15	PF	accumulation tank upper temperature sensor	input	**NTC20** / **PT**1000
16	GND			
17	VI1	optional VI1 input for sensor	input	**NTC20** / **PT**1000
18	GND			
19	VI2	optional VI2 input for sensor	input	**NTC20** / **PT**1000
20	GND			
21	VI3	optional VI3 input for sensor	input	**NTC20** / **PT**1000
22	GND			
23	VI4	optional VI4 input for sensor (ARU5)	input	NTC20
24	GND			
25	VI5	optional VI5 input for sensor (ARU5)	input	NTC20
26	GND			

Terminal	Abbreviation	Terminal name - Description - Communication	Log.	Sensor type, note
27	12V	ATMOS 485 communication line for ARU 10/30 room units	--	Connected to the CU
28	A			
29	B			
30	GND			
31	12V	ATMOS 485 communication line for ARU 10/30 room units	--	Connected to the CU
32	A			
33	B			
34	GND			

INFO - Always measure the flue gas temperature and solar panel temperature with a PT 1000 sensor

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
35	PE	VA3 and VA4 output grounding	output	
36	N	VA3 output neutral cable	output	230 V / 50 Hz
37	VA3 LA	VA3 output el. phase or one direction of MK3 rotation		
38	VA4 LB	VA4 output el. phase or second direction of MK3 rotation	output	230 V / 50 Hz
39	N	VA4 output neutral cable		
40	MK1 LA	el. phase of one direction of rotation of MK1 actuator	output	230 V / 50 Hz
41	MKl LB	el. phase of second direction of rotation of MK1 actuator		
42	N	MK1 actuator neutral cable		
43	MK2 LA	el. phase of one direction of rotation of MK2 actuator	output	230 V / 50 Hz
44	MK2 LB	el. phase of second direction of rotation of MK2 actuator		
45	N	MK2 actuator neutral cable		
46	VA2 L	VA2 output el. phase	output	230 V / 50 Hz
47	N	VA2 output neutral cable		
48	PE	VA2 output grounding		
49	PT L	el. phase for analogue room thermostat	output	230 V / 50 Hz
50	N	neutral cable for analogue room thermostat		

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
51	DVI1	ON / OFF digital input (signal form analogue room thermostat)	input	
52	DVI2	ON / OFF digital input (signal form analogue room thermostat)	input	

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
53	MKP1 L	MKP1 output el. phase	output	230 V / 50 Hz
54	N	MKP1 output neutral cable		
55	PE	MKP1 output grounding		
56	MKP2 L	MKP2 output el. phase	output	230 V / 50 Hz
57	N	MKP2 output neutral cable		
58	PE	MKP2 output grounding		
59	DKP L	DKP output el. phase (L-PUMP)	output	230 V / 50 Hz
60	N	DKP output neutral cable		
61	PE	DKP output grounding		
62	SLP L	SLP output el. phase	output	230 V / 50 Hz
63	N	SLP output neutral cable		
64	PE	SLP output grounding		

Terminal	Abbreviation	Terminal name - Description - Special INPUTS	Log.	Sensor type, note
65	IN L	contact power supply (el. phase) for L-FAN (L-FAN IN) 230 V / 50 Hz	input	Connected to the CU
66	L	controller power supply (REG-L) 230 V / 50 Hz	input	Connected to the CU
67	N	controller neutral cable (REG-N)	input	Connected to the CU
68	PE	controller grounding (REG-PE)		

Terminal	Abbreviation	Terminal name - Description - Special OUTPUTS	Log.	Sensor type, note
69	VA1	VA1 output phase 230 V / 50 Hz	output	Connected to the CU
70	FAN L	L-FAN output phase (L-FAN OUT) 230 V / 50 Hz	output	Connected to the CU

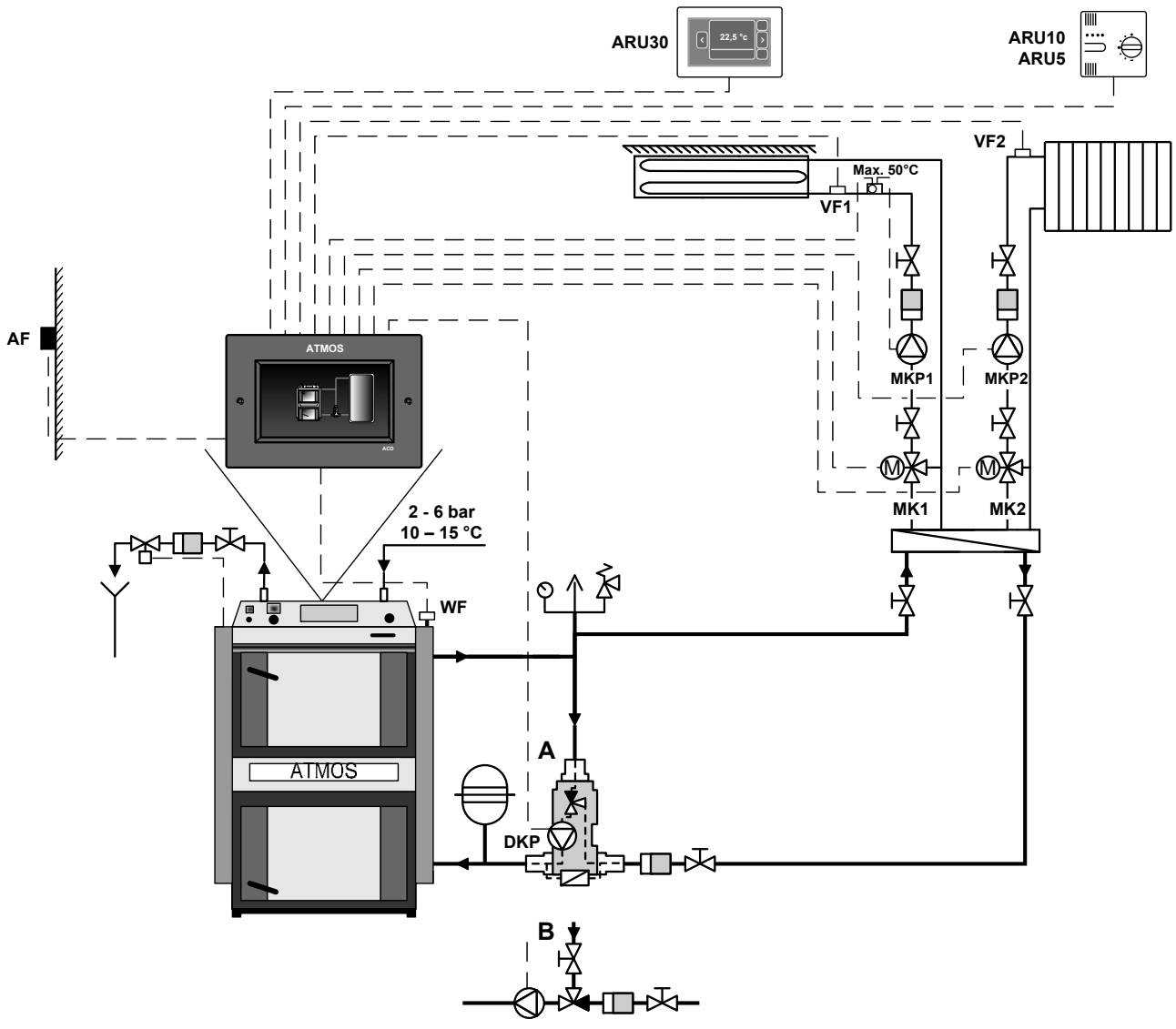
INFO - We recommend leading the sensor and communication cables separately from 230 V conductors and other power lines (at least 5 cm).

Examples of hydraulic diagrams:

Not controlled boiler connected without accumulation tank

Example 1 - Hydraulic diagram: 11033

1xxxx (necontrolled boiler) + x**1**xxx (DKP) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler not controlled by the controller (the boiler has its own controller).

The ACD 03/04 controller controls the boiler circuit pump (DKP) (Laddomat/thermoregulation valve) and two heating circuits (MK1, MK2).

Hydraulic diagram: 11033

Example 1

Hydraulic diagram: **11033**	**1**xxxx (not controlled boiler)	x**1**xxx (DKP)	xx**0**xx (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC18S - gasification boiler (not controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: NO		**Domestic hot water:** NO			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04		OUTPUTS																INPUTS											Communi-cation	
		Boiler							DHW	Circuit 1			Circuit 2			Circuit 3														
	Function	Terminal / Position	66 (67, 68)					59 - 61		53 - 55	40	41	56 - 58	43	44			4, 6	5 - 6		9 - 10	11 - 12						23 - 24		27 - 30	
	Controller power supply - L (N, PE)	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	**	-	-	-	-	-	Boiler pump - DKP	-	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	Circuit 2 pump - MKP2	Servo circuit 2 - MK2O	Servo circuit 2 - MK2C	-	-	Outdoor temperature - AF	Boiler temperature - WF	-	Circuit 1 temperature - VF1	Circuit 2 temperature - VF2	-	-	-	-	-	* ARU5 room unit	*	ARU10/30 room unit	-	
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																													
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																							

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

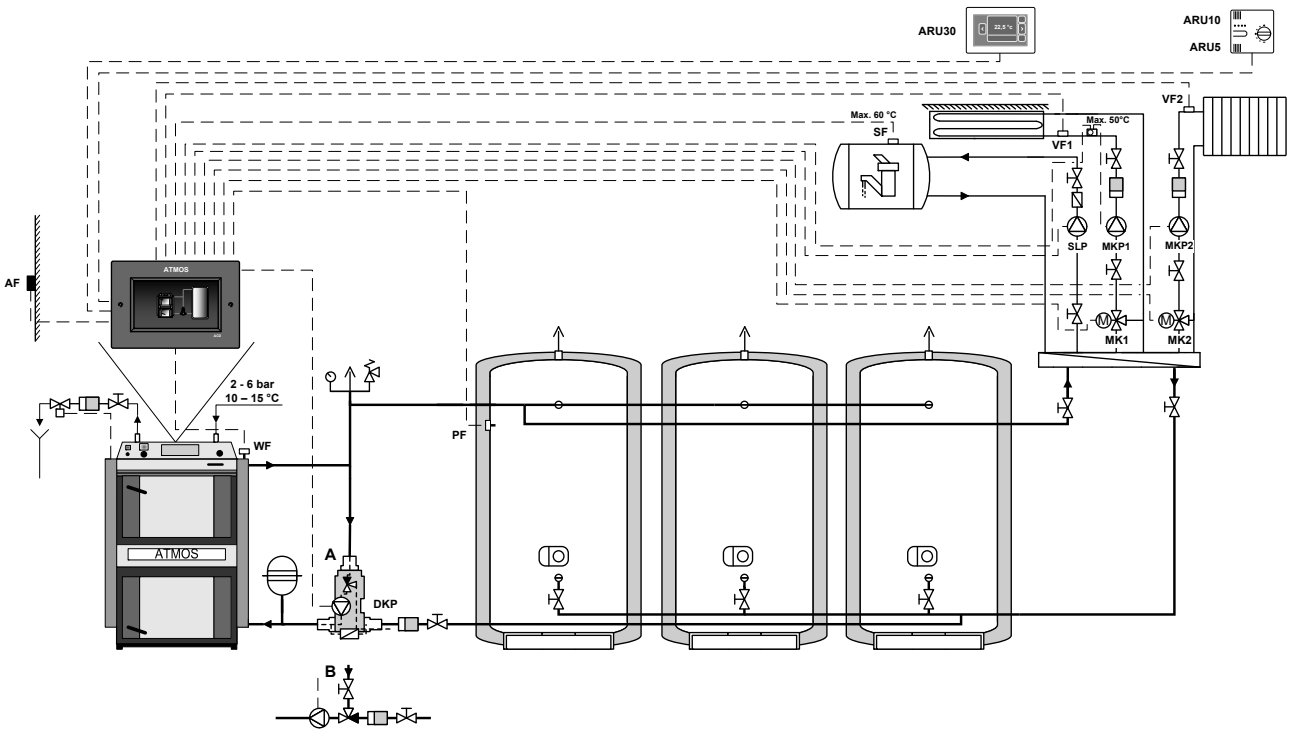
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Not controlled boiler connected with accumulation tanks

Example 2 - Hydraulic diagram: 17033

1xxxx (necontrolled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler not controlled by the controller (the boiler has its own controller).

The ACD 03/04 controller controls the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), charging and discharging of accumulation tanks, two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

Hydraulic diagram: 17033

Example 2

Hydraulic diagram: 17033	**1**xxxx (not controlled boiler)	x**7**xx (DKP+DHW+ACC)	xx**0**xx (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC32GS - gasification boiler (not controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: YES		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04	**OUTPUTS**																**INPUTS**											**Communi-cation**	
		Boiler							**DHW**	**Circuit 1**		**Circuit 2**		**Circuit 3**																
	Function	**Terminal / Position**																												
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)						59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44			4, 6	5 - 6	7 - 8	9 - 10	11 - 12		15 - 16	17 - 18			23 - 24		27 - 30	
	**	IN L + L																												
	-	IN L																											12V / A / B / GND	
	-	FAN L																												
	-	VA1																												
	-	VA2																												
	Boiler pump - DKP	DKP																												
	DHW pump - SLP	SLP																												
	Circuit 1 pump - MKP1	MKP1																												
	Servo circuit 1 - MK1O	MK1 LA																												
	Servo circuit 1 - MK1C	MK1 LB																												
	Circuit 2 pump - MKP2	MKP2																												
	Servo circuit 2 - MK2O	MK2 LA																												
	Servo circuit 2 - MK2C	MK2 LB																												
	-	VA3 LA																												
	-	VA4 LB																												
	Outdoor temperature - AF	AF																												
	Boiler temperature - WF	WF																												
	DHW temperature - SF	SF																												
	Circuit 1 temperature - VF1	VF1																												
	Circuit 2 temperature - VF2	VF2																												
	-	AGF																												
	Temperature on the accumulation tank - upper - PF	PF																												
	-	VI1																												
	-	VI2																												
	-	VI3																												
	* ARU5 room unit	VI4																												
	*	VI5																												
	ARU10/30 room unit	12V / A / B / GND																												
	-	12V / A / B / GND																												
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																													
	REG-L (N, PE)																													
	L-FAN IN																													
	L-FAN OUT																													
	L2-OUT																													
	L-M3																													
	L-PUMP																													

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

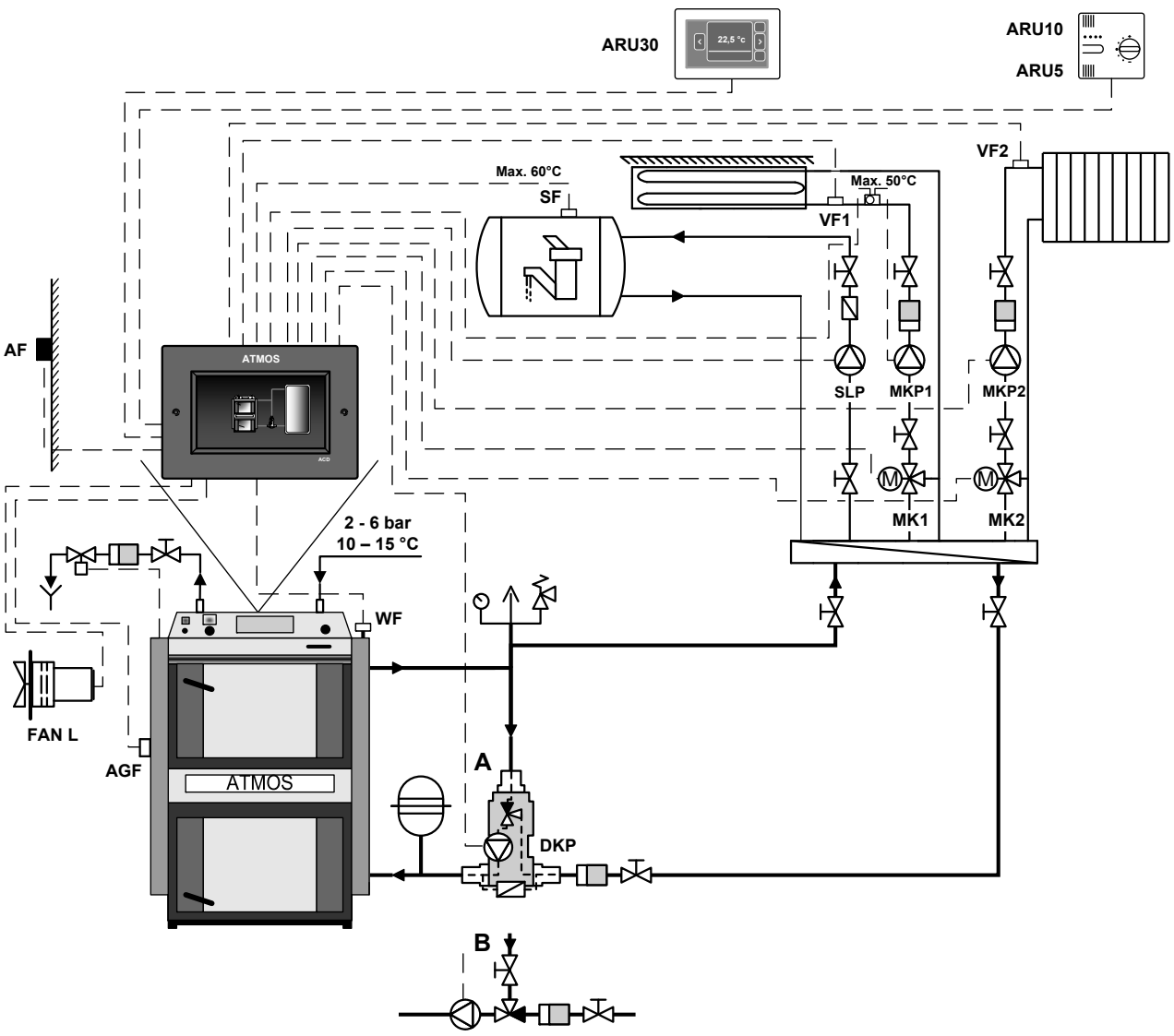
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected without accumulation tank

Example 3 - Hydraulic diagram: 33033

3xxxx (controlled boiler) + x**3**xxx (DKP+DHW) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

Hydraulic diagram: 33033

Example 3

Hydraulic diagram: 33033	**3**xxxx (controlled boiler)	x**3**xxx (DKP+DHW)	xx**0**xx (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC20GS - gasification boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: NO		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04		OUTPUTS															INPUTS										Communi-cation	
		Boiler						DHW	Circuit 1		Circuit 2			Circuit 3															
	Function	Terminal / Position																										
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)														4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14				23 - 24		27 - 30	
	** Contact bridge	IN L + L	65 + 66														AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	Fan power supply - FAN L	IN L	65																							* ARU5 room unit	*	ARU10/30 room unit	-
	Boiler fan - FAN	FAN L	70																										
	-	VA1																											
	-	VA2																											
	Boiler pump - DKP	DKP	59 - 61																										
	DHW pump - SLP	SLP	62 - 64																										
	Circuit 1 pump - MKP1	MKP1	53 - 55																										
	Servo circuit 1 - MK1O	MK1 LA	40																										
	Servo circuit 1 - MK1C	MK1 LB	41																										
	Circuit 2 pump - MKP2	MKP2	56 - 58																										
	Servo circuit 2 - MK2O	MK2 LA	43																										
	Servo circuit 2 - MK2C	MK2 LB	44																										
	-	VA3 LA																											
	-	VA4 LB																											
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																												
	REG-L (N, PE)																												
	L-FAN IN																												
	L-FAN OUT																												
	L2-OUT																												
	L-M3																												
	L-PUMP																												

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

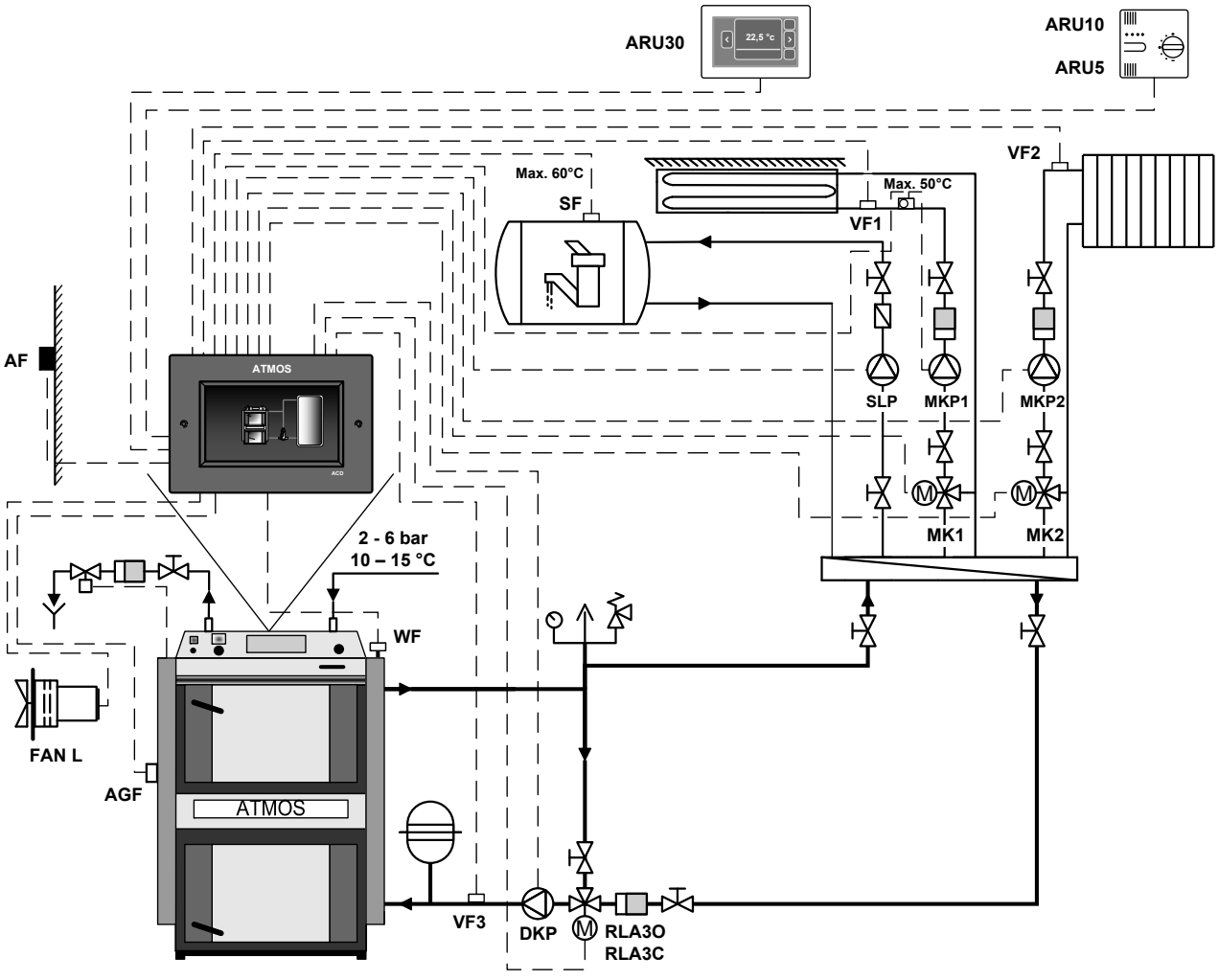
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected without accumulation tank

Example 4 - Hydraulic diagram: 33833

3xxxx (controlled boiler) + x**3**xxx (DKP+DHW) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP), temperature of return water to boiler, two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

Hydraulic diagram: 33833

Example 4

Hydraulic diagram: 33833	**3**xxxx (controlled boiler)	x**3**xxx (DKP+DHW)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC15GS - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3				
Accumulation tank: NO	**Domestic hot water:** YES (e.g. standard tank 160 L)				
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04	**OUTPUTS**																**INPUTS**											**Communi-cation**	
		Boiler							**DHW**	**Circuit 1**		**Circuit 2**		**Circuit 3**																
	Function	**Terminal / Position**																												
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)														4, 6											27 - 30	
	** Contact bridge	IN L + L	65 + 66														5 - 6											12V / A / B / GND	
	Fan power supply - FAN L	IN L	65														7 - 8											27 - 30	
	Boiler fan - FAN	FAN L	70														9 - 10											12V / A / B / GND	
	-	VA1															11 - 12												
	-	VA2															13 - 14												
	Boiler pump - DKP	DKP	59 - 61																										
	DHW pump - SLP	SLP	62 - 64														17 - 18												
	Circuit 1 pump - MKP1	MKP1	53 - 55																										
	Servo circuit 1 - MK1O	MK1 LA	40														23 - 24												
	Servo circuit 1 - MK1C	MK1 LB	41																										
	Circuit 2 pump - MKP2	MKP2	56 - 58																										
	Servo circuit 2 - MK2O	MK2 LA	43																										
	Servo circuit 2 - MK2C	MK2 LB	44																										
	Servo - return control - RLA3O	VA3 LA	37																										
	Servo - return control - RLA3C	VA4 LB	38																										
	Outdoor temperature - AF	AF	4, 6																										
	Boiler temperature - WF	WF	5 - 6																										
	DHW temperature - SF	SF	7 - 8																										
	Circuit 1 temperature - VF1	VF1	9 - 10																										
	Circuit 2 temperature - VF2	VF2	11 - 12																										
	Flue gas temperature - AGF	AGF	13 - 14																										
	-	PF																											
	Boiler return water temperature - VF3	VI1	17 - 18																										
	-	VI2																											
	-	VI3																											
	* ARU5 room unit	VI4	23 - 24																										
	*	VI5																											
	ARU10/30 room unit	12V / A / B / GND	27 - 30																										
	-	12V / A / B / GND																											
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																												
	REG-L (N, PE)																												
	L-FAN IN																												
	L-FAN OUT																												
	L2-OUT																												
	L-M3																												
	L-PUMP																												

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

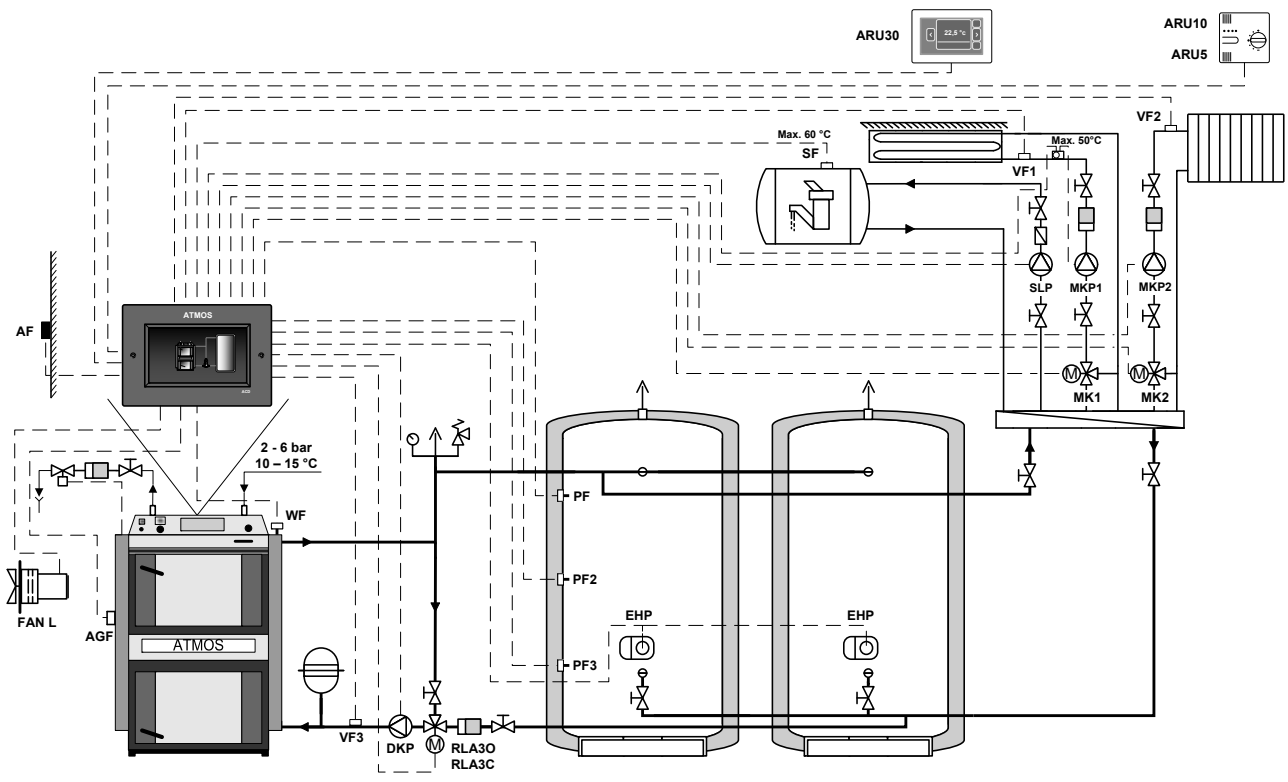
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected with accumulation tanks

Example 5 - Hydraulic diagram: 37833

3xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2), charging and discharge of accumulation tanks and the tank (boiler) for DHW heating (SLP).

INFO - PF2 and PF3 sensors serve only to provide information on the accumulation tank temperature.

Hydraulic diagram: 37833

Example 5

Hydraulic diagram: 37833	**3**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC30GD - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3				
Accumulation tank: YES (2x 1000 l)	**Domestic hot water:** YES (e.g. standard tank 160 L)				
Heating circuits: 2 mixed equithermal (MK)	**External heating:** YES (electric heating EHP)				

Controller ACD 03/04		OUTPUTS																INPUTS											Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3															
	Function	Terminal / Position																												
		L (N, PE)	66 (67, 68)															4, 6											27 - 30	
	Controller power supply - L (N, PE)																	AF											12V / A / B / GND	
		IN L + L	65 + 66																5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24		
	** Contact bridge																		WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	-
		IN L	65																											
	Fan power supply - FAN L																													
		FAN L	70																											
	Boiler fan - FAN																													
		VA1	69																											
	Electric heating of the accumulation tank - EHP																													
		VA2																												
	-																													
		DKP	59 - 61																											
	Boiler pump - DKP																													
		SLP	62 - 64																											
	DHW pump - SLP																													
		MKP1	53 - 55																											
	Circuit 1 pump - MKP1																													
		MK1 LA	40																											
	Servo circuit 1 - MK1O																													
		MK1 LB	41																											
	Servo circuit 1 - MK1C																													
		MKP2	56 - 58																											
	Circuit 2 pump - MKP2																													
		MK2 LA	43																											
	Servo circuit 2 - MK2O																													
		MK2 LB	44																											
	Servo circuit 2 - MK2C																													
		VA3 LA	37																											
	Servo - return control - RLA3O																													
		VA4 LB	38																											
	Servo - return control - RLA3C																													
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																													
	REG-L (N, PE)																													
	L-FAN IN																													
	L-FAN OUT																													
	L2-OUT																													
	L-M3																													
	L-PUMP																													

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

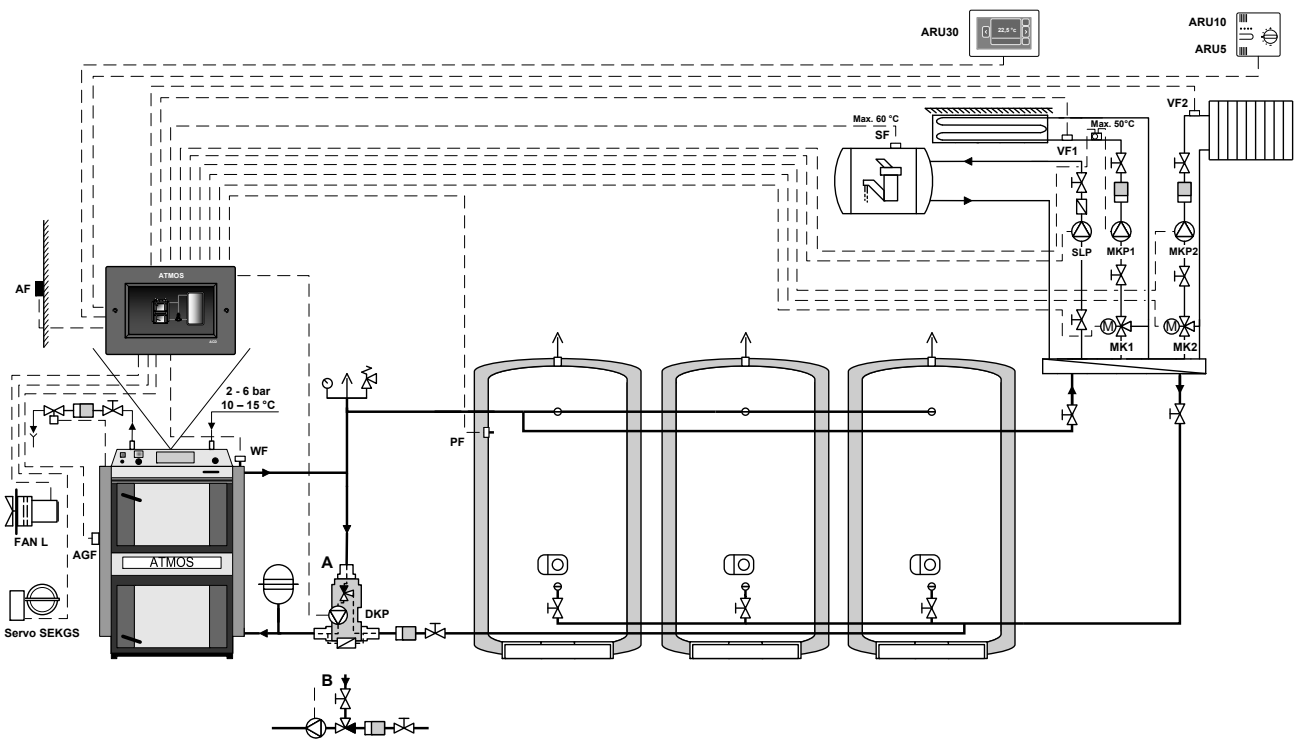
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler (GSE) connected with accumulation tanks

Example 6 - Hydraulic diagram: 57033

5xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS + servo flap GSE - SEKGS), the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), two heating circuits (MK1, MK2), charging and discharge of accumulation tanks and the tank (boiler) for DHW heating (SLP).

Hydraulic diagram: 57033

Example 6

Hydraulic diagram: 57033	**5**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**0**xx (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC25GSE - gasification boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: YES		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04	OUTPUTS																INPUTS											Communi-cation	
	Boiler							DHW	Circuit 1			Circuit 2			Circuit 3														
Function	Terminal / Position																												
Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)															4, 6											27 - 30	
** Contact bridge	IN L + L	65 + 66															5 - 6											12V / A / B / GND	
Fan power supply - FAN L	IN L	65															7 - 8												
Boiler fan - FAN	FAN L	70															9 - 10												
-	VA1																11 - 12												
Servo flap GSE - SEKGS	VA2	46 - 47															13 - 14												
Boiler pump - DKP	DKP	59 - 61															15 - 16												
DHW pump - SLP	SLP	62 - 64																											
Circuit 1 pump - MKP1	MKP1	53 - 55																											
Servo circuit 1 - MK1O	MK1 LA	40																											
Servo circuit 1 - MK1C	MK1 LB	41																											
Circuit 2 pump - MKP2	MKP2	56 - 58																											
Servo circuit 2 - MK2O	MK2 LA	43																											
Servo circuit 2 - MK2C	MK2 LB	44																											
-	VA3 LA																												
-	VA4 LB																												
Outdoor temperature - AF	AF																												
Boiler temperature - WF	WF																												
DHW temperature - SF	SF																												
Circuit 1 temperature - VF1	VF1																												
Circuit 2 temperature - VF2	VF2																												
Flue gas temperature - AGF	AGF																												
Temperature on the accumulation tank - upper - PF	PF																												
-	VI1																												
-	VI2																												
-	VI3																												
* ARU5 room unit	VI4	23 - 24																											
*	VI5																												
ARU10/30 room unit	12V / A / B / GND	27 - 30																											
-	12V / A / B / GND																												

Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																												
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																						

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

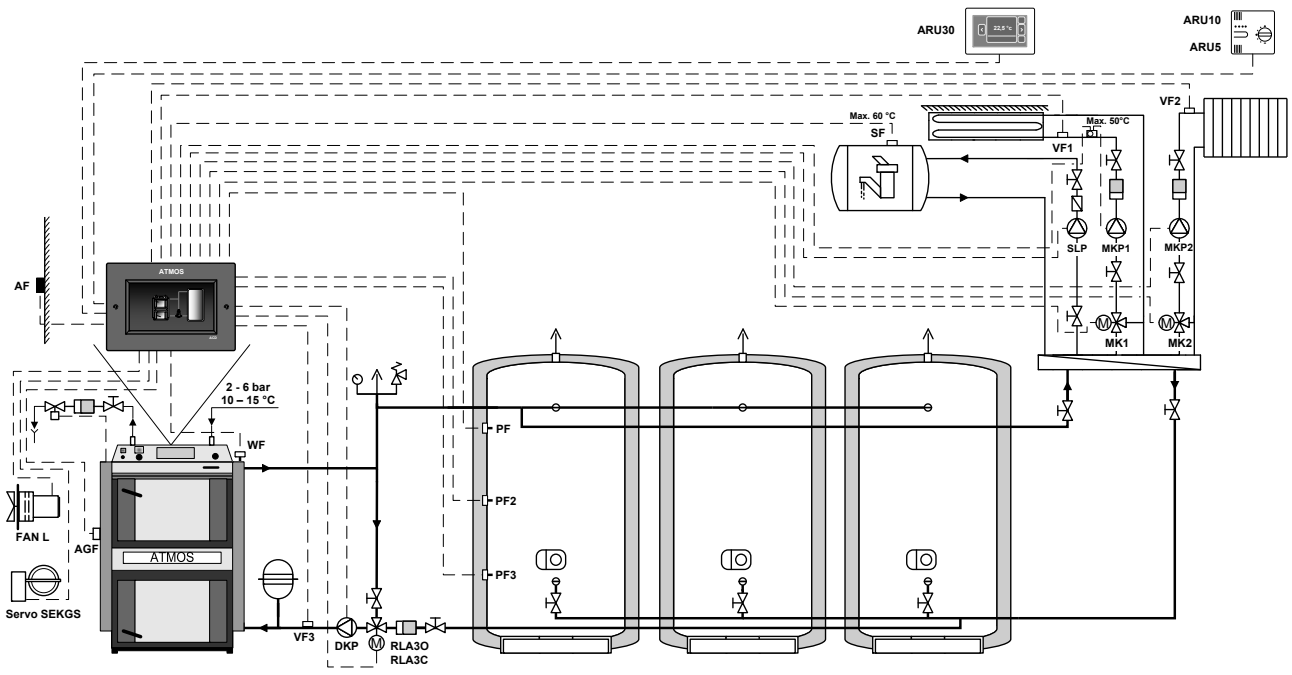
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler (GSE) connected with accumulation tanks

Example 7 - Hydraulic diagram: 57833

5xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS + servo flap GSE - SEKGS), the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2), charging and discharge of accumulation tanks and the tank (boiler) for DHW heating (SLP).

INFO - PF2 and PF3 sensors serve only to provide information on the accumulation tank temperature.

Hydraulic diagram: 57833

Example 7

Hydraulic diagram: 57833	**5**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)

Boiler: DC40GSE - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3
Accumulation tank: ANO	**Domestic hot water:** YES (e.g. standard tank 160 L)
Heating circuits: 2 mixed equithermal (MK)	

		OUTPUTS														INPUTS											Communi-cation	
		Boiler					DHW	Circuit 1		Circuit 2		Circuit 3																
	Position	66 (67, 68)	65 + 66	65	70		46 - 47	59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37	38	4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24		27 - 30	
Controller ACD 03/04	Terminal / Function	L (N, PE) Controller power supply - L (N, PE)	IN L + L ** Contact bridge	IN L Fan power supply - FAN L	FAN L Boiler fan - FAN	VA1 -	VA2 Servo flap GSE - SEKGS	DKP Boiler pump - DKP	SLP DHW pump - SLP	MKP1 Circuit 1 pump - MKP1	MK1 LA Servo circuit 1 - MK1O	MK1 LB Servo circuit 1 - MK1C	MKP2 Circuit 2 pump - MKP2	MK2 LA Servo circuit 2 - MK2O	MK2 LB Servo circuit 2 - MK2C	VA3 LA Servo - return control - RLA3O	VA4 LB Servo - return control - RLA3C	AF Outdoor temperature - AF	WF Boiler temperature - WF	SF DHW temperature - SF	VF1 Circuit 1 temperature - VF1	VF2 Circuit 2 temperature - VF2	AGF Flue gas temperature - AGF	PF Temperature on the accumulation tank - upper - PF	VI1 Boiler return water temperature - VF3	VI2 Information temperature - accumulation tank - PF2	VI3 Information temperature - accumulation tank - PF3	VI4 * ARU5 room unit	VI5 *	12V / A / B / GND ARU10/30 room unit	12V / A / B / GND -
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																						

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

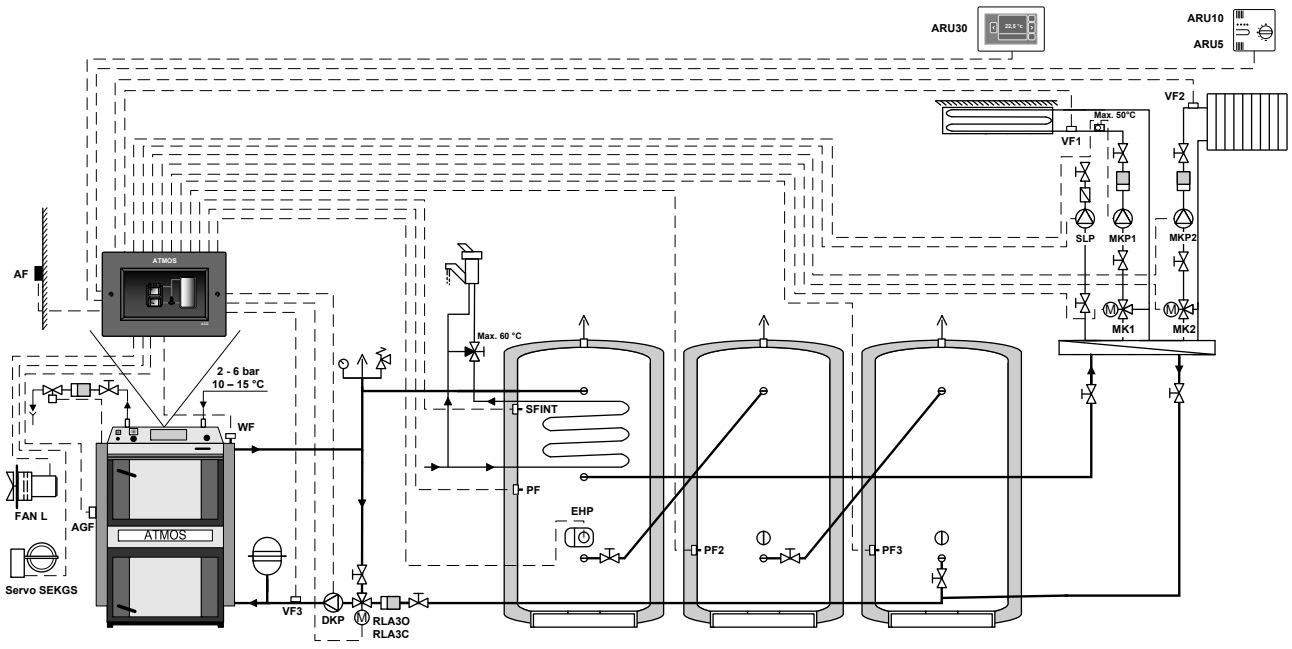
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler (GSE) connected with accumulation tanks (into series)

Example 8 - Hydraulic diagram: 57833

5xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS + servo flap GSE - SEKGS), the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2), charging and discharge of accumulation tanks conected into series.

INFO - Domestic hot water DHW is solved by nested flow heating in the storage tank with SFINT sensor (all DHW requirements are maintained, only without the need for a SLP charging pump.
PF2 and PF3 sensors serve only to provide information on the accumulation tank temperature.

Hydraulic diagram: 57833

Example 8

Hydraulic diagram: 55833	**5**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+AKU)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)

Boiler: DC30GSE - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3
Accumulation tank: YES (3x 800 l - series connection)	**Domestic hot water:** YES (SFINT) (flow exchanger/inner tank)
Heating circuits: 2 mixed equithermal (MK)	**External heating:** YES (electric heating EHP)

Controller ACD 03/04		OUTPUTS														INPUTS											Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3													
	Function	Terminal / Position																										
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)														AF	4, 6									12V / A / B / GND	27 - 30
	** Contact bridge	IN L + L	65 + 66														WF	5 - 6									12V / A / B / GND	
	Fan power supply - FAN L	IN L	65														SF	7 - 8										
	Boiler fan - FAN	FAN L	70														VF1	9 - 10										
	Electric heating of the accumulation tank - EHP	VA1	69														VF2	11 - 12										
	Servo flap GSE - SEKGS	VA2	46 - 47														AGF	13 - 14										
	Boiler pump - DKP	DKP	59 - 61														PF	15 - 16										
	-	SLP															VI1	17 - 18										
	Circuit 1 pump - MKP1	MKP1	53 - 55														VI2	19 - 20										
	Servo circuit 1 - MK1O	MK1 LA	40														VI3	21 - 22										
	Servo circuit 1 - MK1C	MK1 LB	41														VI4	23 - 24										
	Circuit 2 pump - MKP2	MKP2	56 - 58														VI5											
	Servo circuit 2 - MK2O	MK2 LA	43																									
	Servo circuit 2 - MK2C	MK2 LB	44																									
	Servo - return control - RLA3O	VA3 LA	37																									
	Servo - return control - RLA3C	VA4 LB	38																									
	* ARU5 room unit																											
	*																											
	ARU10/30 room unit																											
	-																											
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																											
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																					

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

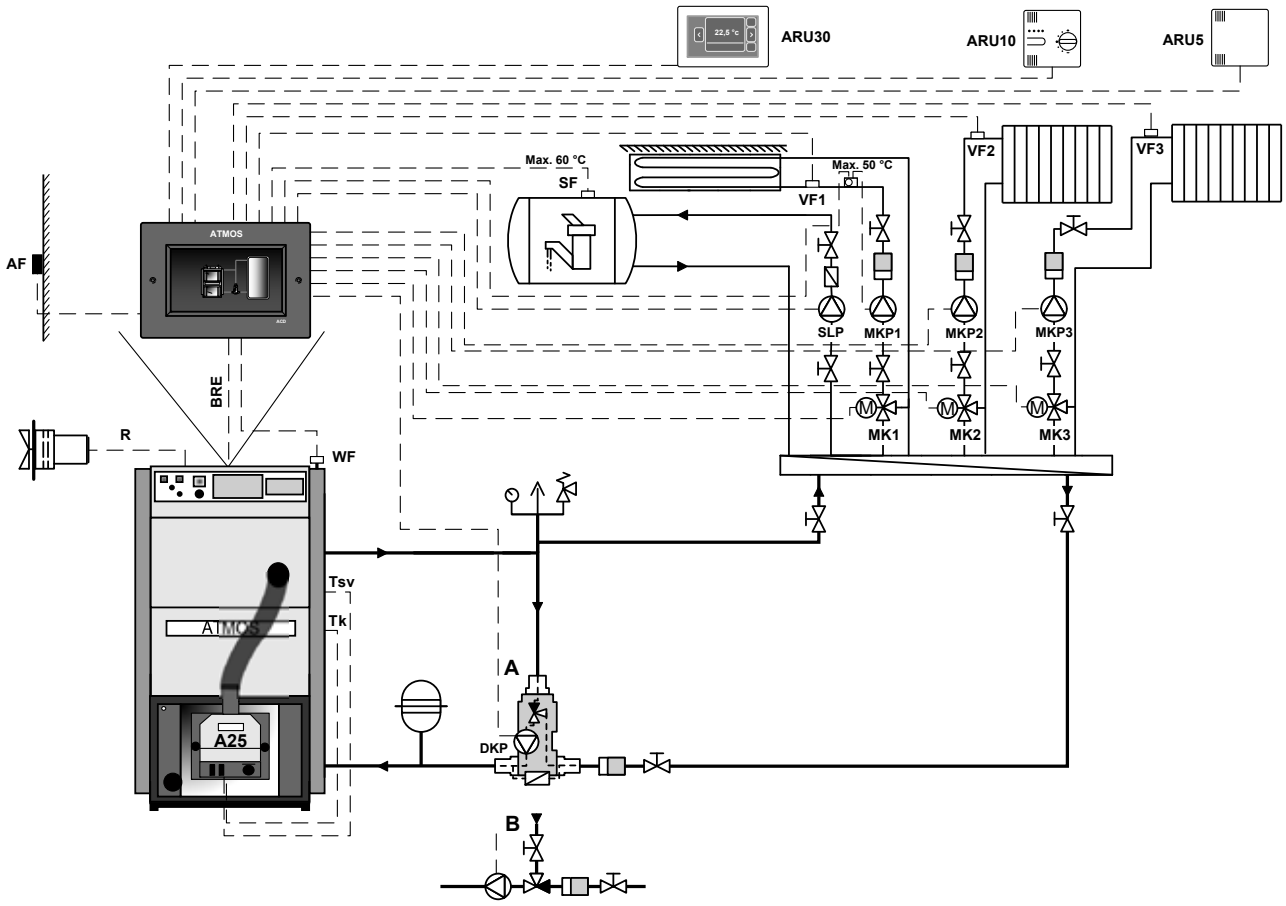
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected without accumulation (buffer) tank

Example 9 - Hydraulic diagram: 23333

2xxxx (BRE - boiler with burner) + x**3**xxx (DKP+DHW) + xx**3**xx (MK3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on the boiler temperature (WF sensor).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the operation of the pump in the boiler circuit (DKP) (Laddomat / thermoregulation valve), three heating circuits (MK1, MK2, MK3) (mixed equithermal) and the accumulation tank (boiler) for DHW heating (SLP).

The operation of the boiler fan is controlled from the ATMOS A25 pellet burner.

Hydraulic diagram: 23333

Example 9

Hydraulic diagram: **23333**	**2**xxxx (automatic boiler)	x**3**xxx (DKP+DHW)	xx**3**xx (MK3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D15PX - automatic pellet boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: NO		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 3 mixed equithermal (MK)					

Controller ACD 03/04		OUTPUTS																INPUTS										Communi-cation	
		Boiler							DHW	Circuit 1			Circuit 2			Circuit 3													
	Function	Terminal / Position																											
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)															AF	4, 6										
	-	IN L + L																WF	5 - 6										
	-	IN L																SF	7 - 8										
	-	FAN L																VF1	9 - 10										
	Burner - BRE	VA1	69															VF2	11 - 12										
	Circuit 3 pump - MKP3	VA2	46 - 48															AGF											
	Boiler pump - DKP	DKP	59 - 61															PF											
	DHW pump - SLP	SLP	62 - 64															VI1	17 - 18										
	Circuit 1 pump - MKP1	MKP1	53 - 55															VI2											
	Servo circuit 1 - MK1O	MK1 LA	40															VI3											
	Servo circuit 1 - MK1C	MK1 LB	41															VI4	23 - 24										
	Circuit 2 pump - MKP2	MKP2	56 - 58															VI5											
	Servo circuit 2 - MK2O	MK2 LA	43															12V / A / B / GND	27 - 30										
	Servo circuit 2 - MK2C	MK2 LB	44															12V / A / B / GND	ARU10										
	Servo circuit 3 - MK3O	VA3 LA	37																										
	Servo circuit 3 - MK3C	VA4 LB	38																										
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																												
	REG-L (N, PE)																												
	L-FAN IN																												
	L-FAN OUT																												
	L2-OUT																												
	L-M3																												
	L-PUMP																												

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

*** ARU10 and ARU30 room units are always connected in series (in line) with ACD 03/04 controller (communication)

Always connect the N and PE wires to the nearest free N and PE terminals

For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

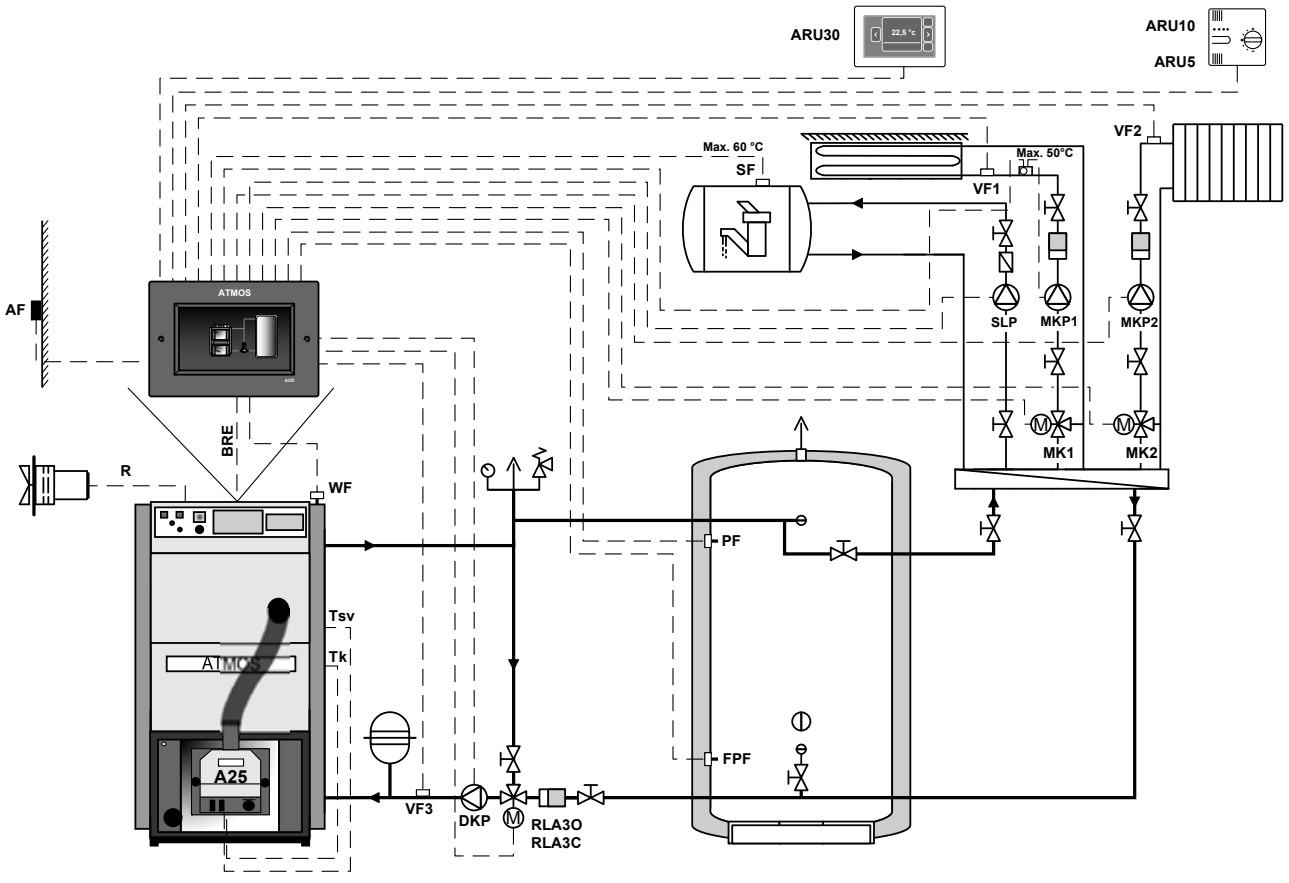
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected with accumulation (buffer) tank

Example 10 - Hydraulic diagram: 27833

2xxxx (BRE - boiler with burner) + x7xxx (DKP+DHW+ACC) + xx8xx (RLA3) + xxx3x (MK2) + xxxx3 (MK1)



Automatic pellet boiler controlled by the controller based on two sensors on the accumulation (buffer) tank (PF and FPF).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

The operation of the boiler fan is controlled from the ATMOS A25 pellet burner.

Hydraulic diagram: 27833

Example 10

Hydraulic diagram: **27833**	**2**xxxx (automatic boiler)	x**7**xx (DKP+DHW+ACC)	xx**8**x (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D25PX - automatic pellet boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3			
Accumulation tank: YES (500 L buffer tank)		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1		Circuit 2		Circuit 3																			
	Position	66 (67, 68)				69		59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37	38	4, 6	5 - 6	7 - 8	9 - 10	11 - 12		15 - 16	17 - 18		21 - 22	23 - 24		27 - 30	
	Terminal / Function	L (N, PE) Controller power supply - L (N, PE)	IN L + L -	IN L -	FAN L -	VA1 Burner - BRE	VA2 -	DKP Boiler pump - DKP	SLP DHW pump - SLP	MKP1 Circuit 1 pump - MKP1	MK1 LA Servo circuit 1 - MK1O	MK1 LB Servo circuit 1 - MK1C	MKP2 Circuit 2 pump - MKP2	MK2 LA Servo circuit 2 - MK2O	MK2 LB Servo circuit 2 - MK2C	VA3 LA Servo - return control - RLA3O	VA4 LB Servo - return control - RLA3C	AF Outdoor temperature - AF	WF Boiler temperature - WF	SF DHW temperature - SF	VF1 Circuit 1 temperature - VF1	VF2 Circuit 2 temperature - VF2	AGF -	PF Temperature on the accumulation tank - upper - PF	VI1 Boiler return water temperature - VF3	VI2 -	VI3 Temperature on the accumulation tank - lower - FPF	VI4 * ARU5 room unit	VI5 *	12V / A / B / GND ARU10/30 room unit	12V / A / B / GND -
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

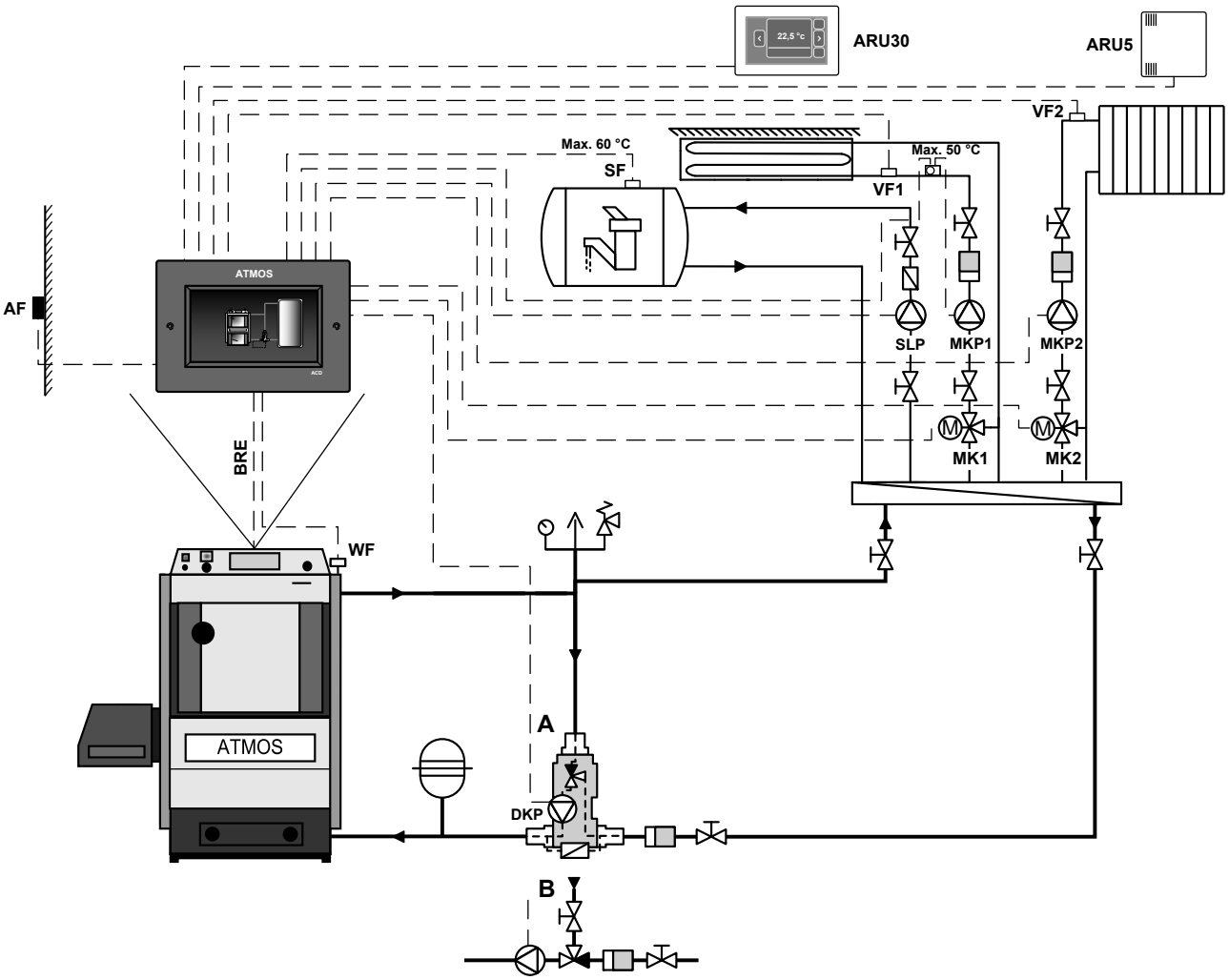
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected without accumulation (buffer) tank

Example 11 - Hydraulic diagram: 23033

2xxxx (BRE - boiler with burner) + x**3**xxx (DKP+DHW) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on the boiler temperature (WF sensor).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the operation of the pump in the boiler circuit (DKP) (Laddomat / thermoregulation valve), two heating circuits (MK1, MK2) and the accumulation tank (boiler) for DHW heating (SLP).

Hydraulic diagram: 23033

Example 11

Hydraulic diagram: 23033	**2**xxxx (automatic boiler)	x**3**xxx (DKP+DHW)	xx**0**xx (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D21P - automatic pellet boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: NO		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04	OUTPUTS																INPUTS											Communi-cation	
		Boiler							DHW	Circuit 1			Circuit 2			Circuit 3													
	Function	Terminal / Position																											
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)					59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44			4, 6	5 - 6	7 - 8	9 - 10	11 - 12						23 - 24		27 - 30	
	**	IN L + L																											
	-	IN L																											
	-	FAN L																											
	Burner - BRE	VA1	69																										
	-	VA2																											
	Boiler pump - DKP	DKP																											
	DHW pump - SLP	SLP																											
	Circuit 1 pump - MKP1	MKP1																											
	Servo circuit 1 - MK1O	MK1 LA																											
	Servo circuit 1 - MK1C	MK1 LB																											
	Circuit 2 pump - MKP2	MKP2																											
	Servo circuit 2 - MK2O	MK2 LA																											
	Servo circuit 2 - MK2C	MK2 LB																											
	-	VA3 LA																											
	-	VA4 LB																											
	Outdoor temperature - AF	AF																											
	Boiler temperature - WF	WF																											
	DHW temperature - SF	SF																											
	Circuit 1 temperature - VF1	VF1																											
	Circuit 2 temperature - VF2	VF2																											
	-	AGF																											
	-	PF																											
	-	VI1																											
	-	VI2																											
	-	VI3																											
	* ARU5 room unit	VI4																											
	*	VI5																											
	ARU10/30 room unit	12V / A / B / GND																											
	-	12V / A / B / GND																											
Boiler	**Marking of wires in ATMOS boilers and their connection to controller te**rminals																												
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																						

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

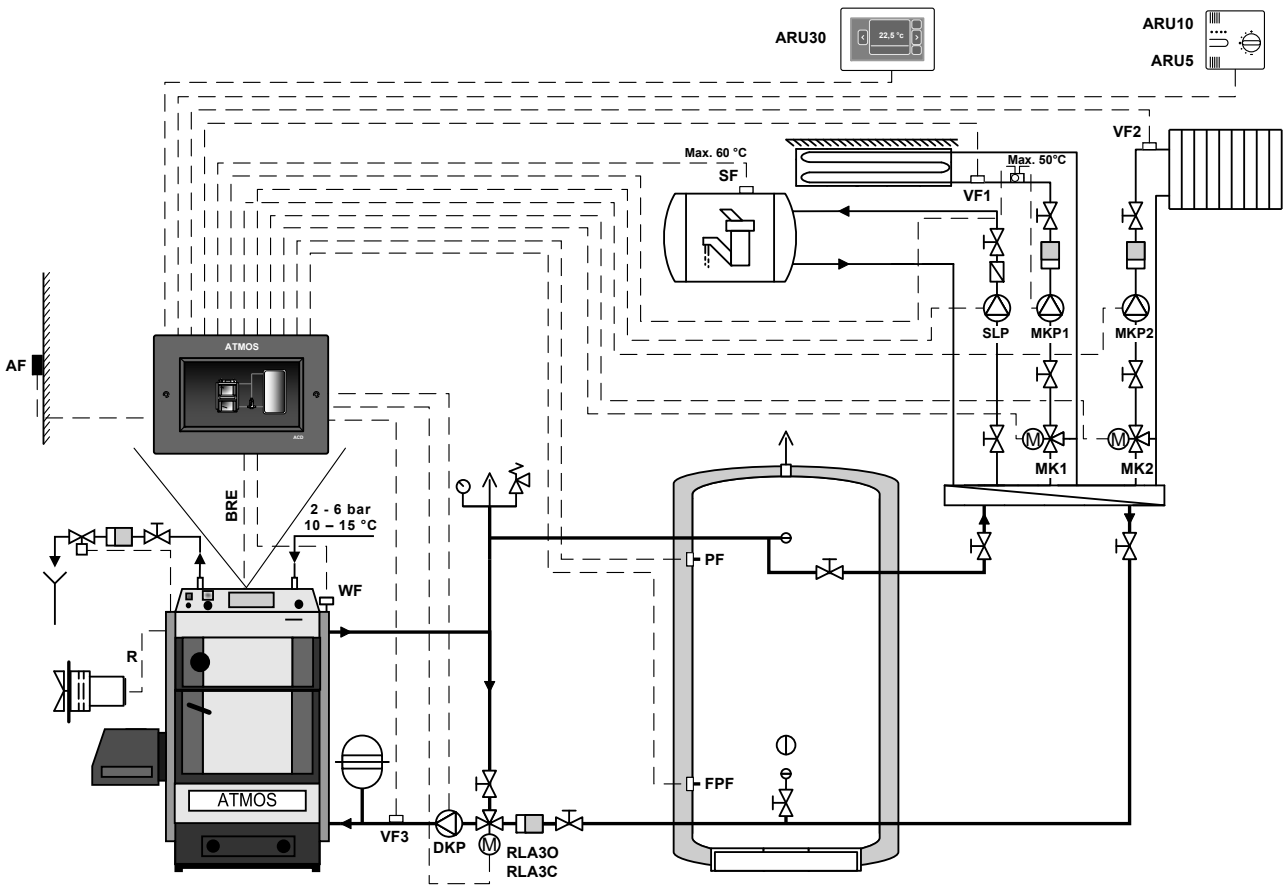
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected with accumulation (buffer) tank

Example 12 - Hydraulic diagram: 27833

2xxxx (BRE - kotel s Burnerem) + x**7**xxx (DKP+DHW+ACC) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on two sensors on the accumulation (buffer) tank (PF and FPF).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

The operation of the boiler fan is controlled together with the BRE pellet burner.

Hydraulic diagram: 27833

Example 12

Hydraulic diagram: **27833**	**2**xxxx (automatic boiler)	x**7**xxx (DKP+DHW+ACC)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D20P - automatic pellet boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3				
Accumulation tank: YES (500 L buffer tank)	**Domestic hot water:** YES (e.g. standard tank 160 L)				
Heating circuits: 2 mixed equithermal (MK)					

Controller ACD 03/04		OUTPUTS															INPUTS											Communi-cation	
		Boiler						DHW	Circuit 1		Circuit 2		Circuit 3																
	Function	Terminal / Position																											
Controller ACD 03/04	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)					59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37	38	4, 6	5 - 6	7 - 8	9 - 10	11 - 12		15 - 16	17 - 18		21 - 22	23 - 24		27 - 30	
	**	IN L + L																											
	-	IN L																											
	-	FAN L																											
	Burner - BRE	VA1					69																						
	-	VA2																											
	Boiler pump - DKP	DKP																											
	DHW pump - SLP	SLP																											
	Circuit 1 pump - MKP1	MKP1																											
	Servo circuit 1 - MK1O	MK1 LA																											
	Servo circuit 1 - MK1C	MK1 LB																											
	Circuit 2 pump - MKP2	MKP2																											
	Servo circuit 2 - MK2O	MK2 LA																											
	Servo circuit 2 - MK2C	MK2 LB																											
	Servo - return control - RLA3O	VA3 LA																											
	Servo - return control - RLA3C	VA4 LB																											
	Outdoor temperature - AF	AF																											
	Boiler temperature - WF	WF																											
	DHW temperature - SF	SF																											
	Circuit 1 temperature - VF1	VF1																											
	Circuit 2 temperature - VF2	VF2																											
	-	AGF																											
	Temperature on the accumulation tank - upper - PF	PF																											
	Boiler return water temperature - VF3	VI1																											
	-	VI2																											
	Temperature on the accumulation tank - lower - FPF	VI3																											
	* ARU5 room unit	VI4																											
	*	VI5																											
	ARU10/30 room unit	12V / A / B / GND																											
	-	12V / A / B / GND																											

Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals
REG-L (N, PE)	
L-FAN IN	
L-FAN OUT	
L2-OUT	
L-M3	
L-PUMP	

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

Always connect the N and PE wires to the nearest free N and PE terminals

For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

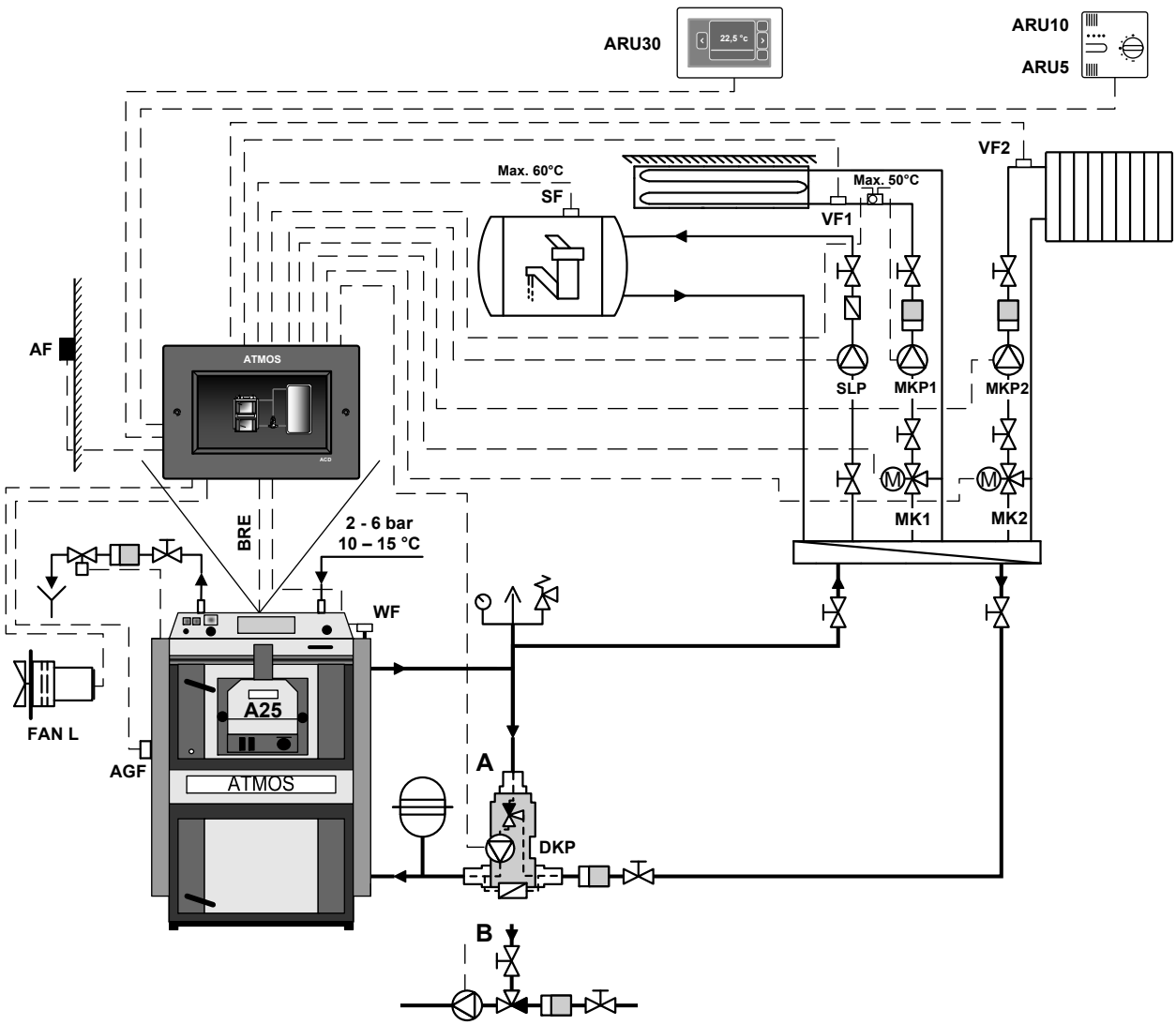
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled combined boiler (with modification for burner) connected without accumulation tank

Example 13 - Hydraulic diagram: 63033

6xxxx (FAN +BRE - combi) + x**3**xxx (DKP+DHW) + xx**0**xx (-) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on the boiler temperature (WF sensor).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It also allows you to switch to manual stoking operation after removing the burner according to standard boiler functions. It controls the operation of the pump in the boiler circuit (DKP) (Laddomat / thermoregulation valve), two heating circuits (MK1, MK2) and the accumulation tank (boiler) for DHW heating (SLP).

The operation of the boiler fan (FAN) is always controlled from the ACD03/04 controller.

Hydraulic diagram: 63033

Example 13

Hydraulic diagram: **63033**	**6**xxxx (combi boiler)	x**3**xx (DKP+DHW)	xx**0**x (none)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC18S with modification for burner - combined boiler with exhaust fan and burner (controlled)					
Accumulation tank: NO		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Heating circuits: 2 mixed equithermal (MK)		**Domestic hot water:** YES (e.g. standard tank 160 L)			

Controller ACD 03/04		OUTPUTS															INPUTS											Communi-cation	
		Boiler						DHW	Circuit 1				Circuit 2			Circuit 3													
	Function	Terminal / Position																											
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)															4, 6										27 - 30	
	** Contact bridge	IN L + L	65 + 66															5 - 6											
	Fan power supply - FAN L	IN L	65															7 - 8											
	Boiler fan - FAN	FAN L	70															9 - 10											
	Burner - BRE	VA1	69															11 - 12											
	-	VA2																13 - 14											
	Boiler pump - DKP	DKP	59 - 61																										
	DHW pump - SLP	SLP	62 - 64																										
	Circuit 1 pump - MKP1	MKP1	53 - 55																										
	Servo circuit 1 - MK1O	MK1 LA	40																										
	Servo circuit 1 - MK1C	MK1 LB	41																										
	Circuit 2 pump - MKP2	MKP2	56 - 58																										
	Servo circuit 2 - MK2O	MK2 LA	43																										
	Servo circuit 2 - MK2C	MK2 LB	44																										
	-	VA3 LA																											
	-	VA4 LB																											
	Outdoor temperature - AF	AF	4, 6																										
	Boiler temperature - WF	WF	5 - 6																										
	DHW temperature - SF	SF	7 - 8																										
	Circuit 1 temperature - VF1	VF1	9 - 10																										
	Circuit 2 temperature - VF2	VF2	11 - 12																										
	Flue gas temperature - AGF	AGF	13 - 14																										
	-	PF																											
	-	VI1																											
	-	VI2																											
	-	VI3																											
	* ARU5 room unit	VI4	23 - 24																										
	*	VI5																											
	ARU10/30 room unit	12V / A / B / GND	27 - 30																										
	-	12V / A / B / GND																											
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																												
	REG-L (N, PE)			L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																					

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

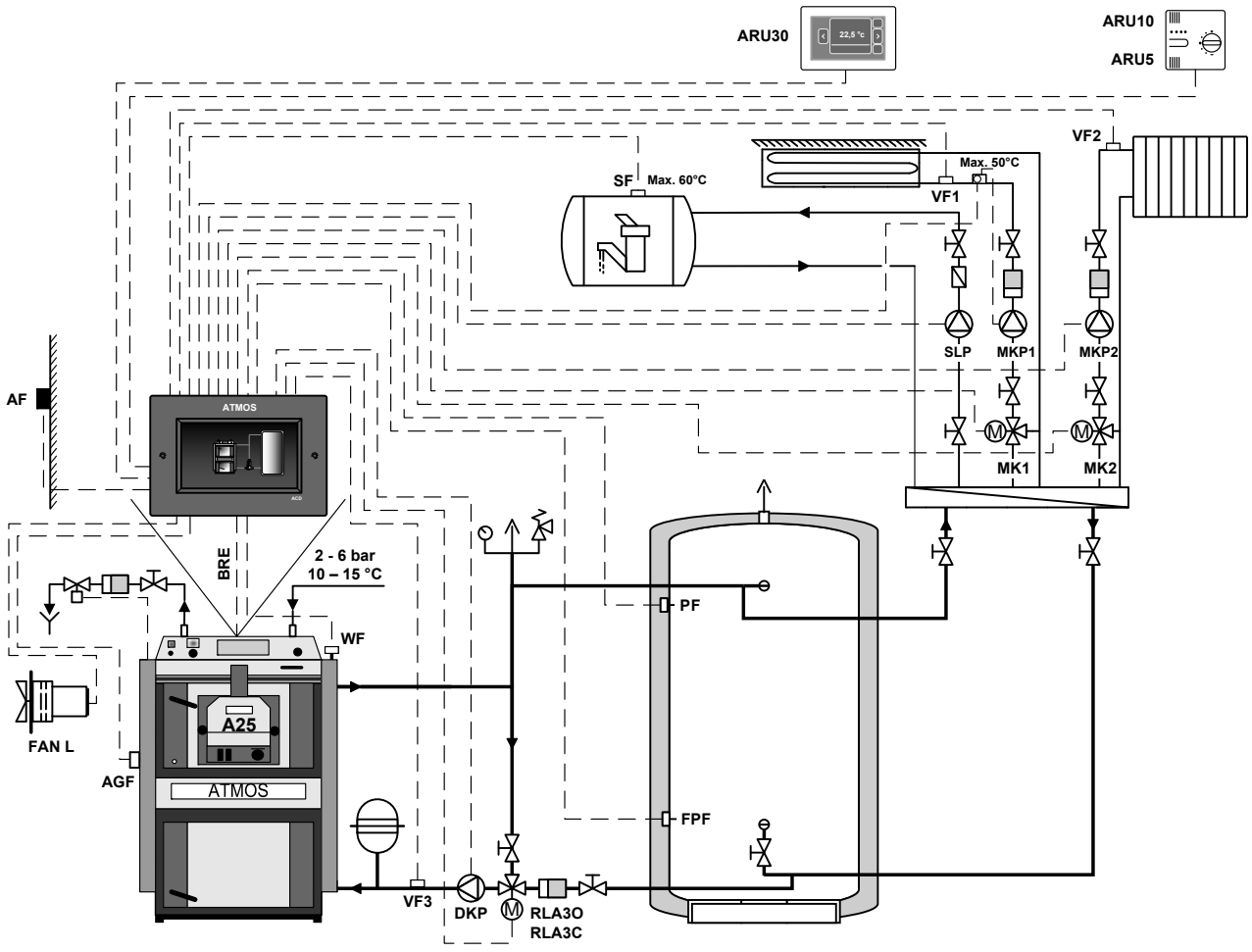
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled combined boiler (with modification for burner) connected with accumulation tank

Example 14 - Hydraulic diagram: 67833

6xxxx (FAN +BRE - combi) + x7xxx (DKP+DHW+ACC) + xx8xx (RLA3) + xxx3x (MK2) + xxxx3 (MK1)



Automatic pellet boiler controlled by the controller based on two sensors on the accumulation (buffer) tank (PF and FPF).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It also allows you to switch to manual stoking operation after removing the burner according to standard boiler functions. It controls the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

The operation of the boiler fan (FAN) is always controlled from the ACD03/04 controller.

Hydraulic diagram: 67833

Example 14

Hydraulic diagram: **67833**	**6**xxxx (combi boiler)	x**7**xxx (DKP+DHW+ACC)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC25S with modification for burner - combined boiler with exhaust fan and burner (controlled)					
Accumulation tank: YES	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3				
Heating circuits: 2 mixed equithermal (MK)	**Domestic hot water:** YES (e.g. standard tank 160 L)				

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3																
	Function	Terminal / Position																													
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)															AF	4, 6											27 - 30	
	** Contact bridge	IN L + L	65 + 66															WF	5 - 6											12V / A / B / GND	
	Fan power supply - FAN L	IN L	65															SF	7 - 8											-	
	Boiler fan - FAN	FAN L	70															VF1	9 - 10												
	Burner - BRE	VA1	69															VF2	11 - 12												
	-	VA2																AGF	13 - 14												
	Boiler pump - DKP	DKP	59 - 61															PF	15 - 16												
	DHW pump - SLP	SLP	62 - 64															VI1	17 - 18												
	Circuit 1 pump - MKP1	MKP1	53 - 55															VI2													
	Servo circuit 1 - MK1O	MK1 LA	40															VI3	21 - 22												
	Servo circuit 1 - MK1C	MK1 LB	41															VI4	23 - 24												
	Circuit 2 pump - MKP2	MKP2	56 - 58															VI5													
	Servo circuit 2 - MK2O	MK2 LA	43															12V / A / B / GND	27 - 30												
	Servo circuit 2 - MK2C	MK2 LB	44															-													
	Servo - return control - RLA3O	VA3 LA	37																												
	Servo - return control - RLA3C	VA4 LB	38																												
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

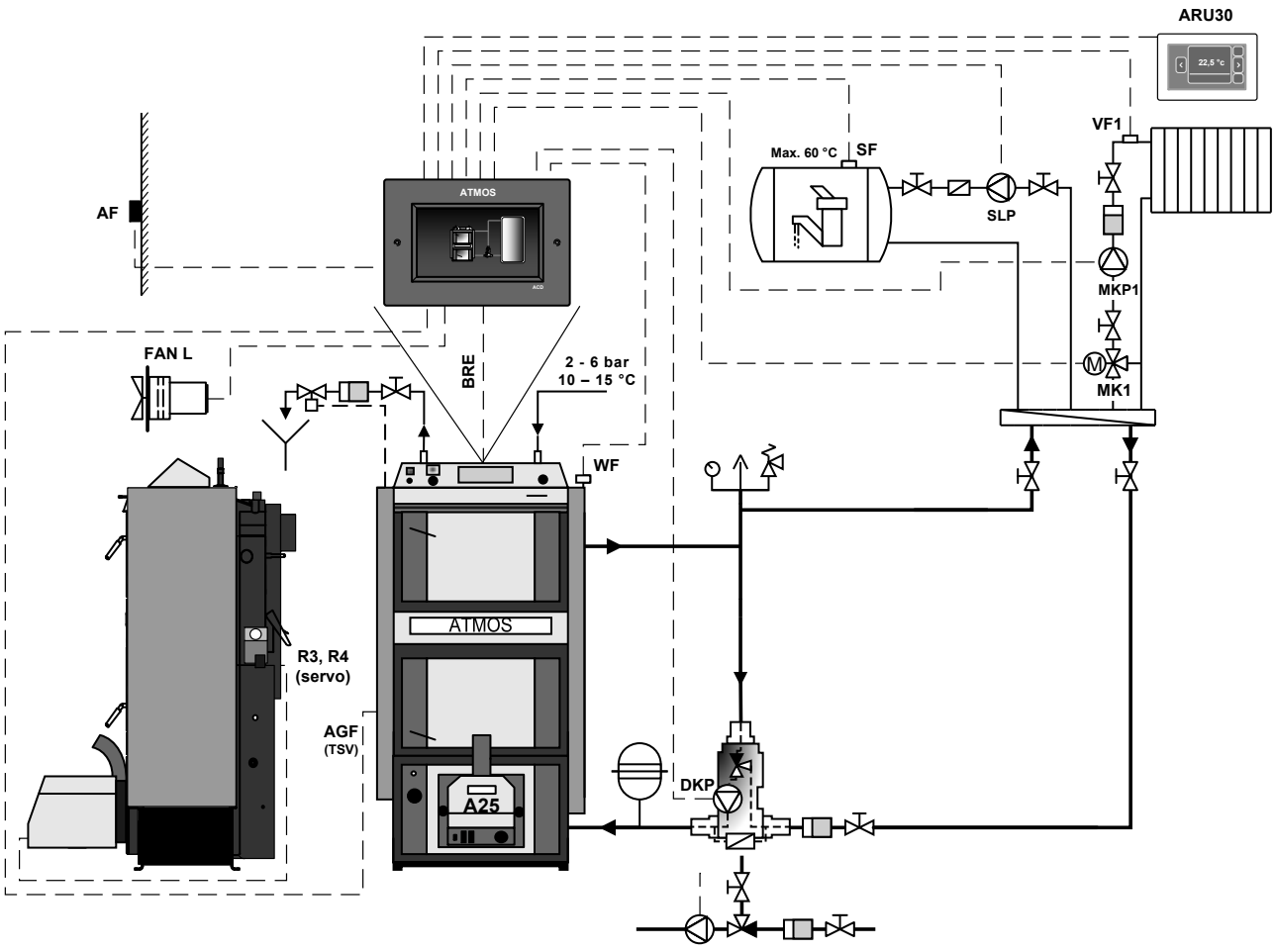
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled combined boiler (SP) connected without accumulation tank

Example 15 - Hydraulic diagram: 63003

6xxxx (FAN +BRE - combi) + x3xxx (DKP+DHW) + xx0xx (-) + xxx0x (-) + xxxx3 (MK1)



Combined boiler controlled with a controller with manual (wood) and automatic (pellet burner) stocking controlled on the basis of boiler temperature (WF) and flue gas temperature (AGF).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). Automatic start of the pellet burner after all wood is burnt out (according to WF and AGF sensors). Switching sources - wood/pellets. It also controls the operation of the pump in the boiler circuit (DKP), one heating circuit (MK1) and DHW heating tank (boiler) (SLP).

INFO - DCxxSP(X) and DCxxGSP boilers are factory equipped with installed AGF (Tsv) and WF (Tk) sensors, which can be used (connected) to the ACD 03/04 controller.

Hydraulic diagram: 63003

Example 15

Hydraulic diagram: **63033**	**6**xxxx (combi boiler)	x**3**xx (DKP+DHW)	xx**0**xx (none)	xxx**0**x (none)	xxxx**3** (MK1)

Boiler: DC18SP - combined boiler with exhaust fan and wood / pellets burner (controlled)

Accumulation tank: NO

Boiler circuit: DKP boiler circuit pump (Laddomat pump)

Heating circuits: 1 mixed equithermal (MK)

Domestic hot water: YES (e.g. standard tank 160 L)

Controller ACD 03/04		OUTPUTS															INPUTS											Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3														
	Position	66 (67, 68)	65 + 66	65	70	69		59 - 61	62 - 64	53 - 55	40	41					4, 6	5 - 6	7 - 8	9 - 10		13 - 14						27 - 30	
	Terminal / Function	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	Function	Controller power supply - L (N, PE)	** Contact bridge	Fan power supply - FAN L	Boiler fan - FAN	Burner - BRE	-	Boiler pump - DKP	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	-	-	-	-	-	Outdoor temperature - AF	Boiler temperature - WF	DHW temperature - SF	Circuit 1 temperature - VF1	-	Flue gas temperature - AGF	-	-	-	-	*	*	ARU10/30 room unit	-
Boiler	**Marking of wires in ATMOS boilers and their connection to controller te**rminals																												
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																						

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

Always connect the N and PE wires to the nearest free N and PE terminals

For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

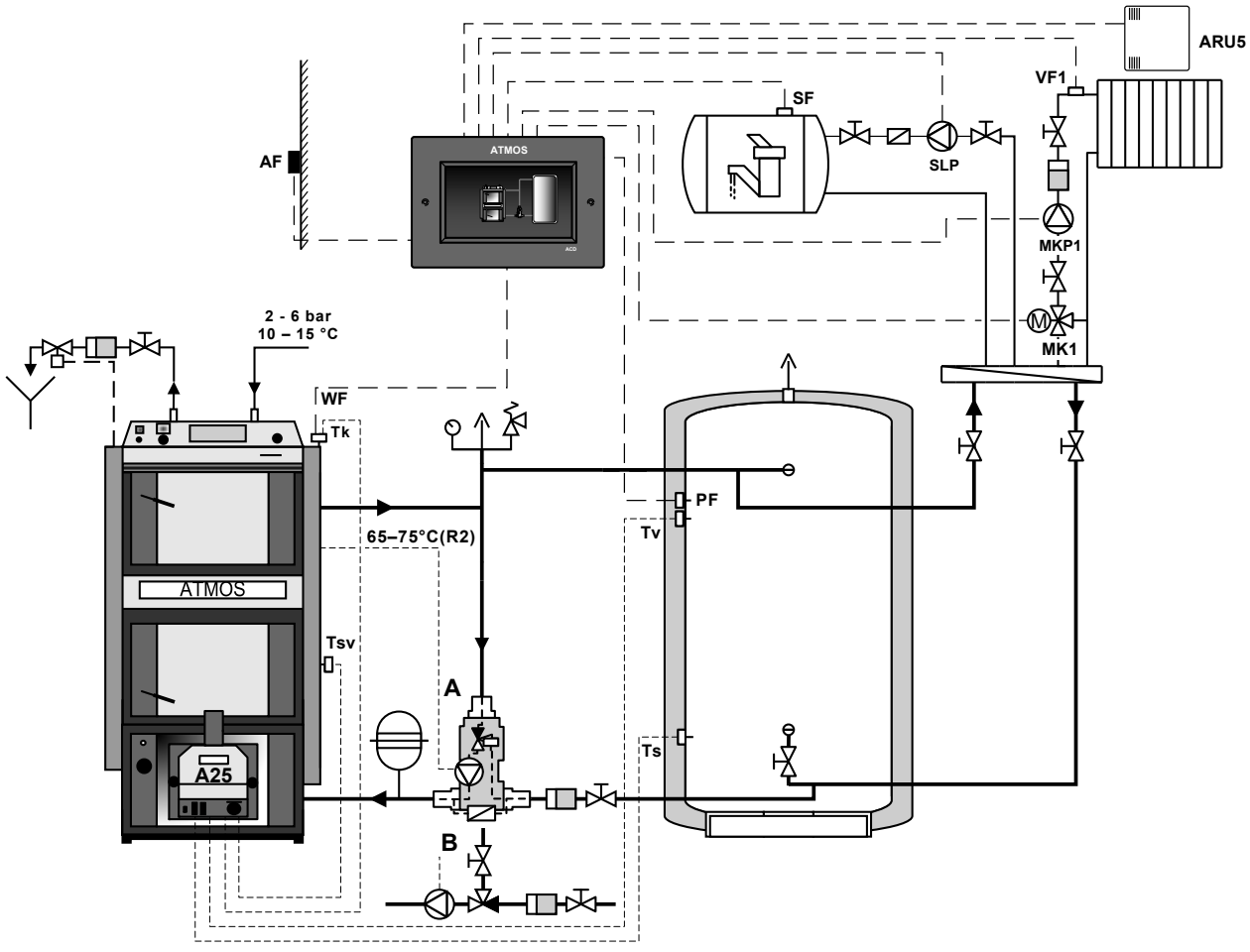
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Not controlled combined boiler (SP) connected with accumulation (buffer) tank

Example 16 - Hydraulic diagram: 16003

1xxxx (not controlled boiler) + x**6**xxx (DHW+ACC) + xx**0**xx (-) + xxx**0**x (-) + xxxx**3** (MK1)



Combined boiler not controlled by the controller with manual (wood) and automatic (pellet burner) stoking.

The ACD 03 controller controls only the operation of the heating system (according to the tank temperature (PF sensor)), namely one heating circuit (MK1) and DHW heating tank (boiler) (SLP). ATMOS ACD 03 controller situated on the wall in the ATMOS SWS 18 box. Operation of the boiler fan, boiler circuit pump, operation according to two temperatures (sensors) on the buffer tank (TV and TS) and other boiler functions including automatic start of the burner after all wood **is burnt out is controlled by the ATMOS A25 pellet burner.**

Hydraulic diagram: 16003

Example 16

Hydraulic diagram: 16003	**1**xxxx (not controlled boiler)	x**6**xxx (DHW+ACC)	xx**0**xx (none)	xxx**0**x (none)	xxxx**3** (MK1)
Boiler: DC18SP - combined boiler with exhaust fan and wood / pellets burner (not controlled)				**Boiler circui**t: -	
Accumulation tank: YES (750 L buffer tank)		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 1 mixed equithermal (MK)					

Controller ACD 03/04	OUTPUTS																INPUTS											Communi-cation	
	Boiler							DHW	Circuit 1			Circuit 2			Circuit 3														
Function	Terminal / Position																												
Controller power supply - L (N, PE)	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	66 (67, 68)							62 - 64	53 - 55	40	41						4, 6	5 - 6	7 - 8	9 - 10			15 - 16				23 - 24			
**	-	-	-	-	-	-	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	-	-	-	-	-	Outdoor temperature - AF	Boiler temperature - WF	DHW temperature - SF	Circuit 1 temperature - VF1	-	-	Temperature on the accumulation tank - upper - PF	-	-	-	* ARU5 room unit	*	-	-
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																												
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																						

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

Always connect the N and PE wires to the nearest free N and PE terminals

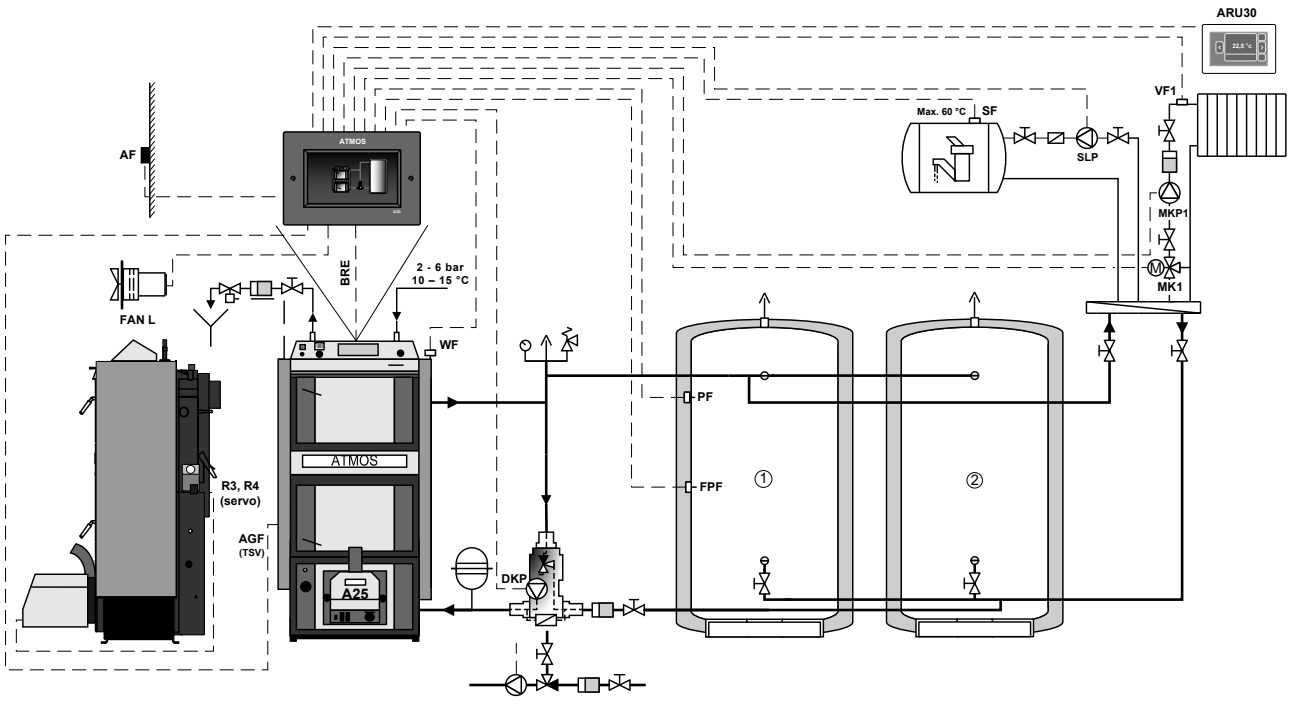
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

For other sensors, use Pt 100 type (KTF20, SF20, AF20)

Controlled combined boiler (SP) connected with accumulation tanks (parallel)

Example 17 - Hydraulic diagram: 67003

6xxxx (FAN +BRE - combi) + x**7**xxx (DKP+DHW+ACC) + xx**0**xx (-) + xxx**0**x (-) + xxxx**3** (MK1)



Combined boiler controlled with a controller with manual (wood) and automatic (pellet burner) stocking controlled on the basis two sensors on the first accumulation (buffer) tank (PF and FPF sensors).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). Automatic start of the pellet burner after all wood is burnt out (according to WF and AGF sensors). Switching sources - wood/pellets. It also controls the operation of the pump in the boiler circuit (DKP), one heating circuit (MK1) and DHW heating tank (boiler) (SLP).

With this connection, it is necessary to close the valve on the second accumulation tank when heating with the pellet burner, so that both tanks are not charged at the same time or place the FPF sensor in the middle of the accumulation tank (heating both tanks with a burner up to 1/2).

INFO - DCxxSP(X) and DCxxGSP boilers are factory equipped with installed AGF (Tsv) and WF (Tk) sensors, which can be used (connected) to the ACD 03/04 controller.

Hydraulic diagram: 67003

Example 17

Hydraulic diagram: 67003	**6**xxxx (kombi kotel)	x**7**xxx (DKP+DHW+ACC)	xx**0**xx (none)	xxx**0**x (none)	xxxx**3** (MK1)

Boiler: DC25SP - combined boiler with exhaust fan and wood / pellets burner (controlled)

Accumulation tank: YES (2x 1,000 L) | **Boiler circui**t: DKP boiler circuit pump (Laddomat pump)

Heating circuits: 1 mixed equithermal (MK) | **Domestic hot water:** YES (e.g. standard tank 160 L)

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3																	
	Position	66 (67, 68)	65 + 66	65	70	69		59 - 61	62 - 64	53 - 55	40	41						4, 6	5 - 6	7 - 8	9 - 10		13 - 14	15 - 16			21 - 22			27 - 30	
	Terminal	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	Function	Controller power supply - L (N, PE)	** Contact bridge	Fan power supply - FAN L	Boiler fan - FAN	Burner - BRE	-	Boiler pump - DKP	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	-	-	-	-	-	Outdoor temperature - AF	Boiler temperature - WF	DHW temperature - SF	Circuit 1 temperature - VF1	-	Flue gas temperature - AGF	Temperature on the accumulation tank - upper - PF	-	-	Temperature on the accumulation tank - lower - FPF	*	*	ARU10/30 room unit	-
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

Always connect the N and PE wires to the nearest free N and PE terminals

For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

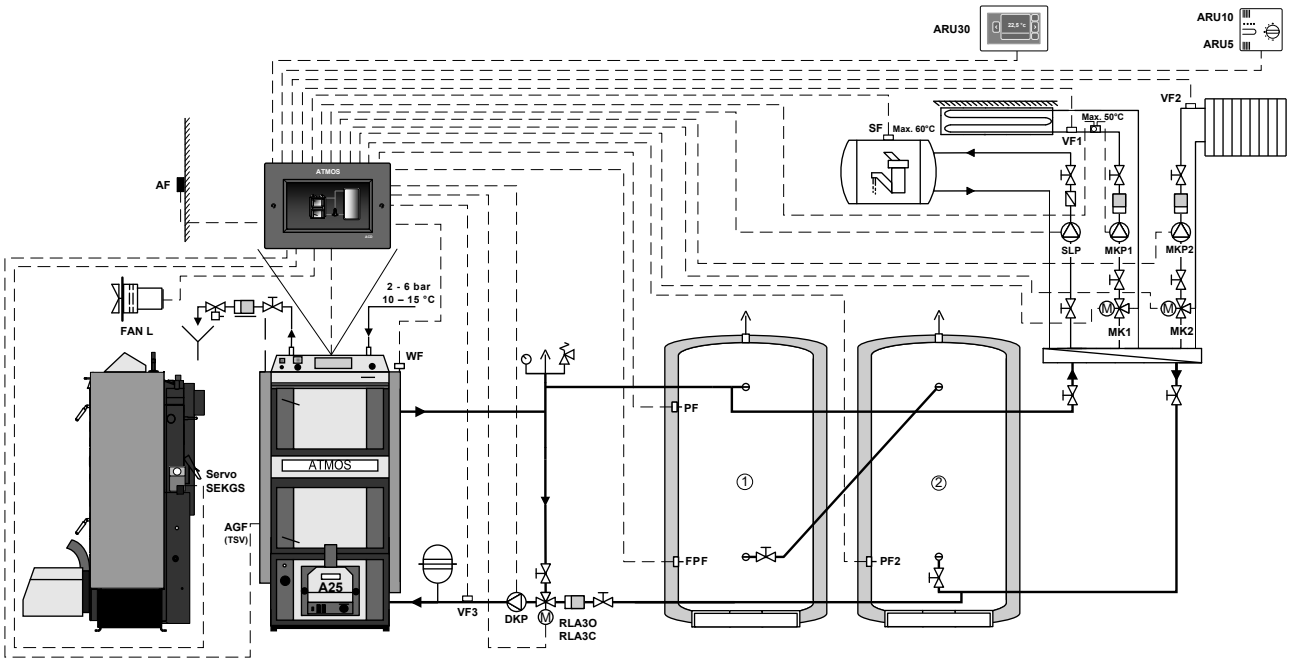
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled combined boiler (GSP) connected with accumulation tanks (into series)

Example 18 - Hydraulic diagram: 77833

7xxxx (FAN +BRE+SEKGSP - combi) + x**7**xxx (DKP+DHW+ACC) + xx**8**xx (RLA3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Combined boiler controlled with a controller with manual (wood) and automatic (pellet burner) stocking controlled on the basis two sensors on the first accumulation (buffer) tank (PF and FPF sensors).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). Automatic start of the pellet burner after all wood is burnt out (according to WF and AGF sensors). Switching sources - wood/pellets. It also controls the boiler circuit pump (DKP), temperature of return water to boiler (RLA), two heating circuits (MK1, MK2) and the tank (boiler) for DHW heating (SLP).

With this connection, the pellet burner only recharges the first accumulation tank.

INFO - DCxxSP(X) and DCxxGSP boilers are factory equipped with installed AGF (Tsv) and WF (Tk) sensors, which can be used (connected) to the ACD 03/04 controller.
PF2 sensor serves only to provide information on the accumulation tank temperature.

Hydraulic diagram: 77833

Example 18

Hydraulic diagram: 77833	**7**xxxx (combi boiler - SEKGSP)	x**7**xxx (DKP+DHW+ACC)	xx**8**xx (RLA3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC30GSP - combined boiler with exhaust fan and wood / pellets burner (controlled)					
Accumulation tank: YES (2x 1.000 L)	**Boiler circui**t: DKP boiler circuit pump + controlled return to the RLA boiler on circuit 3				
Heating circuits: 2 mixed equithermal (MK)	**Domestic hot water:** YES (e.g. standard tank 160 L)				

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3																
	Function	Terminal / Position																													
		L (N, PE)	66 (67, 68)															4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24		27 - 30	
	Controller power supply - L (N, PE)	IN L + L	65 + 66															AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	** Contact bridge	IN L	65																												
	Fan power supply - FAN L	FAN L	70																												
	Boiler fan - FAN	VA1	69																												
	Burner - BRE	VA2	46 - 47																												
	Servoklapka GSE - SEKGS	DKP	59 - 61																												
	Boiler pump - DKP	SLP	62 - 64																												
	DHW pump - SLP	MKP1	53 - 55																												
	Circuit 1 pump - MKP1	MK1 LA	40																												
	Servo circuit 1 - MK1O	MK1 LB	41																												
	Servo circuit 1 - MK1C	MKP2	56 - 58																												
	Circuit 2 pump - MKP2	MK2 LA	43																												
	Servo circuit 2 - MK2O	MK2 LB	44																												
	Servo circuit 2 - MK2C	VA3 LA	37																												
	Servo - return control - RLA3O	VA4 LB	38																												
	Servo - return control - RLA3C																														
	Outdoor temperature - AF																														
	Boiler temperature - WF																														
	DHW temperature - SF																														
	Circuit 1 temperature - VF1																														
	Circuit 2 temperature - VF2																														
	Flue gas temperature - AGF																														
	Temperature on the accumulation tank - upper - PF																														
	Boiler return water temperature - VF3																														
	Information temperature - accumulation tank - PF2																														
	Temperature on the accumulation tank - lower - FPF																														
	* ARU5 room unit																														
	*																														
	ARU10/30 room unit																														
	-																														
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

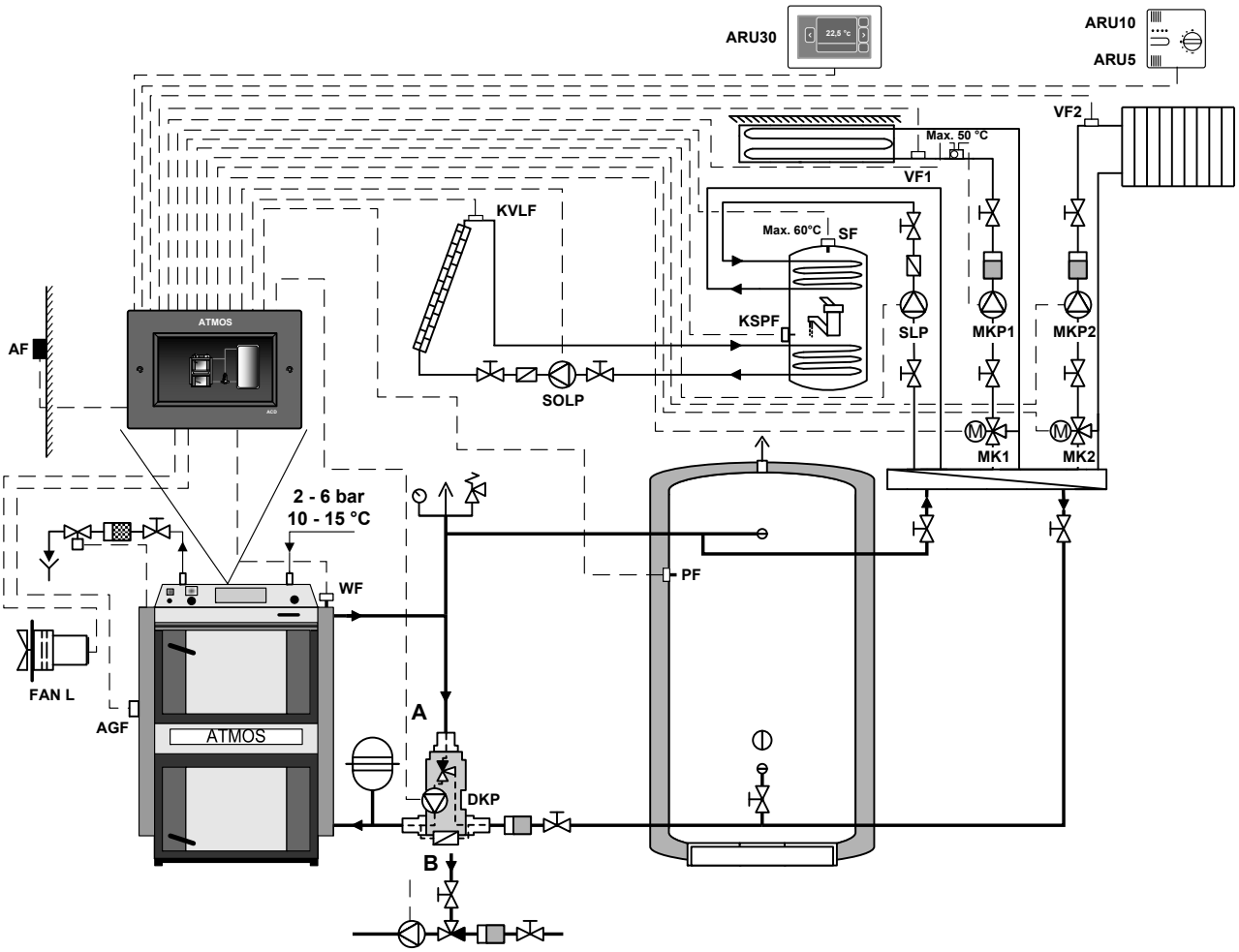
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected with accumulation tank and solar system

Example 19 - Hydraulic diagram: 37533

3xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**5**xx (SOL) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), two heating circuits (MK1, MK2), charging and discharge of accumulation (buffer) tank and the tank (boiler) for DHW heating (SLP) and solar system (SOLP).

Hydraulic diagram: 37533

Example 19

Hydraulic diagram: **37533**	**3**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**5**xx (SOL)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC30SX - gasification boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: YES		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)		**Solar heating:** YES (to the DHW tank)			

Controller ACD 03/04		OUTPUTS															INPUTS											Communi-cation	
		Boiler							DHW	Circuit 1		Circuit 2			Circuit 3															
	Function	Terminal / Position																											
	Controller power supply - L (N, PE)	L (N, PE)	66 (67, 68)															AF	4, 6											
	** Contact bridge	IN L + L	65 + 66															WF	5 - 6											
	Fan power supply - FAN L	IN L		65														SF	7 - 8											
	Boiler fan - FAN	FAN L			70													VF1	9 - 10											
	-	VA1																VF2	11 - 12											
	-	VA2																AGF	13 - 14											
	Boiler pump - DKP	DKP						59 - 61										PF	15 - 16											
	DHW pump - SLP	SLP							62 - 64									VI1	17 - 18											
	Circuit 1 pump - MKP1	MKP1								53 - 55								VI2	19 - 20											
	Servo circuit 1 - MK1O	MK1 LA									40																			
	Servo circuit 1 - MK1C	MK1 LB									41																			
	Circuit 2 pump - MKP2	MKP2										56 - 58																		
	Servo circuit 2 - MK2O	MK2 LA											43																	
	Servo circuit 2 - MK2C	MK2 LB											44																	
	Solar pump - SOLP	VA3 LA												37																
	-	VA4 LB																												
	* ARU5 room unit	VI4																									23 - 24			
	*	VI5																												
	ARU10/30 room unit	12V / A / B / GND																										27 - 30		
	-	12V / A / B / GND																												
Boiler	**Marking of wires in ATMOS boilers and their connection to controller te**rminals																													
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																							

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

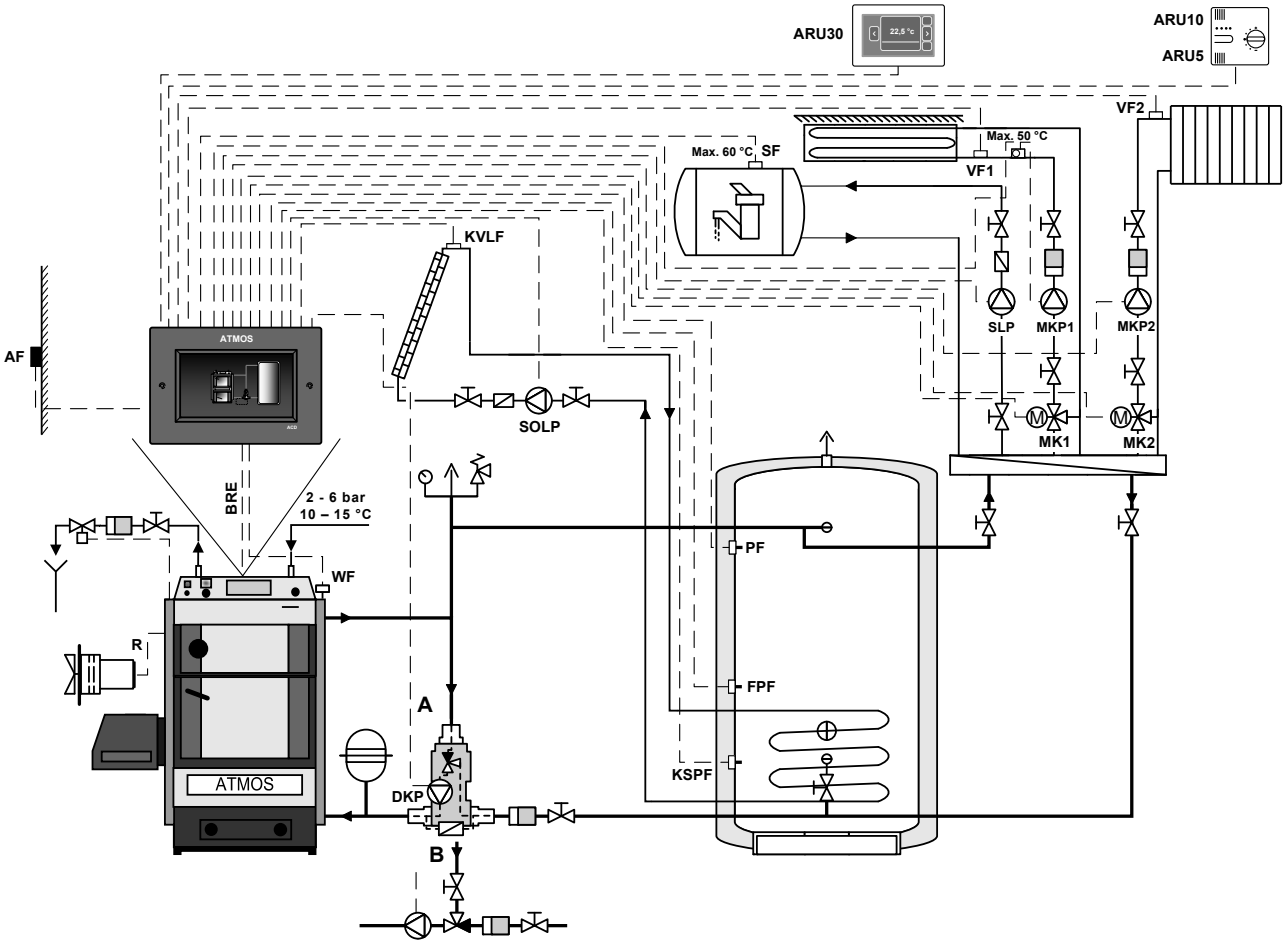
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected with accumulation (buffer) tank and solar system

Example 20 - Hydraulic diagram: 27533

2xxxx (BRE - boiler with burner) + x**7**xxx (DKP+DHW+ACC) + xx**5**xx (SOL) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on two sensors on the accumulation (buffer) tank (PF and FPF).

The ACD 03/04 controller allows the burner operation to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the operation of the pump in the boiler circuit (DKP) (Laddomat / thermoregulation valve), two heating circuits (MK1, MK2), the accumulation tank (boiler) for DHW heating (SLP) and solar system (SOLP).

The operation of the boiler fan is controlled together with the BRE pellet burner.

Hydraulic diagram: 27533

Example 20

Hydraulic diagram: 27533	**2**xxxx (automatic boiler)	x**7**xxx (DKP+DHW+ACC)	xx**5**xx (SOL)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D50P - automatic pellet boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: YES (1.000 L)		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)		**Solar heating:** YES (to the accumulation tank)			

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1		Circuit 2			Circuit 3																		
	Position	66 (67, 68)				69		59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37		4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24		27 - 30	
	Terminal	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	Function	Controller power supply - L (N, PE)	**			Burner - BRE	-	Boiler pump - DKP	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	Circuit 2 pump - MKP2	Servo circuit 2 - MK2O	Servo circuit 2 - MK2C	Solar pump - SOLP	-	Outdoor temperature - AF	Boiler temperature - WF	DHW temperature - SF	Circuit 1 temperature - VF1	Circuit 2 temperature - VF2	Flue gas temperature - AGF	Temperature on the accumulation tank - upper - PF	Solar panel sensor - KVLF	Tank sensor for solar - KSPF	Temperature on the accumulation tank - lower - FPF	* ARU5 room unit	*	ARU10/30 room unit	-
Boiler	**Marking of wires in ATMOS boilers and their connection to controller terminals**																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

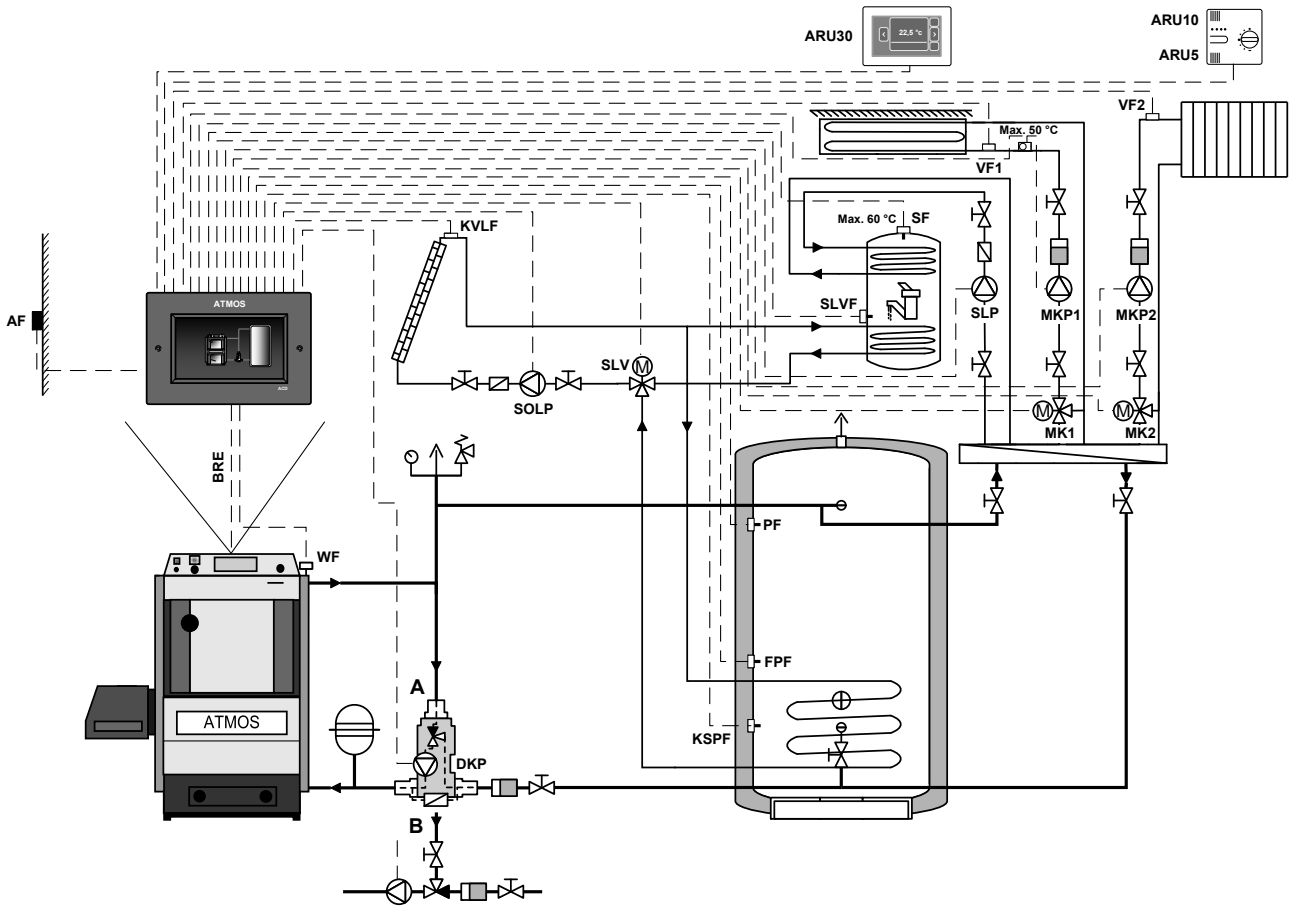
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler with burner connected with accumulation (buffer) tank and solar system

Example 21 - Hydraulic diagram: 27533

2xxxx (BRE - boiler with burner) + x**7**xxx (DKP+DHW+ACC) + xx**5**xx (SOL) + xxx**3**x (MK2) + xxxx**3** (MK1)



Automatic pellet boiler controlled by the controller based on two sensors on the accumulation (buffer) tank (PF and FPF).

The ACD 03/04 controller allows the burner operation (BRE) to be switched on and off as required by the operator (for example when cleaning the boiler). It controls the operation of the pump in the boiler circuit (DKP) (Laddomat / thermoregulation valve), two heating circuits (MK1, MK2), the accumulation tank (boiler) for DHW heating (SLP) and solar system (SOLP+ solar switch between ACC and DHW (KSPF and SLV/SLVF)).

Hydraulic diagram: 27533

Example 21

Hydraulic diagram: 27533	**2**xxxx (automatic boiler)	x**7**xxx (DKP+DHW+ACC)	xx**5**xx (SOL)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: D14P - automatic pellet boiler (controlled)		**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)			
Accumulation tank: YES		**Domestic hot water:** YES (e.g. standard tank 160 L)			
Heating circuits: 2 mixed equithermal (MK)		**Solar heating:** YES (switching between the DHW tank and the accumulation tank)			

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3																
	Function	Terminal / Position	66 (67, 68)				69		59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37	38	4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24		27 - 30	ARU10
	Controller power supply - L (N, PE)	L (N, PE)	IN L + L	IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	**	-	-	Burner - BRE	-	Boiler pump - DKP	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	Circuit 2 pump - MKP2	Servo circuit 2 - MK2O	Servo circuit 2 - MK2C	Solar pump - SOLP	Solar switch - SLV	Outdoor temperature - AF	Boiler temperature - WF	DHW temperature - SF	Circuit 1 temperature - VF1	Circuit 2 temperature - VF2	Flue gas temperature - AGF	Temperature on the accumulation tank - upper - PF	Solar panel sensor - KVLF	DHW tank sensor for solar - SLVF	Temperature on the accumulation tank - lower - FPF	* Solar tank sensor - ACC - KSPF	*	ARU10 room unit	*** ARU30 room unit		
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																														
		REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																							

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit

** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

*** ARU10 and ARU30 room units are always connected in series (in line) with ACD 03/04 controller (communication)

Always connect the N and PE wires to the nearest free N and PE terminals

For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)

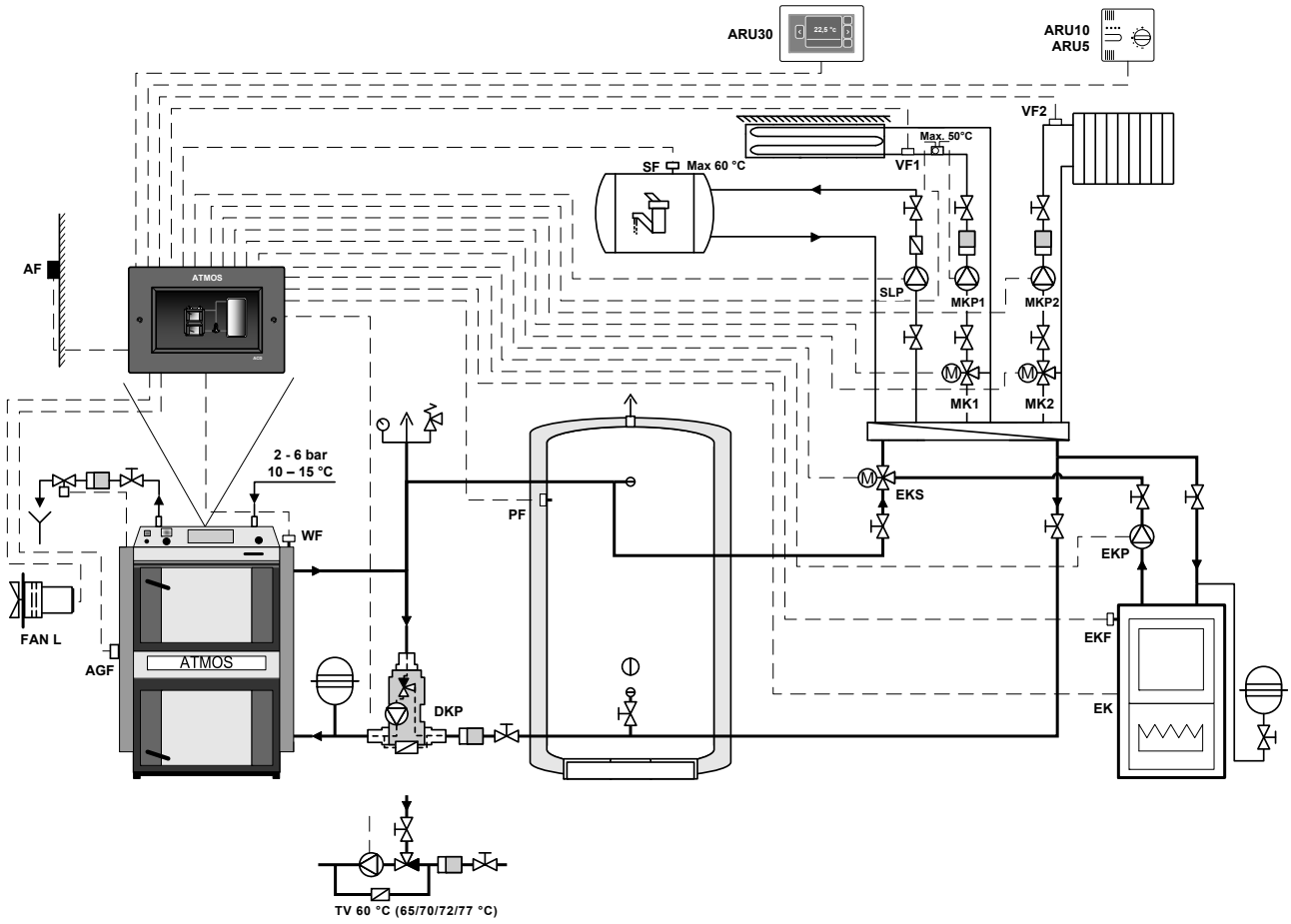
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected with accumulation tank and external boiler without built-in pump

Example 22 - Hydraulic diagram: 37233

3xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**2**xx (EK3) + xxx**3**x (MK2) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), two heating circuits (MK1, MK2), charging and discharge of accumulation (buffer) tank and the tank (boiler) for DHW heating (SLP) and operation of EK external boiler with controll of EKP pump of the external boiler and with EKS switching valve.

Hydraulic diagram: 37233

Example 22

Hydraulic diagram: 37033	**3**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**2**xx (EK3)	xxx**3**x (MK2)	xxxx**3** (MK1)
Boiler: DC18S - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)				
Accumulation tank: YES	**Domestic hot water:** YES (e.g. standard tank 160 L)				
Heating circuits: 2 mixed equithermal (MK)	**External heating:** YES - EK external boiler + EKP + EKS (electric boiler, gas boiler)				

Boiler	Controller ACD 03/04	OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1			Circuit 2			Circuit 3																
	Function / Terminal / Position	L (N, PE)		IN L	FAN L	VA1	VA2	DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	
		66 (67, 68)	65 + 66	65	70	69	46 - 48	59 - 61	62 - 64	53 - 55	40	41	56 - 58	43	44	37		4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18				23 - 24		27 - 30	
	Controller power supply - L (N, PE)		IN L + L															AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	
	** Contact bridge																	Outdoor temperature - AF	Boiler temperature - WF	Temperature sensor of DHW inner tank - SFINT	Circuit 1 temperature - VF1	Circuit 2 temperature - VF2	Flue gas temperature - AGF	Temperature on the accumulation tank - upper - PF	External boiler sensor - EKF	-	-	* ARU5 room unit	*	ARU10/30 room unit	-
	Fan power supply - FAN L			L-FAN IN																											
	Boiler fan - FAN				L-FAN OUT																										
	External boiler pump - EKP					L2-OUT																									
	Switching valve - EKS						L-M3																								
	Boiler pump - DKP							L-PUMP																							
	DHW pump - SLP																														
	Circuit 1 pump - MKP1																														
	Servo circuit 1 - MK1O																														
	Servo circuit 1 - MK1C																														
	Circuit 2 pump - MKP2																														
	Servo circuit 2 - MK2O																														
	Servo circuit 2 - MK2C																														
	External boiler - EK																														
	-																														
	Marking of wires in ATMOS boilers and their connection to controller terminals																														

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

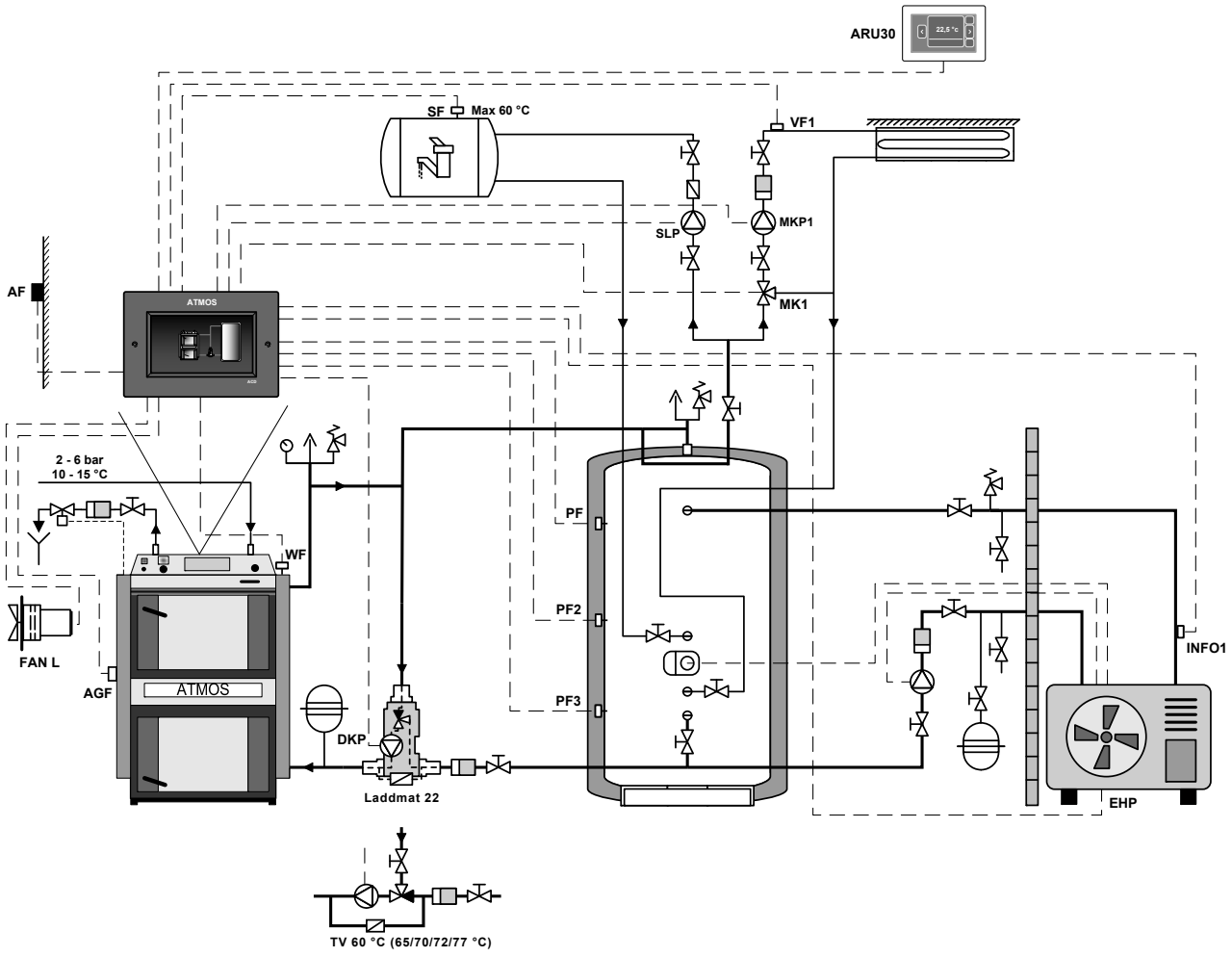
Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

Controlled boiler connected with accumulation tank and heat pump

Example 23 - Hydraulic diagram: 37003

3xxxx (controlled boiler) + x**7**xxx (DKP+DHW+ACC) + xx**0**xx (-) + xxx**0**x (-) + xxxx**3** (MK1)



Boiler controlled by the controller based on the boiler temperature (WF sensor) and flue gas temperature (AGF sensor).

The ACD 03/04 controller controls boiler operation (fan - FAN / PRESS), the boiler circuit pump (DKP) (Laddomat/thermoregulation valve), one heating circuit (MK1), charging and discharge of accumulation (buffer) tank and the tank (boiler) for DHW heating (SLP) and operation of the heat pump connected as electric heating of the accumulation tank (EHP).

INFO - Heat pump connected as (EHP). (electric heating of the accumulation tank).
INFO1 temperature serves as information about temperature of the out coming water from heat pump. It has no effect on its operation.

Hydraulic diagram: 37003

Example 23

Hydraulic diagram: 37033	**3**xxxx (controlled boiler)	x**7**xxx (DKP+DHW+ACC)	xx**0**xx (none)	xxx**0**x (none)	xxxx**3** (MK1)
Boiler: DC18GD - gasification boiler (controlled)	**Boiler circui**t: DKP boiler circuit pump (Laddomat pump)				
Accumulation tank: YES	**Domestic hot water:** YES (e.g. standard tank 160 L)				
Heating circuits: 1 mixed equithermal (MK)	**External heating:** YES - heat pump (electric heating EHP)				

Controller ACD 03/04		OUTPUTS																INPUTS												Communi-cation	
		Boiler						DHW	Circuit 1		Circuit 2			Circuit 3																		
	Position	66 (67, 68)	65 + 66	65	70	69		59 - 61	62 - 64	53 - 55	40	41						4, 6	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22			27 - 30	
	Terminal	L (N, PE)	IN L + L	IN L	FAN L	VA1		DKP	SLP	MKP1	MK1 LA	MK1 LB	MKP2	MK2 LA	MK2 LB	VA3 LA	VA4 LB	AF	WF	SF	VF1	VF2	AGF	PF	VI1	VI2	VI3	VI4	VI5	12V / A / B / GND	12V / A / B / GND
	Function	Controller power supply - L (N, PE)	** Contact bridge	Fan power supply - FAN L	Boiler fan - FAN	Electric heating of the accumulation tank - EHP	-	Boiler pump - DKP	DHW pump - SLP	Circuit 1 pump - MKP1	Servo circuit 1 - MK1O	Servo circuit 1 - MK1C	-	-	-	-	-	Outdoor temperature - AF	Boiler temperature - WF	Temperature sensor of DHW inner tank - SFINT	Circuit 1 temperature - VF1	Circuit 2 temperature - VF2	Flue gas temperature - AGF	Temperature on the accumulation tank - upper - PF	Information temperature - INFO1	Information temperature - accumulation tank - PF2	Information temperature - accumulation tank - PF3	*	*	ARU10/30 room unit	-
Boiler	Marking of wires in ATMOS boilers and their connection to controller terminals																														
	REG-L (N, PE)		L-FAN IN	L-FAN OUT	L2-OUT	L-M3	L-PUMP																								

* VI4 and VI5 terminals are best suited for connecting the ARU5 room unit
** Install the terminal only in case of missing L-FAN IN conductor on the boiler electrical harness

Always connect the N and PE wires to the nearest free N and PE terminals
For flue gas sensor and solar panel sensor use the Pt 1000 type (AGF3, VFF00)
For other sensors, use Pt 100 type (KTF20, SF20, AF20)

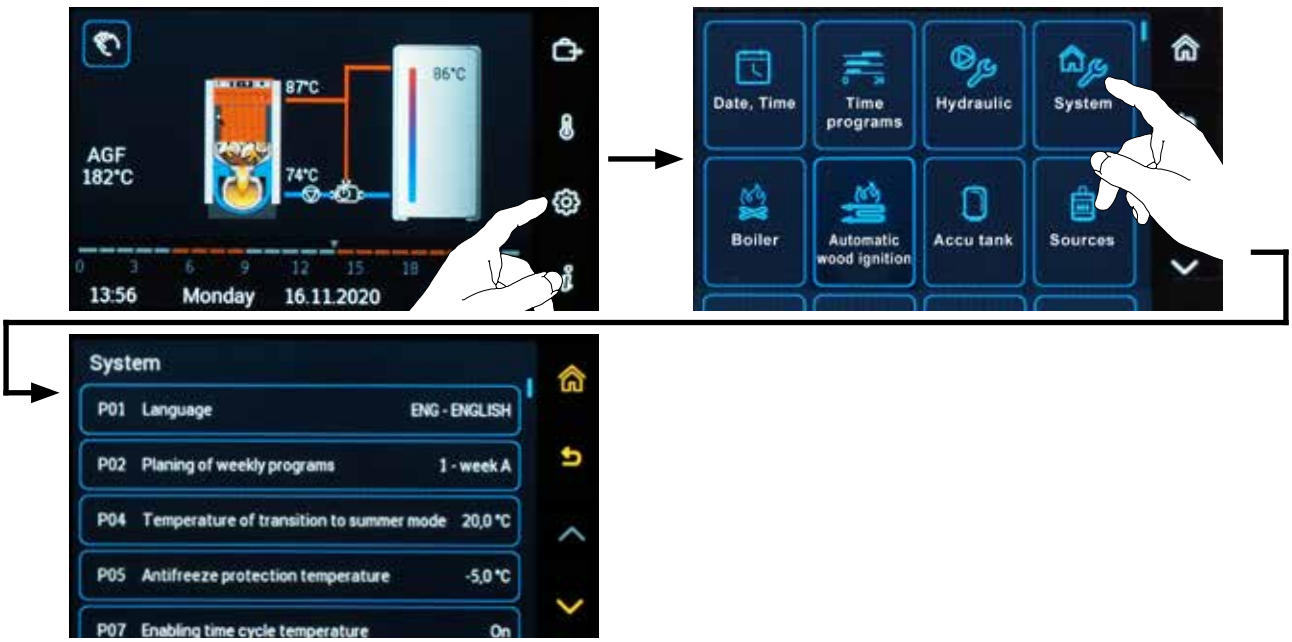
ATTENTION - When connecting the ACD03 controller to the ATMOS boiler panel, it is necessary to electrically disconnect some elements (thermostats) and connect free wires, see electrical diagram of the boiler.

System

(Access level - User - P01, P14 — P04 / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the symbol for System.

The **System** menu is used to set the general parameters of the entire heating system.



Parameters:

• P01^{System} parameter - Language

The parameter is used to set the language of the controller.

INFO - ACD03/04 controller is sold in two versions (DE - for German-speaking countries) and (CZ/EN - other countries (without German)).
Additional activation of the German language is only possible for a fee at the sales representative for the relevant country.
The language setting on the ARU30 room unit is always done separately (independently of ACD 03/04).

• P02[System] parameter- Enabling planning of weekly programs

The parameter is used to set options for using time programs in one week (A) or one to three weeks (A, B, C). The setting for 1 week (A) is used where we want the same program every week without exception (one-week program). Settings A, B, C is used where we need to set three (3) different consecutive programs, e.g. for 3 shift operation (morning / afternoon / night), or to distinguish working week / holiday or holiday week / illness, etc. When selecting A, B, C, the program A, B or C program selection is always offered when programming time programs (see Fi Time programs menu), where the user selects the required weekly program.

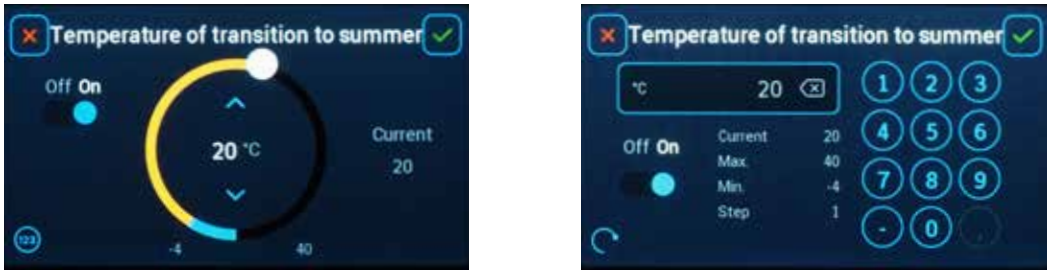
INFO - When setting (activating) **Auto** mode, the controller always asks what weekly program the user wants (applies to setting → P02[System] parameter to A, B, C). Setting and check of time programs is performed in the Time programs submenu under the button.

• P04[System] parameter - Temperature of transition to summer mode

If the average outdoor temperature exceeds the value of this parameter, the heating will end and the transition to summer mode occurs. When the temperature drops below the set value minus 1 K, the heating is started again

INFO - The average temperature is calculated according to the type of construction: heavy - 24 hours / medium 8 hours / light - 2 hours (→ P10[System] parameter).
Switching the controller off and on resets the average temperature (immediate change).

Factory default setting: 20 °C



• P05[System] parameter- Antifreeze protection temperature

If the average outdoor temperature falls below the set value, the anti-freeze protection is activated. The pumps of the defined heating circuits (excluding DHW) do not switch off even when switching to setback mode or when the required room temperature is exceeded (⚙→ P09[Heating circuit] parameter). Heating circuits create demand for an energy source.

Use antifreeze protection for heating systems where pipes may freeze (for example, recreational facilities, heating ducts, etc.). If there is no risk of the pipes freezing, the frost protection can be switched off, but it is not recommended.

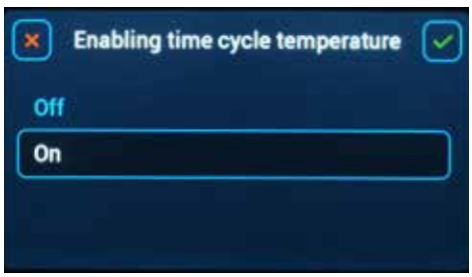
Antifreeze protection can be carried out by continuous or cyclic operation of heating circuits (pumps) see menu System ⚙→ - P25[System] and P26[System] parameter.

Factory default setting: -5 °C

• P07[System] parameter - Enabling the temperature of comfort block of time program

In case of setting the ⚙→ P07[System] parameter to **On** (factory default setting), up to 5 comfort blocks (☼ **Comfort** with own required room temperature) can be set up within one day time program (24 hours).

INFO - If a different temperature is set in **Comfort** ☼ mode, the relevant temperature setting applies only **in the relevant block of time program**. The temperatures of individual blocks are set in ⚙→ Time Programs menu.



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In case of setting P07^{System} parameter to **Off**, all time blocks for comfortable temperatures have the same value that corresponds to the ☼ comfort temperature set under the 🌡 button.
The ☾ setback temperature requirement (gaps between individual comfort blocks) corresponds to the temperature set under the 🌡 button.

• P08^{System} parameter - Fixed outdoor temperature

The parameter value (temperature) is automatically applied when the outdoor AF sensor is damaged or deactivated.

• P09^{System} parameter - Climate zone

It is a parameter of the average lowest outdoor (calculated) temperature that can be expected at the place of installation of the controller. In practice, this value is used as the basis for the design of the heating system and the calculation of the power of the heating source. The parameter defines the top point of the heating curve.

Factory default setting: -12 °C

• P10^{System} parameter- Building type

The rate of change of room temperature depending on the change of outdoor temperature affects the maintenance of thermal comfort in the building. This is influenced by the properties of the material, the building is constructed from. For this reason, the average outdoor temperature is used to calculate the current thermal demand.

The optimal averaging of the outdoor temperature is determined by the type of building:

1 - light – construction with low temperature inertia, where there are rapid changes in room temperature, for example, a wooden structure.
Outdoor temperature averaging time - **2 hours.**

2 – medium – standard brick building with standard insulation.
Outdoor temperature averaging timey - **8 hours.**

3 – heavy – brick to stone building with great inertia.
Outdoor temperature averaging time - **24 hours.**

• P11[System] parameter- Automatic exit menu time

The parameter defines the time after which the controller returns to the basic screen and the screensaver is switched on.

At the same time, the **user level access** is recovered.

• P12[System] parameter - Anti-blocking protection

In order to extend the service life of mixing valves and pumps, the anti-blocking function is important.
Mixing valves and pumps are always briefly started when not in use for more than 24 hours.
Pump started for **5 minutes**.
Mixing valve - one cycle **0 to MAX.**

ATTENTION - Never turn off the boiler (controller) with the main switch during the summer months to prevent the pumps and mixing (switching) valves from getting stuck.

• P13[System] parameter - Logical alarms display

The controller operates with 2 types of alarms: system and logical.

The system alarm is e.g. unconnected or damaged sensor, unassigned terminal of programmed output, etc. **These alarms are always displayed.**

The logical alarm is caused by failure to meet any condition (logic), e.g. failure to reach the required temperature behind the mixing valve within 1 hour or failure to reach the DHW temperature after more than 3 hours, see **alarm overview.**
All alarms are displayed in the alarm history, see ⚙→⚠ Alarms menu according to the date and time of occurrence for their later search and possible evaluation.

INFO - It is not recommended to activate the display of logical alarms in heating systems for a boiler with manual stoking.

• P14[System] parameter - Information - last position

The parameter allows you to set whether the user or technician returns to the last displayed item (On setting) after entering the ℹ **Information** menu or whether everything from the beginning (Off setting) from the first item is displayed.

Factory default setting: Off

• P15[System] parameter - Password for user (child protection function)

The parameter allows the customer to lock the controller against accidental change of any parameter (child protection function).

When the controller is locked by the user, the controller can be used only to obtain the necessary ℹ Information.

Enter the numeric code in Parameter P15[System] to set the required user password.

The password is activated after the time specified by ⚙→🔧 P11[System] parameter (after starting the screensaver) or immediately after switching off and on the main boiler (ACD 03/04 controller) switch.

Any change to the settings will require the password.

INFO - If the password is forgotten, only the service technician can change or disable the password (child protection function).

By setting P15[System] parameter to 0 (00, 000, 0000 = 0) the user password (child protection function) is inactive.

• P16[System] parameter - Password for technician

The parameter is used by the manufacturer to set a special (non-standard) access password for the technician.

INFO - The parameter can be changed and is visible only after logging in at the **OEM and manufacturer** level.

• P17[System] parameter - Password for OEM

The parameter is used by the manufacturer to set a special (non-standard) access password for special customers.

INFO - The parameter can be changed and is visible only after logging in at the **manufacturer** level.

• P18[System] parameter - Proposed room temperature

The proposed room temperature is a parameter needed as a basis for the correct design (calculation) of the heating system, to maintain the required temperature of the heating circuits.

The value must be based on the heating system design project.

Factory default setting: 20 °C

• P20[System] parameter - Screen brightness settings

It is possible to set the brightness of the display with this parameter.

INFO - The brightness change will not take effect until the adjustment is confirmed.

• P21[System] parameter - Screen brightness settings - screensaver

It is possible to set the brightness of the display with the screensaver, with this parameter.

INFO - The brightness change will not take effect until the adjustment is confirmed.

• P25[System] parameter - Antifreeze protection - run

The parameter is used to set the run time of the pumps (all defined heating circuits) in case of switching on the antifreeze protection (❄ snowflake on the display) defined by ⚙→ P05[System] parameter (e.g. at -5 °C).

It is a function that protects during **Holiday ⬭ - Absence 🛏 - Setback ☾ - Standby ⏻ - Auto 🕒 (Setback)** modes individual heating circuits (pipes) against freezing.

During running (of pumps), each circuit is heated to the required temperature.

Factory default setting: Off

Setting options:

Off - pumps of defined heating circuits are permanently switched off

On - pumps of defined heating circuits are in operation for a set time (recommended factory setting 20 minutes)

INFO - After the set time has elapsed, each defined circuit is switched off for the pause time defined by ⚙→ P26[System] parameter.

In case of parameter setting of P25[System] = On and P26[System] = Off, the pumps of defined heating circuits run continuously.

• P26^{System} parameter - Antifreeze protection - pause

The parameter is used to set the pause time of the pumps (all defined heating circuits) in case of switching on the antifreeze protection (❄ snowflake on the display) defined by ⚙→🏠🔧 P05^{System} parameter (e.g. at -5 °C).
This is a function associated with P25^{System} parameter.

Factory default setting: Off

Setting options:

Off - pumps of defined heating circuits are permanently switched on
(P25^{System} parameter = On)

Zap - On - pumps of defined heating circuits are stopped for a set time
(recommended factory setting 60 minutes) (P25^{System} parameter = On)

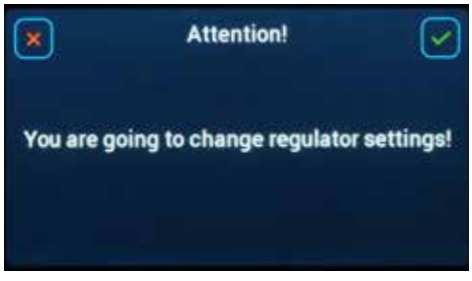
INFO - In case of parameter setting of P25^{System} = On and P26^{System} = On, the pumps of all defined heating circuits run in cycles (run / pause).
After the set time has elapsed, each defined circuit is switched on for the run time defined by ⚙→🏠🔧 P25^{System} parameter.

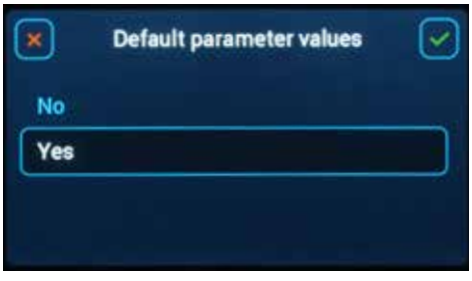
CAUTION - The pause time of the heating circuits should not be too long so that water in the pipe cannot freeze or too short so that the room temperature would be exceeded.

• P28^{System} parameter- Default parameter values

After confirmation, the values of some parameters in the controller will be set to the factory (default) values.

Namely: **time programs -** factory settings - Mon - Fri 05:00 - 09:00, 14:00 - 22:00
Sat - Sun 07:00 - 10:00, 15:00 - 22:00
required temperatures - factory settings - (☾ Setback 19 °C / ☼ Comfor 23 °C)

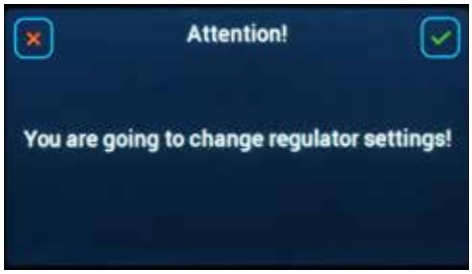




CAUTION - By setting the default values (by confirming **Yes**) of the parameters with the **technician** access password entered, all alarms will be reset.

• P29[System] parameter- Controller factory setting (reset)

After confirmation, the factory setting will be returned, including the start of the Installation guide (WIZARD) for the basic definition of the boiler and the hydraulic diagram number.



• P30[System] parameter - Back up / System Recovery

The parameter is intended to back up or restore the last saved ACD 03/04 controller settings from a backup.

Data is saved or backed up on the SD card inserted in the ACD 03/04 controller. To replace or insert the card, it is necessary to remove the controller from the boiler panel (ATMOS SWS 18 wall box).

CAUTION - Recommendation - after completing the installation, the service technician will **back up** the current settings to a SD card!

INFO - If the Back up is not created manually, it is **created automatically** after 7 days.
If it is not possible to create an automatic backup (SD card is not inserted, there is no space on the SD card, the SD card is damaged, etc.), an alarm will be displayed:

Backup not created! – SD card not inserted!
Backup not created! – SD card error!
Backup not created! – Program error (XX)!

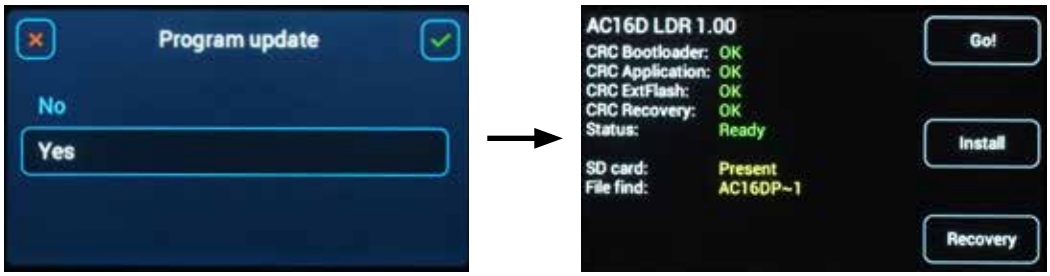
Alarm is displayed in menu **Information** i (yellow notice). Alarm is possible to delete by "cross" ✕.
Alarm can be found in the alarms history (⚙→⚠).
In case of alarm display with error number, detailed information can be found in the information table.

INFO - By recovering the settings, recall (upload) of the last saved version (BACKUP) on the SD card will be performed.

• P31[System] parameter - Program update

The parameter is **intended** to install a new version of the software from the SD card (**Install**) or to **recover** existing (damaged) software in the ACD 03/04 controller from internal memory (**Recovery**).

Confirm Yes to enter the menu screen.



INFO – Before starting the update, the SD card must be inserted in the ACD 03/04 controller and a directory named FW must be created in the root directory, in which only a single firmware file can be located. This file will be loaded automatically after pressing the **"Install"** button.
The "Recovery" button is used to restore the program in case of suspicion of its damage. However, this does not install a new program (software), but only restores the existing version (SD card does **not have to** be inserted in the controller).

CAUTION - The SD card can only be removed after the controller is switched off.

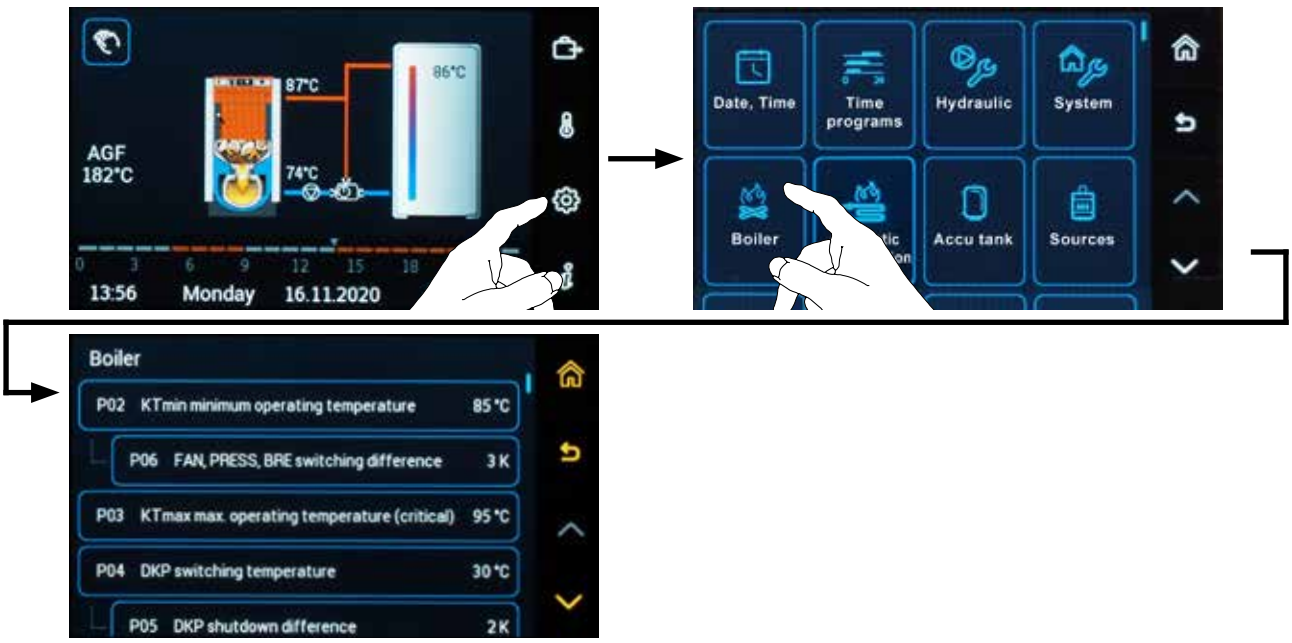
Use the **Go** button to **exit the screen** (return to the main screen).

Boiler

(Access level - User - P37, P38 / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the symbol for Boiler.

The **Boiler** menu is used to set parameters related to the boiler (main source).



Parameters:

• P02[Boiler] parameter - KTmin minimum boiler operating temperature

The parameter is used to set the minimum operating temperature of the boiler measured by the WF sensor. However, the actual boiler temperature may be higher, depending on the highest demand of the heating system.

Factory default setting: 85 °C

Recommended setting:

Boilers without accumulation tank 80 °C
Boilers with accumulation tank 90 °C

INFO - When the required (calculated) temperature is exceeded, the boiler (fan / burner) controlled by the controller is switched off, when the boiler water temperature drops by the difference given by ⚙→ P06[Boiler] parameter, the boiler (fan / burner) is switched on again. Applies to type 2 to 7 heat sources.

CAUTION - Always place the WF sensor in a sump located on the boiler.

• P03[Boiler] parameter - KTmax maximum boiler operating temperature

The parameter is used to set the maximum operating temperature of the boiler measured by the WF sensor.
If the maximum operating temperature of the boiler is exceeded, the protection of the boiler against overheating is activated (⚙→ P16[Boiler] parameter Enforced boiler losses - On).

When connected **without the accumulation** tank, the boiler is cooled by conducting excess energy into the heating circuits and the DHW tank.
When connected **with the accumulation** tank, the energy is conducted into the accumulation tank until the Maximum operating temperature of the accumulation tank PFmax, defined by ⚙→ P02[Accumulation tank] parameter, is reached. After exceeding the PFmax temperature of the boiler, excess energy is conducted to the heating circuits and the DHW tank.

Factory default setting: 95 °C

Recommended setting:

Boilers without accumulation tank - 95 °C
Boilers with accumulation tank - 95 °C

INFO - When heating to a higher temperature is required, it is necessary to think about the setting of the boiler safety thermostat and the opening temperature of the cooling loop valve.

• P04[Boiler]-parameter - DKP switching temperature of boiler pump

The parameter is used to set the temperature at which the DKP pump in the boiler circuit is switched on.

Factory setting in hydraulic diagrams **with accumulation tank: 30 °C**
Factory setting in hydraulic diagrams **without accumulation tank: 70 °C**

CAUTION - The condition of correct operation of the boiler circuit is the connection of the boiler with the boiler protection device against lowtemperature corrosion (Laddomat, thermoregulation valve, controlled return (RLA)).

INFO - When connecting the boiler with RLA controlled return, the DKP switching temperature of the boiler pump should not be higher than the set temperature of the return water to the boiler in ⚙→ P11[Heating circuit] parameter.

• P05[Boiler] parameter - DKP shutdown difference

The parameter is used to set the DKP shutdown difference of the pump in the boiler circuit.

Factory default setting: 2 K

• P06[Boiler] parameter - FAN, PRESS, BRE switching difference

The parameter is used to set the switching difference of the exhaust (pressure) boiler fan and pellet burner.

Factory default setting: 3 K

INFO - Boiler (fan / burner) operation therefore takes place in the temperature range - calculated required temperature minus switching difference ⚙→🔥 P06[Boiler] (on) parameter to calculated required boiler temperature ⚙→🔥 P02[Boiler] (off) parameter.

• P07[Boiler] parameter - Max. flue gas temperature FAN, PRESS

The parameter allows you to set the maximum recommended flue gas temperature with respect to the guaranteed boiler efficiency. If the actual flue gas temperature is higher than the set value for more than 60 minutes, a logical Alarm is started to alert the user to the need to clean the boiler exchanger.

Factory default setting: Off

INFO - Logical Alarm (message) does not affect any function of the ACD03/04 controller, it only serves for information purposes. The alarm automatically stops when the flue gas temperature decreases.

• P08[Boiler] parameter- FAN fire up time

The parameter is used for boilers with manual stoking (with fan) to set the maximum time required for firing up after starting the boiler, which is started by clicking on the ✋ **button (hand).**

If the AGFmin minimum flue gas temperature defined by ⚙→🔥 P18[Boiler] parameter is not reached after the fire up time defined by ⚙→🔥 P08[Boiler] parameter has elapsed, the boiler (fan) is switched off.
If the AGFmin minimum working temperature of the flue gas defined by ⚙→🔥 P18[Boiler] parameter is reached, the controller is switched to normal operation.

Factory default setting: 60 min

INFO - If removing ash or cleaning the boiler in a cold state, the fan will be switched off after the set time. If the fan is required to be switched off earlier, click again on the ✋ **button (hand).**

• P09^{Boiler} parameter - FAN, PRESS ventilation time

The parameter is intended for setting the ventilation time, i.e. the time required to start the boiler exhaust fan (FAN) (switching off the pressure fan - PRESS) when stoking fuel, removing ash or cleaning the boiler.

To start the ventilation time, if the fan (FAN) is off, (PRESS) is on, click on the **button (hand).**

Factory default setting: 3,0 min

INFO - After the set time, the controller returns to its original status.

• P10^{Boiler} parameter - Maximum flue gas temperature for FAN

The parameter is intended for boilers with manual stoking to set the maximum flue gas temperature, as protection of the flue gas sensor, or some parts of the boiler against damage.

Factory default setting: 400 °C

INFO - When the maximum flue gas temperature is exceeded, the FAN (PRESS) output is switched off.

• Parameter P11^{Boiler}– Flue gas temperature for SEKGS servo flap

The parameter is intended for setting the flue gas limit temperature, at which selected models of boilers (equipped with air flap with actuator DCxxGSE, DCxxGSP) will be controlled to close the inlet of combustion air to the boiler.

Factory default setting: 180 °C

INFO - This is a function to preserve high boiler efficiency in different modes of operation.

CAUTION - For **DCxxGSE** boiler models, the output is **switched on** when the flue gas temperature is exceeded.
- For **DCxxGSP** boiler models, the output is **shut down** when the flue gas temperature is exceeded.

• P12[Boiler] parameter - Servo flap SEKGS shutdown difference

The parameter is intended for setting the shutdown difference of the servo flap function, i.e. for the shutdown difference of the combustion air supply limitation for equipped boilers (DCxxGSE, DCxxGSP) defined by ⚙→🔥 P11[Boiler] parameter.

When the flue gas temperature drops by the shutdown difference, the SEKGS servo flap opens completely again.

Factory default setting: 10 K

• P13[Boiler] parameter - Recommended flue gas temperature for BRE

The parameter allows you to set the flue gas limit temperature for automatic boilers with burner (for pellets). If the flue gas limit temperature is exceeded for more than 1 hour, a logical alarm is issued to alert the operator to the need to clean the boiler exchanger or change the boiler burner setting. The boiler remains in operation.

Factory default setting: Off

INFO - Logical Alarm (message) does not affect any function of the ACD03/04 controller, it only serves for information purposes. The alarm automatically stops when the flue gas temperature decreases.

• P14[Boiler] parameter - Enabling of heating circuits

The parameter is intended for setting the temperature at which the operation (start-up) of the circuits (MK1, MK2, MK3, (MK4), DHW) is enabled, when the boiler is connected without the accumulation tank.

Factory default setting: 75 °C

CAUTION - The temperature defined by ⚙→🔥 P14[Boiler] parameter must always be set to a higher value than the switching temperature of the DKP pump in the boiler circuit defined by ⚙→🔥 P04[Boiler] parameter.

• P15[Boiler] parameter - Shutdown difference of enabling

The parameter is intended to set the circuit shutdown difference (MK1, MK2, MK3, (MK4), DHW) when connecting the boiler without the accumulation tank (shutdown difference for P14[Boiler] parameter).

Factory default setting: 2 K

INFO - When the WF boiler temperature (⚙→🔥 P14[Boiler] parameter) drops by the defined shutdown difference, the operation of the circuits is prohibited.

• P16[Boiler] parameter - Enforced boiler losses

The parameter is used to enable the **boiler protection function against overheating** when exceeding the KTmax maximum (critical) boiler temperature defined by ⚙→🔥 P03[Boiler] parameter.

Factory default setting: On

INFO - If the boiler temperature KTmax is exceeded, excess energy is conducted into the heating circuits, the accumulation tank and the DHW tank (limits: heating circuit ⚙→▥ P13[Heating circuit] parameter, ⚙→🌡 P02[Accumulation tank] parameter, DHW ⚙→🚿 P06[DHW] parameter).

• P17[Boiler] parameter - DKP control

The parameter is intended to set the method of control of the DKP pump in the boiler circuit. Switching the DKP pump on and off according to selected sensors (WF / AGF temperatures) and functions (BRE).

Factory default setting:

- for boiler with manual stoking and combined boilers (DCxxSP, DCxxGSP): 2 - according to WF and AGF

- for automatic pellet boiler: 1 - according to WF

- for not controlled boiler: 1 - according to WF

Setting options:

1 – according to WF - control (switching) of the pump in the boiler circuit according to the WF boiler temperature. Defined by ⚙→🔥 P04[Boiler] parameter.

2 – according to WF and AGF flue gas temperature - control (switching) of the pump in the boiler circuit according to the WF boiler temperature and AGF flue gas temperature.
The pump in the boiler circuit is switched on when the boiler temperature is reached. By ⚙→🔥 P04[Boiler] parameter and minimum flue gas temperature ⚙→🔥 P18[Boiler] parameter.

INFO - Control according to WF and AGF is recommended for all boilers with manual stoking and wood and pellets combined boilers (DCxxSP(X), DCxxGSP).

3 – according to WF and BRE - control (switching) of the pump in the boiler circuit according to the WF boiler temperature and control "burner L2 phase" - BRE output.
The pump in the boiler circuit is switched on when the boiler temperature is reached. ⚙→🔥 P04[Boiler] parameter and switched control "burner L2 phase" - BRE output. After switching off the "burner L2 phase" - BRE output, the DKP pump is switched off with a delay, e.g. 10 minutes (⚙→🔥 P19[Boiler] parameter).

INFO - Control according to WF and BRE is recommended for all pellet boilers.

• P18[Boiler] parameter - AGFmin minimal flue gas temperature

The parameter is used to set the minimum flue gas temperature AGFmin, which value defines the transition **from firing up to normal operation and from operation to burnout** for boilers with manual stoking and combined wood and pellet boilers (DCxxSP(X), DCxxGSP).

If the required minimum flue gas temperature is not reached during the firing up as defined by ⚙→🔥 P08[Boiler] parameter, the boiler is switched off (decommissioned). If the flue gas temperature drops below the set value (fuel burnout) during operation, the boiler is switched off (decommissioned).

Factory default setting: 80 °C

INFO - Based on this parameter (meeting the condition), the operation of the boiler fan (FAN, PRESS) and the DKP boiler circuit pump (⚙→🔥 P17[Boiler] parameter = 2) is controlled.

• P19[Boiler] parameter - DKP rundown after BRE burnout

The parameter is intended to set the pump rundown time in the DKP boiler circuit for automatic boilers with BRE burner when set by ⚙→🔥 P17[Boiler] parameter = **3 - according to WF and BRE**. This is a variant of the pump control in the DKP boiler circuit depending on the WF water temperature and the logic of the burner.

Factory default setting: 10 min

INFO - The setting is mainly used for devices (boilers) that have a large inertia to prevent them from overheating (opening the safety thermostat).

• P20[Boiler] parameter - Boiler protection according to DKP

The parameter serves as a safety device against unintentional operation of the heating circuits and the DHW heating circuit when connected **without the accumulation tank**.

Setting options:

On – all heated circuits (pumps) are not in operation, if the DKP pump in the boiler circuit is not in operation.
Connection without the accumulation tank or with the buffer (small) tank.

Off – all heated circuits (pumps) are operated regardless of the pump operation in the DKP boiler circuit.
Connection with accumulation tank.

Factory default setting: according to hydraulic diagram

INFO - Functions (logics) associated with ⚙→🔥 P20[Boiler] parameter work the same even if the DKP pump in the boiler circuit is not defined.

• P21[Boiler] parameter - FAN operation with BRE for combined boiler

The parameter is intended for setting the operation of the boiler exhaust fan for combined boilers together with the BRE pellet burner.

Setting options:

Off – boiler exhaust fan does not run during burner operation - e.g. factory default settings for ATMOS boilers of **DCxxSP(X), DCxxSP(X)L, DCxxGSP or DCxxGSPL** series

1 - BRE – fan run copies BRE output run.

2 - BRE + time – same function as (1 - BRE), but the boiler fan switches off with a delay according to ⚙→🔥 P24[Boiler] parameter. Factory default settings for **boiler with modification for burner** DCxxS(X), CxxS(T), ACxxS, KCxxS.

3 - BRE + AGF – same function as (1 - BRE), but the boiler fan switches off only after the flue gas temperature drops below AGFmin according to ⚙→🔥 P18[Boiler] parameter.

4 - AGF – the boiler fan is only in operation when the boiler is burning (flue gas temperature higher than AGFmin according to ⚙→🔥 P18[Boiler] parameter). Therefore, the function has nothing to do with the BRE output.

Factory default setting: Off

INFO - The parameter can only be set for 6 or 7 type boilers.

• P22[Boiler] parameter - Summer DHW heating by boiler

The parameter is intended to enable DHW heating during the summer by the automatic boiler.

Setting options:

On – when the DHW tank heating request is issued in the summer, the operation of the automatic boiler is enabled

Off – DHW tank heating by the automatic boiler in the summer is prohibited.

Factory default setting: Off

INFO - The parameter can only be set for 2, 6 or 7 type boilers.

CAUTION - When heating DHW with the boiler, using the DCxxSP(X) and DCxxGSP combined boilers, the mode with the BRE pellet burner must be selected on the controller display (✋ button hand).

• P23[Boiler] parameter - Switching between sources

The parameter is intended to set the method of switching the source from manual heating (stoking) to automatic heating with burner for DCxxSP(X), DCxxGSP, CxxSP boilers.

Setting options:

1 - manually – switching from manual heating (stoking) **to automatic heating** with burner is performed by holding down the button with the ✋ hand symbol **for more than 3 seconds.**

2 - automatically – switching from manual heating (stocking) **to automatic heating** with burner **always occurs automatically** after wood burns out, when the flue gas temperature drops below the AGFmin minimum flue gas temperature defined by ⚙→🔥 P18[Boiler] parameter.

Factory default setting: 1 - manually

INFO - Operation of the burner (immediate start) depends on the requirement of the heating system.

• P24[Boiler] parameter - Delayed FAN shutdown

The parameter is used to set the delay of the shutdown (rundown) of the FAN boiler exhaust fan after switching off the BRE burner.
The rundown time of the boiler fan is set at least as long as the time set in the relevant BRE burner (A25, A45, A85) - T5 parameter

Factory default setting: 20 min

INFO - P24[Boiler] parameter is displayed only when the relevant function is activated ⚙→🔥 P21[Boiler] parameter = 2 - **BRE + time**.

• P25[Boiler] parameter - Display AGF

This parameter allows you to switch **On or Off** the display of the AGF flue-gas duct sensor temperature (flue gas) on the main screen.

Factory default setting: On

INFO - For boilers with manual stoking, it is not a real flue gas temperature, but information about the condition of the boiler (flue-gas duct temperature). For boilers with automatic heating (stoking) with burner (for pellets), the flue gas temperature is displayed according to the actual location of the AGF flue gas sensor on the boiler or flue-gas duct.

• P26^{Boiler} parameter - DKP operating hours zeroing

This parameter allows you to delete (reset) boiler pump operating hours counter DKP.

INFO - The operating hours counter is displayed in the Information i in the DKP boiler pump/DKP operating hours group.
The operating hours of the DKP boiler pump correspond to the actual running hours of the boiler (operating time).

• P27^{Boiler} parameter - BRE operating hours zeroing

This parameter allows you to delete (reset) burner operating hours counter BRE.

INFO - The BRE operating hours counter is displayed in the Information i in the Boiler/ BRE operating hours group.
The BRE operating hours correspond to the actual running hours of the burner.

• P37^{Boiler} parameter - Boiler name

The parameter allows you to name the boiler and change the boiler production number.

• P38^{Boiler} parameter - Burner name

The parameter allows you to name the burner and change the burner production number.

• P40^{Boiler} parameter – Antifreeze ignition

The parameter is used for nonrecurring protection of the boiler against freezing and enables the activation of the function of earlier start of automatic wood ignition.

Setting options:

On – when the boiler temperature drops below 5 °C, the planned automatic wood ignition will start earlier for boilers with automatic wood ignition.

Off – the function is switched off, the automatic ignition will take place only according to the time plan.

Factory default setting: Off

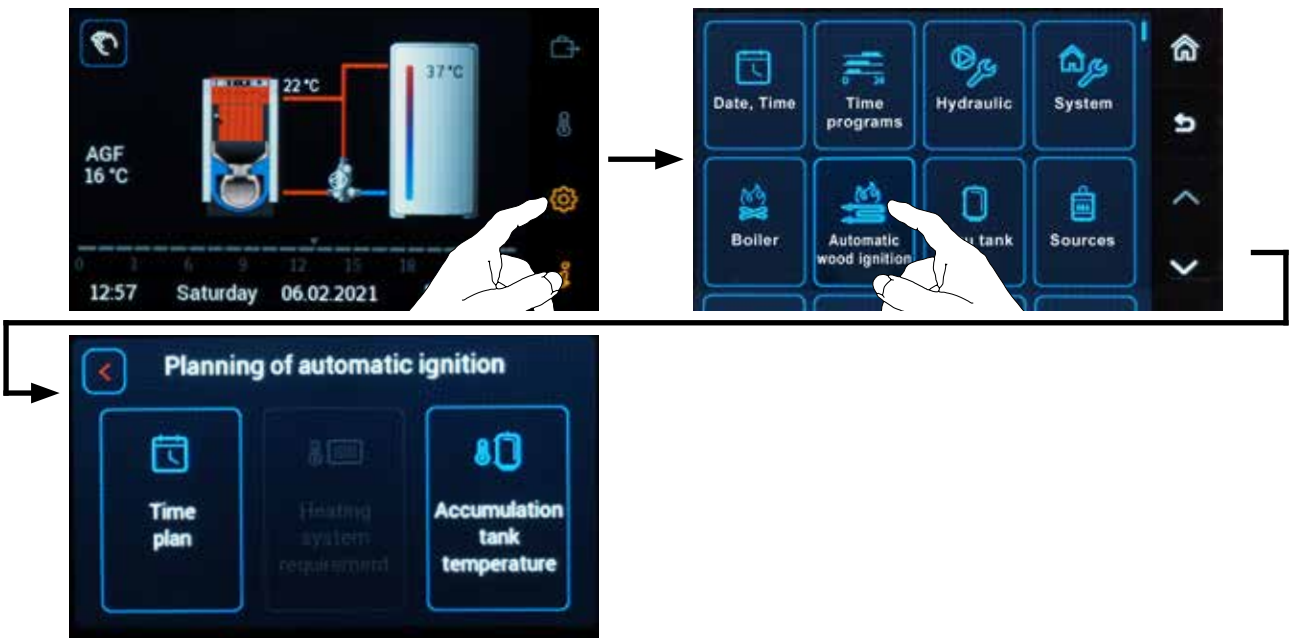
Automatic wood ignition

(Access level – User – everything / Service technician - everything)

The setting is performed with the button ⚙ (to enter the menu), under which click on the automatic wood ignition symbol.

The automatic wood ignition menu is used to set (plan) the boiler ignition. The controller allows the wood ignition to be planned according to a time schedule, accumulation tank temperature or heating system requirement.

ATTENTION – If the selected type of boiler with automatic ignition is set, the function is switched on. To set the type of the boiler, go to the menu ⚙→ Hydraulics/Hydraulic diagram overview/ Boiler type designation (e.g. DC25GD with ignition). The function can be additionally switched on in the menu ⚙→ Hydraulics/Function configuration/Boiler/AIW – Automatic wood ignition.



Access to the screen (menu) of **automatic wood ignition** planning is also possible by clicking on the hand symbol on the main screen and holding it for more than 3 seconds.

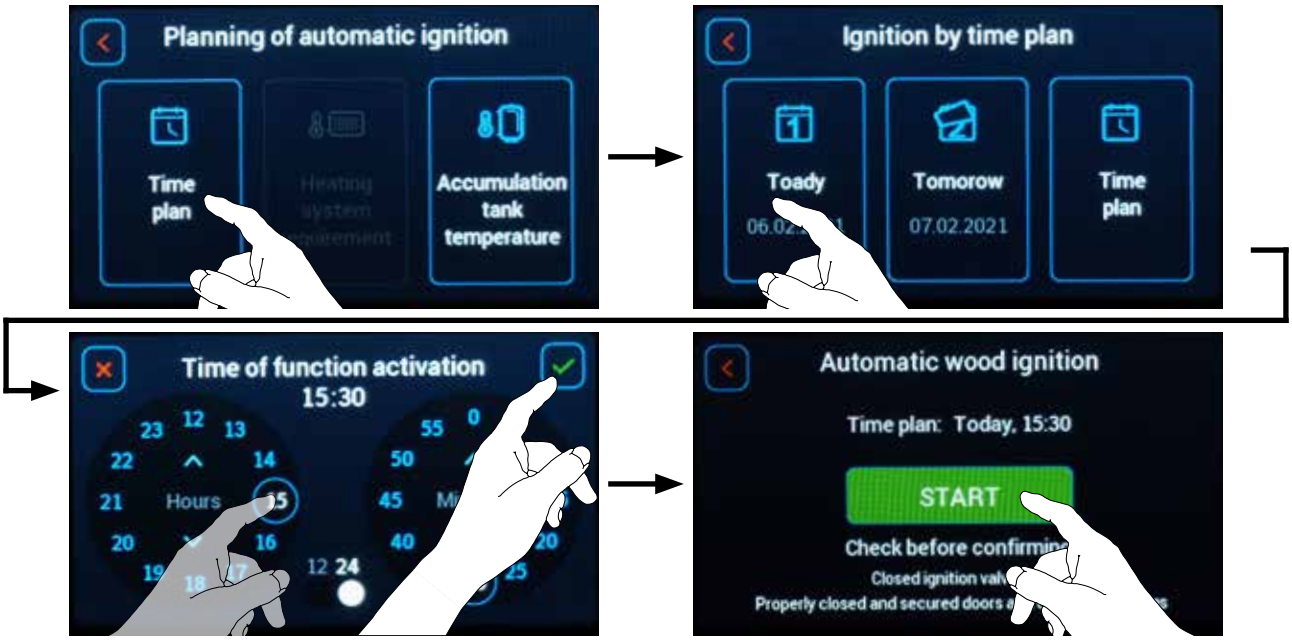
Automatic ignition planning:

- **According to the time plan**

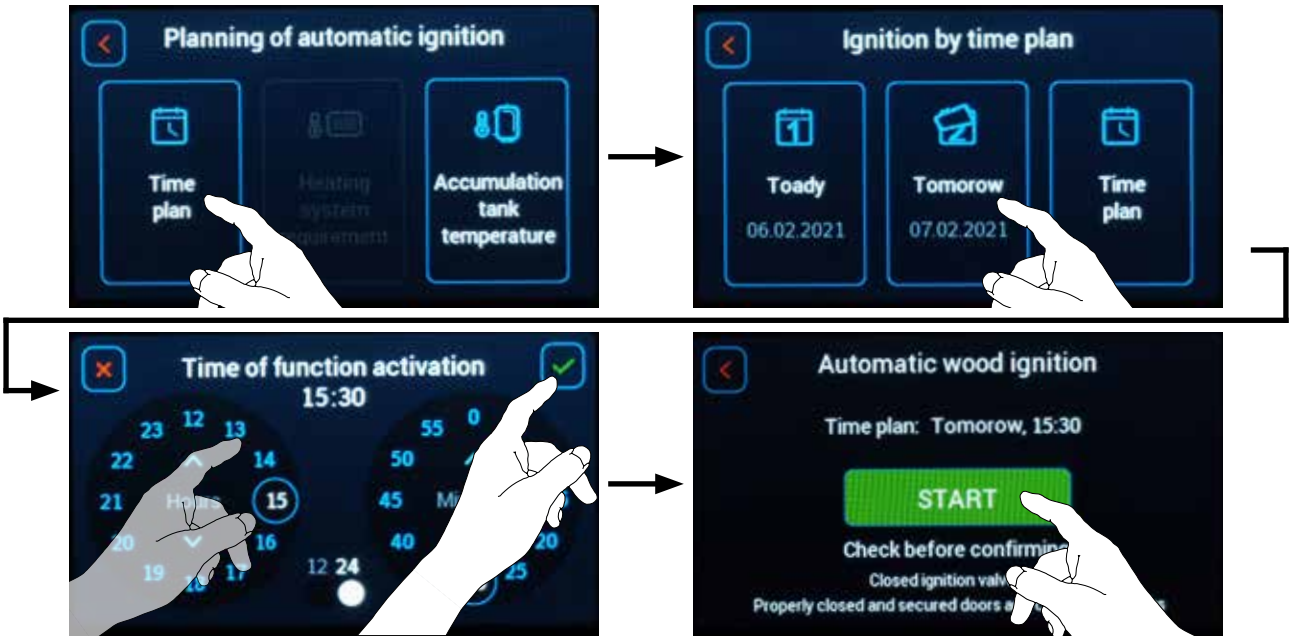
  Allows to set the date/day and time when the wood should be automatically ignited.

  Setting options:

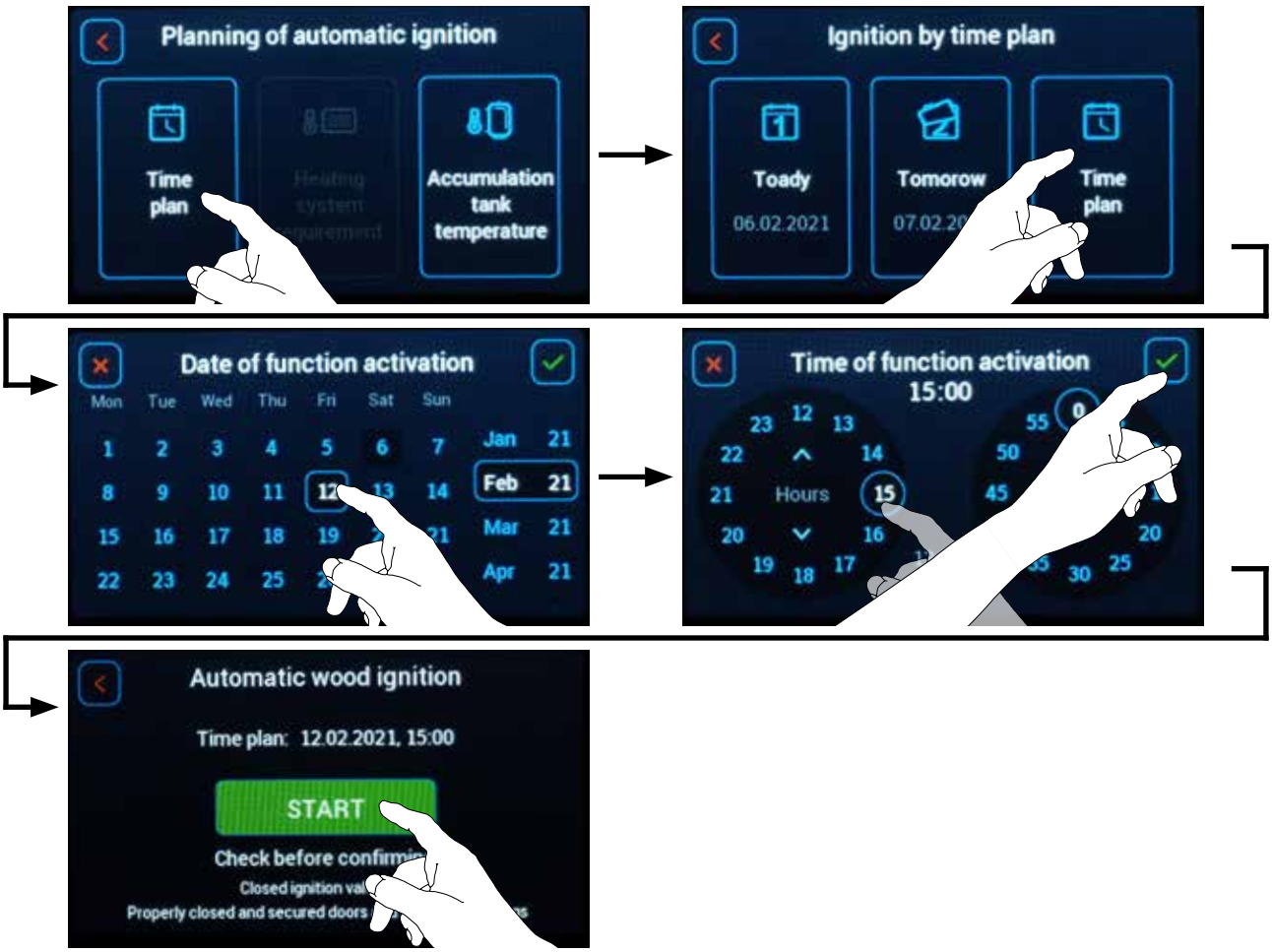
  Today – Quick setting of the ignition time on the same day when you enter the menu.



  Tomorrow – Quick setting of the ignition time on the following day.



Time schedule – Allows to set the ignition for any day in the calendar and any time.



• According to system requirements

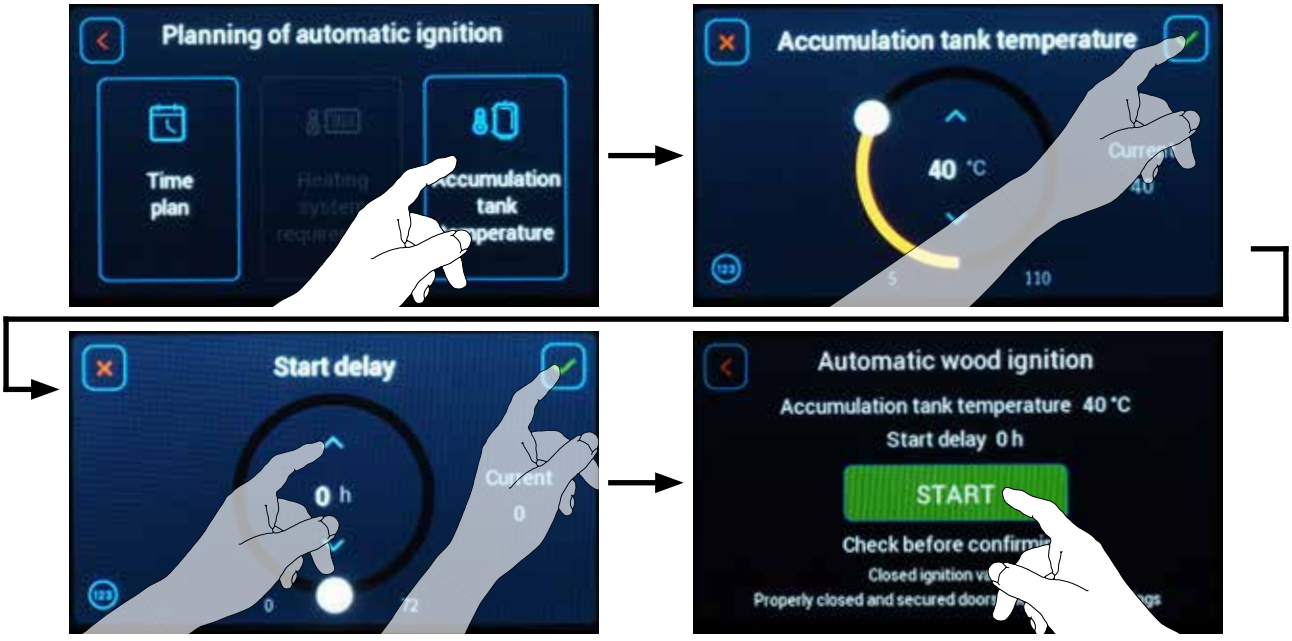
Allows to set automatic ignition according to the requirement of the heating system (heating circuits, DHW heating), for installations without accumulation tank.
Automatic ignition is started when the heating system requests heat supply.

INFO - When the boiler is installed with an accumulation tank, the item is not active (not visible).

• According to the storage temperature

Allows to set the accumulation tank temperature (PF top sensor) at which automatic ignition will occur. After setting the required temperature, it is possible to set the Ignition start delay of the fuel ignition (0–72 hours).

The automatic ignition is started when the accumulation tank is discharged below the set temperature (and the time delay has elapsed).



INFO - When the boiler is installed without an accumulation tank, the item is not active (not visible).

After setting (planning), switch on the automatic wood ignition function **by pressing the green START button.**

CAUTION – Before confirming, check the retracted (closed) ignition valve and the properly closed and secured door (locking screw) and cleaning apertures.

If the function is activated properly, the automatic wood ignition icon is displayed on the main screen next to the flashing hand button.

When the automatic ignition of wood is started, the boiler exhaust fan and the ignition spiral are turned on. Everything is indicated by the flashing of the automatic ignition symbol next to the hand symbol button.

If needed, you can perform a nonrecurring protection of the heating system **against freezing**.
Set →**Parameter P40^{Boiler} = ON.** The planned automatic **start will be rescheduled** (earlier than the planned date and time is) if there is a risk of **freezing of the boiler** (boiler temperature drops below 5 C°).

The planned start can be easily **cancelled**. Press and hold the button with the hand symbol for more than 3 seconds or enter the **automatic wood ignition menu** via the →button.
To cancel the automatic wood ignition, press the red **Yes/STOP** button.

The operation information about the automatic wood ignition can be found in the **i** Information menu.

Automatic wood ignition

Time plan – date	(e.g. tomorrow)
Time plan – time	(e.g. 4 p.m.)
AIW output	(e.g. OFF)

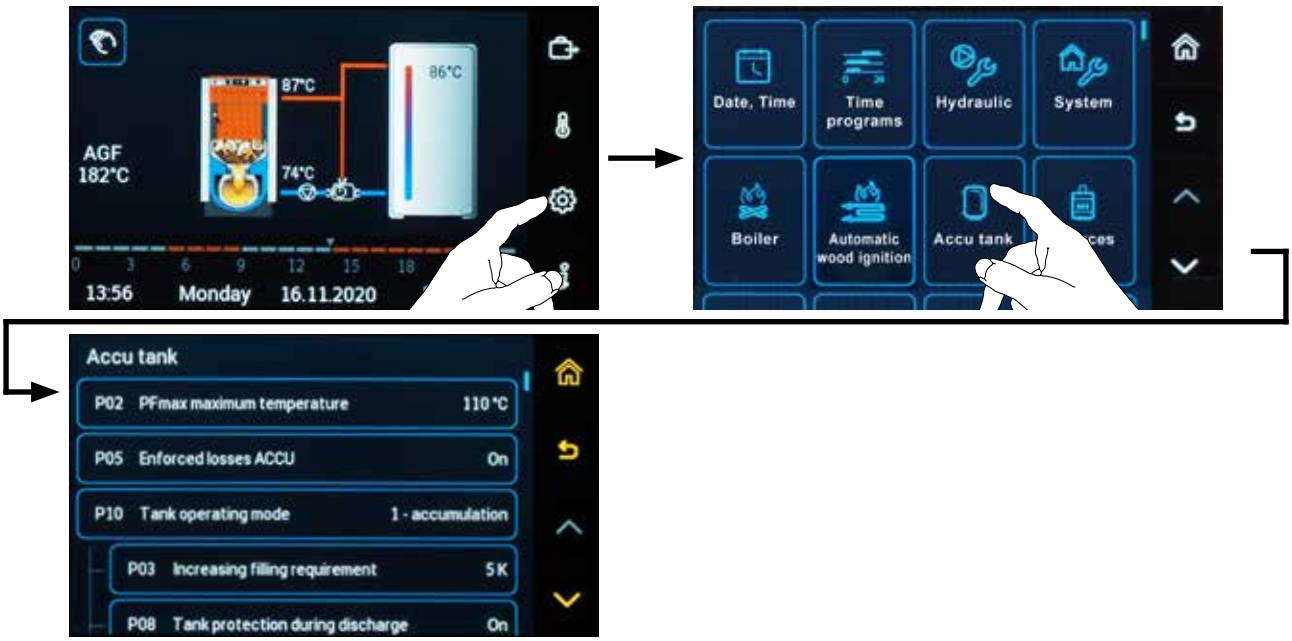
INFO – If the ignition failed (flue gas temperature did not exceed 80 °C ⚙→🔥 Parameter P18[Boiler]), the boiler will be shut down after the ignition time has elapsed (60 min - ⚙→🔥 Parameter P08[Boiler]). Information about a failed ignition is displayed in **i**Information – Wood ignition failed!

Accumulation tank

(Access level - User - nothing / Service technician - everything)

The setting is performed with the button ⚙ (to enter the menu), under which click on the 🗑 symbol for **Accumulation tank**.

Accumulation tank menu is used to set the parameters associated with the operation and possible use of the accumulation (buffer) tank.



Parameters:

• P01 Accumulation tank parameter - PFmin minimum temperature

The parameter is intended to set the temperature of the accumulation tank measured by the PF sensor, at which the heating circuits and the DHW heating circuit are disabled (switched off) when all useful energy is depleted.

CAUTION - The function is active if ⚙→🗑 **P10 Accumulation tank parameter = 1** - accumulation and the protection of the accumulation tank, when discharging ⚙→🗑 **P08 Accumulation tank parameter = On, is On.**
Circuit operation is re-enabled (switched on), when the temperature in the accumulation tank rises by the value defined in ⚙→🗑 **P04 Accumulation tank parameter**.

INFO - This is to protect the accumulation tank against complete discharge (cooling).

Factory default setting: 40 °C

• P02[Accumulation tank] parameter - PFmax maximum temperature

The parameter is intended to set the maximum temperature (requirement) / critical temperature of the accumulation tank measured by the PF sensor.

When the temperature PFmax is exceeded, the parameter P05 switched on (⚙→ P05[Accumulation tank] parameter / Enforced losses = **On**), excess energy is transferred from the tank to the heating circuits and the DHW heating circuit

Factory default setting: 110 °C

• P03[Accumulation tank] parameter - Increasing filling requirement

The parameter is intended to set the temperature increase in the accumulation tank by a defined value above the calculated requirement of the heating circuits and the DHW circuit.

Factory default setting: 5 K

INFO - This is to create an increase in requirement (temperature) for the heat source (boiler).

• P04[Accumulation tank] parameter - PFmin switching difference

The parameter is intended to set the switching difference for starting the heating circuits and the DHW heating circuit.

Factory default setting: 2 K

INFO - When the temperature in the accumulation tank measured by the PF sensor rises above the PFmin temperature (⚙→ P01[Accumulation tank] parameter) by the set switching difference, the heating circuits and the DHW heating circuit are switched on (started).

• P05[Accumulation tank] parameter - Enforced losses

The parameter is intended to switch **On** the accumulation tank protection function against overheating (against high temperature).

Setting options:

On – at the temperature of the accumulation tank measured by the PF sensor higher than PFmax (⚙→ P02[Accumulation tank] parameter), the excess energy is transferred into the heating circuits and the DHW heating circuit, the heating circuits by operation to the maximum temperature (see ⚙→ P13[Heating circuit] parameter) and by charging the DHW to the max. temperature (see ⚙→ P06[DHW] parameter).

Off – the function is switched off (regardless of the temperature in the accumulation tank)

Factory default setting: On

• P08[Accumulation tank] parameter - Tank protection during discharge

The parameter is intended to turn on the protection of the accumulation tank before complete discharge (cooling) to a temperature lower than the PFmin temperature (⚙→ P01[Accumulation tank] parameter).

Setting options:

On – function is on

Off – the function is off (circuits will be in operation regardless of the temperature in the accumulation tank)

Factory default setting: Zap

• P09[Accumulation tank] parameter - Tank protection during charging

The parameter is intended to switch on the protection of the accumulation tank against accidental cooling through the boiler (protection against filling with colder water) by the pump in the DKP boiler circuit.

Setting options:

On – function is on - the pump in the DKP boiler circuit is in operation (enabled) only if the temperature of the WF boiler is **higher** by difference (⚙→ P16[Accumulation tank] parameter) than the PF temperature in the accumulation tank.
At the same time, the pump in the DKP boiler circuit is off (prohibited), if the temperature of the WF boiler is **lower** by difference (⚙→ P15[Accumulation tank] parameter) than the PF temperature in the accumulation tank.

Off – function is off

Factory default setting: On

• P10[Accumulation tank] parameter - Tank operating mode

The parameter is intended to distinguish the function of the accumulation tank with respect to its (volume):

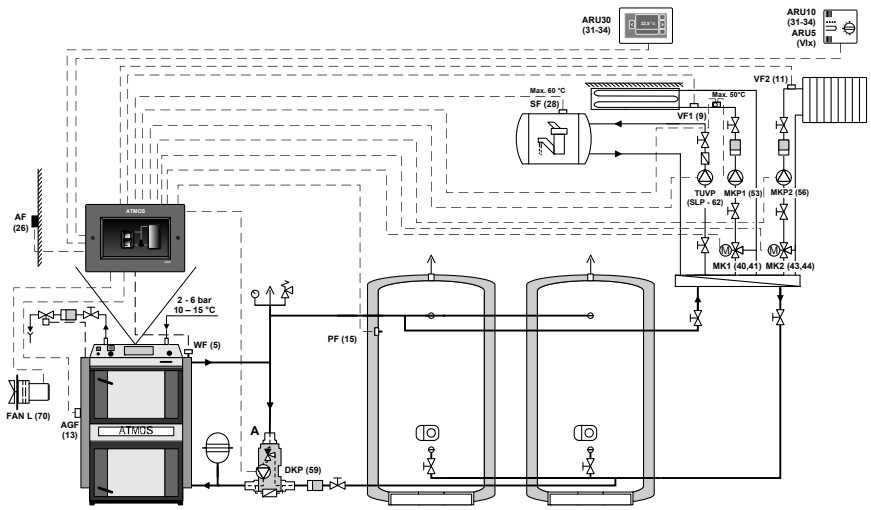
Large tank (min. 55 L / for installed kW of boiler) = **accumulation tank**

Small tank (500 - 1,000 L, e.g. 25 L / for installed kW of boiler) = **buffer tank**

Factory default setting: according to selected hydraulic diagram

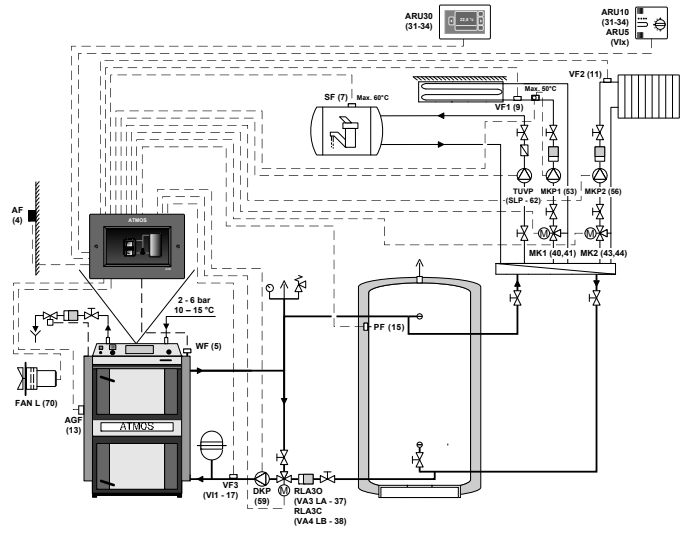
Setting options:

1 - accumulation - all circuits are controlled (switched on) according to the PF temperature of the accumulation tank.
The accumulation tank is charged (heated) by the heat source (boiler).



2 - buffer - all circuits are controlled (switched on) according to the **PFmin** temperature of the buffer tank (⚙→ P01$^{\text{Accumulation tank}}$ parameter) **or WF** boiler temperature (⚙→ P14$^{\text{Boiler}}$ parameter), whichever condition is met the first. The tank is used to balance the boiler power.

CAUTION - ⚙→ P20$^{\text{Boiler}}$ parameter = Off (fixed)
⚙→ P08$^{\text{Accumulation tank}}$ parameter = Off (fixed)



• P14[Accumulation tank] parameter - Minimal tank requirement value

The parameter is used to set the minimum temperature on the tank, which the boiler must reach in order to turn off the BRE burner (for pellets) or the electric coil in the EHP tank (electric heating). When using one PF sensor or when using two PF (upper) and FPF (lower) sensors, the required temperature must be reached on all sensors in the tank after switching on the heat source (boiler).

Factory default setting: 70 °C

• P15[Accumulation tank] parameter - Shutdown difference of the DKP protection during charging

The parameter is used to set the shutdown difference of the pump in the DKP boiler circuit, when connected with the accumulation tank (⚙→ P10[Accumulation tank] parameter = **1 - accumulation**). The DKP pump is switched off if the WF boiler temperature is lower by the shutdown difference than the temperature in the PF accumulation tank (WF<PF+difference).

Factory default setting: -3 K

• P16[Accumulation tank] parameter - Switching difference of the DKP protection during charging

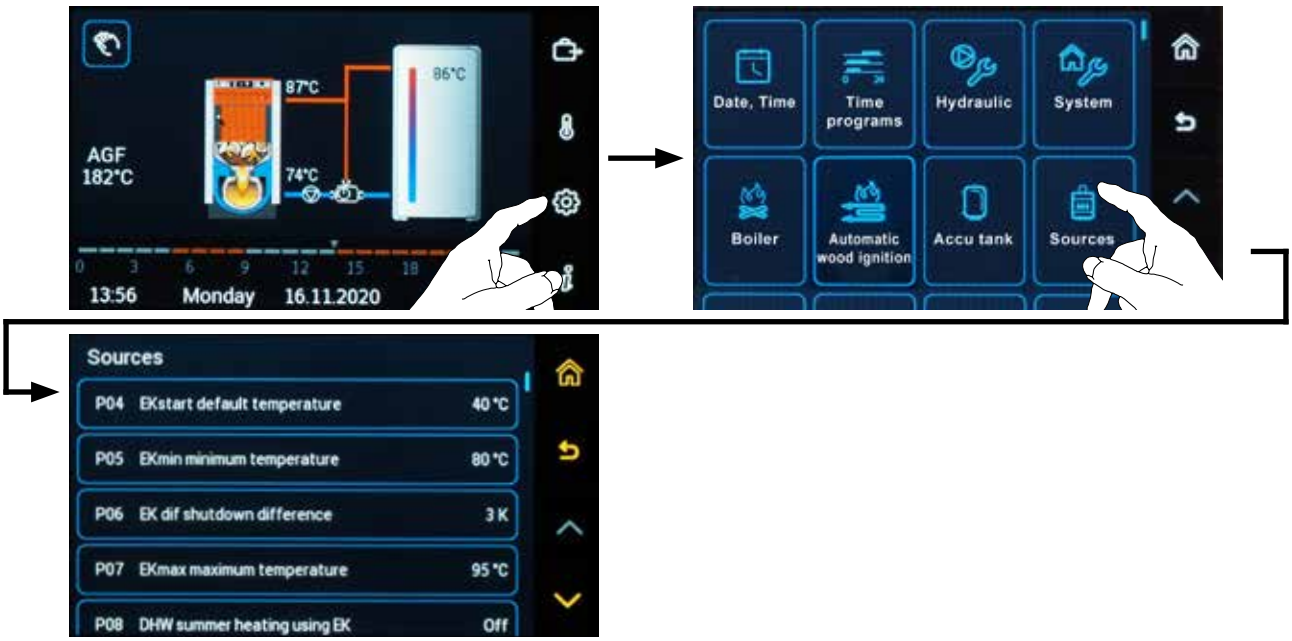
The parameter is used to set the switching difference of the pump in the DKP boiler circuit when connected with the accumulation tank (⚙→ P10[Accumulation tank] parameter = **1 - accumulation**). Switching on (starting) the DKP pump occurs if the temperature of the WF boiler is higher by the switching difference than the temperature in the PF accumulation tank (WF≥PF+difference).

Sources

(Access level - User - P37 / Service technician - everything)

The setting is done with the button ⚙ (to enter the menu), under which click on the symbol for Sources.

Use the **Sources** menu to set parameters associated with secondary power sources. It is displayed after activating the external boiler function in the ⚙→🔧→ Hydraulics menu, Function configuration/ Sources/EKx - external boiler submenu, or activating the electric heating of the accumulation tank in the ⚙→🔧→ Hydraulics menu, Accumulation tank/EHP - electric heating of accumulation tank submenu.



Parameters:

• P04[Sources] parameter - EKstart default temperature

The parameter is intended to set the switching temperature of the EKP external boiler pump and the temperature to enable the operation of heating circuits and DHW heating circuit.

Factory default setting: 40 °C

INFO - P04[Sources], P05[Sources], P06[Sources], P07[Sources], P08[Sources] a P16[Sources] parameters are visible only after the activation of the EKx external boiler function.

• P05^{Sources} parameter - EKmin minimum temperature

The parameter is intended to set the minimum operating temperature of the external boiler (EK switching temperature). However, the actual EK temperature corresponds to the requirements of the heating circuits and the DHW heating circuit.

Factory default setting: 80 °C

INFO - P04^{Sources}, P05^{Sources}, P06^{Sources}, P07^{Sources}, P08^{Sources} a P16^{Sources} parameters are visible only after the activation of the EKx external boiler function.

• P06^{Sources} parameter - EKdif shutdown difference

The parameter is intended to set the shutdown difference of the external EK boiler (EK shutdown = EKmin (required EK temperature) + EKdif). The actual EK temperature corresponds to the requirements of the heating circuits and the DHW heating circuit.

Factory default setting: 3 K

INFO - P04^{Sources}, P05^{Sources}, P06^{Sources}, P07^{Sources}, P08^{Sources} a P16^{Sources} parameters are visible only after the activation of the EKx external boiler function.

• P07^{Sources} parameter - EKmax maximum temperature

The parameter is intended to set the maximum operating temperature of the EK external boiler. At the same time, it is the temperature, at which the function given by ⚙→ P16^{Sources} parameter - Enforced losses EK is activated.

Factory default setting: 95 °C

INFO - P04^{Sources}, P05^{Sources}, P06^{Sources}, P07^{Sources}, P08^{Sources} a P16^{Sources} parameters are visible only after the activation of the EKx external boiler function.

• P08^{Sources} parameter - DHW summer heating using EK

The parameter is used to switch on (enable) the DHW tank heating in summer mode by the EK external boiler.

Factory default setting: Off

INFO - P04^{Sources}, P05^{Sources}, P06^{Sources}, P07^{Sources}, P08^{Sources} a P16^{Sources} parameters are visible only after the activation of the EKx external boiler function.

• P09[Sources] parameter- EHP comfort operation

The parameter is intended to set up the method of heating circuits operation when using EHP accumulation tank electric heating.

Factory default setting: On

Setting options:

On - EHP electric heating (electric coil) of the accumulation tank is a fully operational source of energy like any boiler.
The circuits operate according to the requirements of each circuit

Off - EHP electric heating (electric coil) of the accumulation tank serves permanently only as anti-freeze protection defined by ⚙→ P08[Heating circuit] parameter and ⚙→ P14[Accumulation tank] parameter. The circuits only work in ☾ **Setback** mode.

INFO - P09[Sources], P10[Source] and P11[Source] parameters are visible only after activation of the function of the electrical heating of the EHP accumulation tank.

• P10[Sources] parameter - DHW summer heating using EHP

The parameter is intended to set the method of operation of the EHP accumulation tank during the summer heating of DHW.

Factory default setting: Off

Setting options:

On - in case of a requirement for DHW heating in the summer, the EHP electric heating (electric coil) in the accumulation tank **will be** switched on.

Off - in case of a requirement for DHW heating in the summer, the EHP electric heating (electric coil) in the accumulation tank **will not be** switched on.

INFO - P09[Sources], P10[Source] and P11[Source] parameters are visible only after activation of the function of the electrical heating of the EHP accumulation tank.

• P11[Sources] parameter - EHP delayed start

The parameter is intended to postpone the switching on of the electric heating of the accumulation tank for the defined time, if there is a requirement of the heating circuits or the DHW heating circuit (for example, the required time for firing up the boiler).

Factory default setting: 60 min

INFO - P09[Sources], P10[Sources] and P11[Sources] parameters are visible only after activation of the function of the electrical heating of the EHP accumulation tank (⚙→ Hydraulics/Function configuration/Accumulation tank).

• P16[Sources] parameter - Enforced losses EK

The parameter is intended to switch on the protection function of the EK external boiler against high temperature, which could cause its damage. The EK limit temperature is defined by ⚙→ P07[Sources] parameter. Excess energy is transferred to the heating circuits with respect to the maximum allowed temperatures defined by ⚙→ Pl3[Heating circuit] parameter

Factory default setting: On

INFO - The function makes no difference when the EK external boiler is connected to the heating circuit.

• P37[Source] parameter - Source name

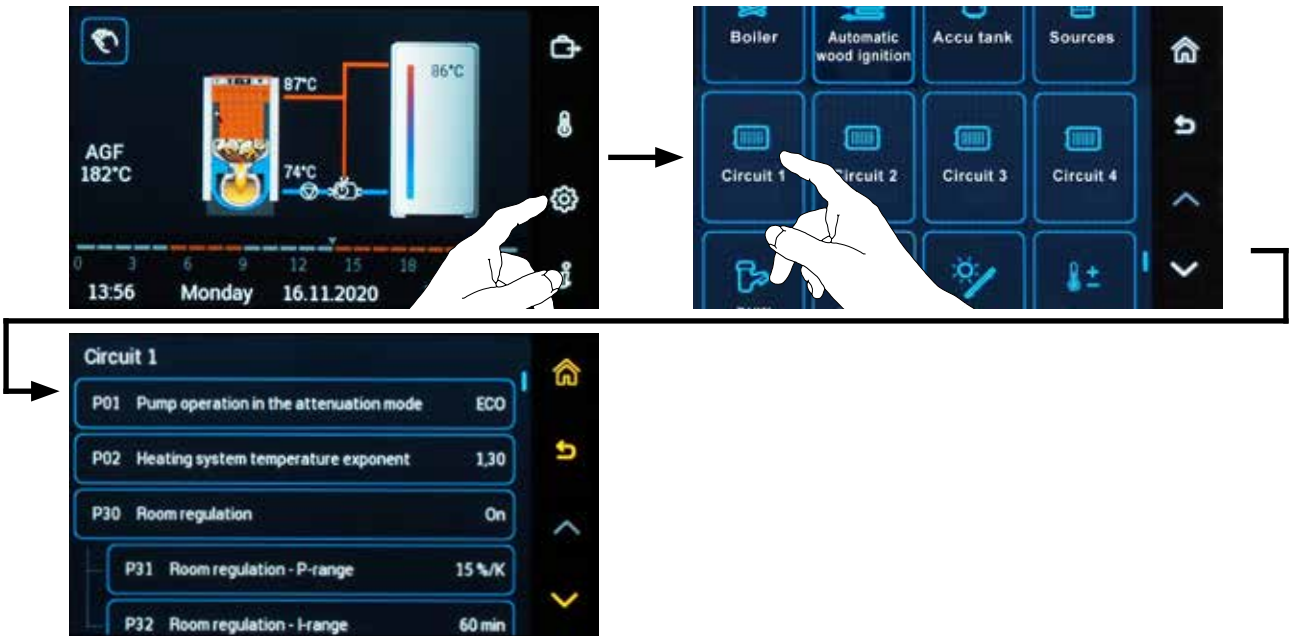
The parameter allows the EK external boiler (source) to be named.

Heating circuit 1 / 2 / 3 / (4)

(Access level - User - P01, P02, P25, P26, P37 / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the ▦ symbol for Circuit.

The **Heating circuit** menu is used to set the parameters of each active heating circuit (direct, unmixed, mixed back into the boiler).



Parameters:

• P01$^{\text{Heating circuit}}$ parameter - Pump operation in the setback modeu

The parameter is intended to set the type of operation of the pump of the selected heating circuit during setback mode (heating to ☾ **Setback** (attenuation) temperature).

ECO - economical operation of the pump - the pump of the selected circuit is always in operation, if the required room temperature has not been reached. When it is reached, the pump is switched off. The pump will be switched on again when the room temperature drops by 0.5 K.
In applications without a room sensor (room unit), the pump runs according to the anti-freeze protection mode, see ⚙→ System menu, P05$^{\text{System}}$ parameter (P25$^{\text{System}}$ and P26$^{\text{System}}$ parameters).

OFF – the pump is completely switched off during setback mod

ON – pump runs permanently

• P02 Heating circuit parameter - Equithermal curve (Heating system temperature exponent)

The parameter allows the equithermal curve (temperature exponent) to be set according to the type of heating system and the character of the building.
The exponent of the equithermal curve expresses the curve bending and is determined by the type of heating system (underfloor heating, radiators, convectors).

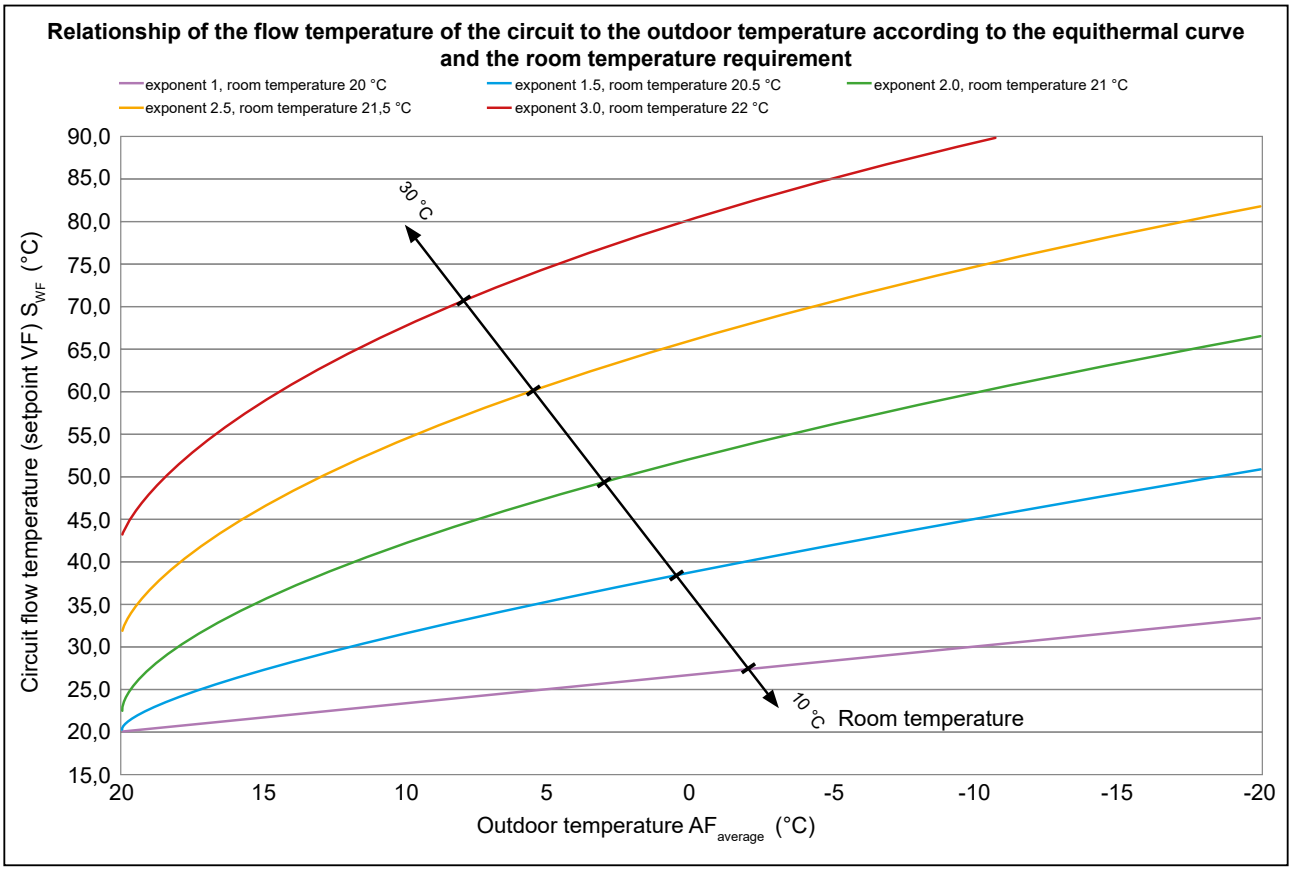
Recommended setting:

1,0 … 1,3 - **underfloor heating -** heating system with low temperatures, with high inertia and slow rise of room temperature

1,3 … 2,0 - **radiator heating -** heating system with medium temperatures and medium inertia of the system

2,0 … 3,0 - **convector heating -** with forced airflow (fan-coil saharas) - heating system with high temperatures and low inertia of the system

INFO - Correct calculation of the flow temperature to the heating circuit affects the dimensioning of the heating system and the thermal loss of the object



INFO - The requirement for a higher room temperature moves the curve diagonally upwards.

• P07[Heating circuit] parameter - Heating limit (summer shutdown)

The parameter enables automatic shutdown of the heating circuit if the required (calculated) water temperature flowing into the heating circuit approaches the room temperature, as defined by this parameter.
The function is used in applications without an outdoor sensor or as a protection against overheating of objects at low heat losses.

Factory default setting: Off

• P08[Heating circuit] parameter - Frost protection room temperature

The parameter is intended to set the required room temperature in the **Holiday** or **Standby** working mode with respect to flowers, furniture, house equipment, etc

Factory default setting: 8 °C

• P09[Heating circuit] parameter - Room thermostat function

The parameter is intended to switch off the heating circuit when the required room temperature is exceeded by the value defined by this parameter.

Factory default setting: Off

INFO - In case of active antifreeze protection (higher priority), the heating circuit will never be switched off.

• P11[Heating circuit] parameter - Constant flow temperature

The parameter allows you to set the constant water temperature of the mixed circuit for the RLA, FR and KR circuit types.

Factory default setting: 78 °C

• P12[Heating circuit] parameter - Minimum flow temperature

The parameter allows you to set the minimum temperature of the water flowing into the heating circuit using the equithermal curve control (MK type mixed circuit).
The function affects the possible overheating of rooms in Setback modes.

Factory default setting: 15 °C

• P13[Heating circuit] parameter - Maximum flow temperature

The parameter allows you to set the maximum temperature of the water flowing into the heating circuit using the equithermal curve control (MK type mixed circuit).

Factory default setting: 70 °C

Recommended setting:

underfloor heating: 30 - 40 °C

radiator heating: 70 - 80 °C

convector heating with forced airflow: 80 - 90 °C

INFO - In the case of underfloor heating, the function protects the floor (tiles) against damage.

• P14[Heating circuit] parameter - Source temperature increase

The parameter is intended to set the temperature difference, by which the energy source (boiler) must be warmer with respect to the required water temperature flowing into the heating circuit.

Factory default setting: 4 K

• P15[Heating circuit] parameter - Circuit shutdown delay

The parameter is intended to delay the shutdown of the heating circuit (after working mode change, the heating circuit shutdown, etc.).
It protects the boiler (source) due to its inertia.

Recommended setting:

0 min - Connection of a boiler with accumulation tank

15 min - Connection of a boiler without accumulation tank

Factory default setting: 0 min

• P16[Heating circuit] parameter - Critical circuit temperature

The parameter allows you to set the critical (emergency) temperature of the water flowing into the heating circuit. It protect heating circuits and their accessories against damage from high temperature.

INFO - The function is designed for mixed circuits with VF sensor.
For optimal VF temperature measurement, after exceeding the critical temperature of the heating circuit, the heating circuit pump is switched on every 5 minutes for 30 seconds.

Factory default setting: 95 °C

Recommended setting:

underfloor heating: 45 °C

radiator heating: 95 °C

convector heating with forced airflow: 95 °C

• P18[Heating circuit] parameter - P-range

The parameter is intended to set the proportional component of the controller of mixed circuits: MK, KR, FR and RLA type.
It is advisable to adjust the value in small steps, when it is necessary to keep in mind the regulated value, the used mixing valve, the used speed of the actuator, etc.

Factory default setting: MK, FR, KR circuit type – 3,0 %/K
RLA circuit type – 4,0 %/K

INFO - P-range = "Control deviation amplifier"
(small value = small regulatory steps / large value = large regulatory steps)

• P19[Heating circuit] parameter - Readout frequency

The parameter is intended for readout (frequency) of temperature and actuator stepping frequency for mixed circuits of MK, KR, FR and RLA types.

Factory default setting: 20 sek

INFO - The short readout interval will improve the accuracy of the controller, but due to frequent switching it will reduce the service life of the controller (relay) and actuator.

• P20[Heating circuit] parameter - I-range

The parameter is intended to set the integration component of the controller of mixed circuits: MK, KR, FR and RLA type.

Factory default setting: MK, FR, KR circuit type – 160 s
RLA circuit type – 240 s

INFO - I-range = integration time to achieve the required value
(very short time = controller oscillation / very long time = long time to reach the requirement)

• P21[Heating circuit] parameter - Actuator speed

The parameter characterizes the speed of the actuator (rotation time from one extreme position to another by an angle of 90°).

The parameter is displayed only for mixed circuits of MK, KR, FR and RLA type.

Factory default setting: 120 sek

CAUTION - Always enter the actual speed of the actuator according to its data plate.

• P24[Heating circuit] parameter - D-range

The parameter is intended to set the derivative component of the controller of mixed circuits of MK, KR, FR and RLA type.
Here, the smaller the value, the less it will affect the quality of the controller, too high value can cause vibrations of the controller.

Factory default setting: MK, FR, KR circuit type – 4,0 s

RLA – 15,0 circuit type s

INFO - D-range = brake of reaction to change
(time too short = slow reaction to change / time too long = sharp reaction to change)

• P25[Heating circuit] parameter - Holiday mode operation

The parameter is used to set the type of operation in ⏲ **Holiday** mode for mixed circuits of MK, DK type

Factory default setting: STBY

Setting options:

ECO – operation as in the ☾ **Setback** mode - heating to attenuation (moon ☾) temperature

STBY – operation as in the ⏻ **Standby** mode - heating to antifreeze room temperature according to ⚙→▥ P08[Heating circuit] parameter

• P26[Heating circuit] parameter - Flow temperature dynamic protection

The parameter is intended to activate a special function that ensures that the temperature of the water flowing into the mixed circuit is always lower by 4 K than the boiler (source) temperature (WF), storage tank temperature (PF) or external boiler temperature (EKF).
The function is active for mixed circuits: MK, KR, FR and RLA type.

Factory default setting: 2 - according to WF, PF, EKF

Setting options:

1 – off

2 – according to WF, PF, EKF

INFO - it is a protection against unnecessary mixing of boiler (source) and accumulation tank (against energy degradation).

• P28[Heating circuit] parameter – EK connection

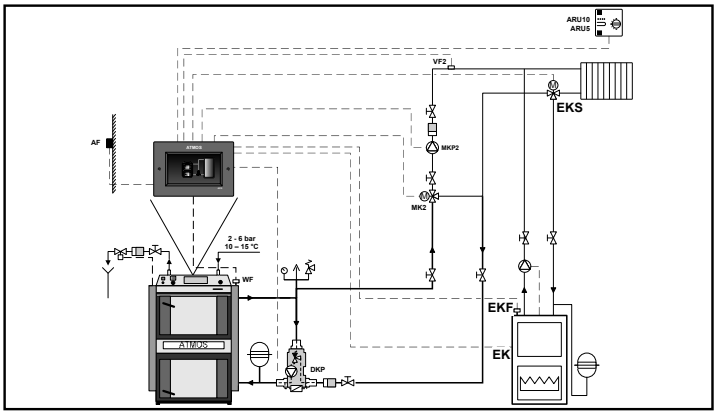
Parameter is used to determine the location of the EK external boiler with respect to the hydraulic diagram (connection type).

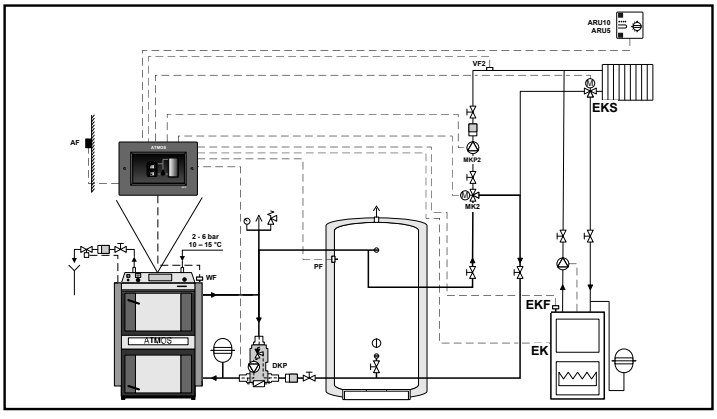
Factory default setting: Off

Setting options:

On – EK external boiler connected in the heating circuit

Example of installation of the external boiler (EK) in the circuit



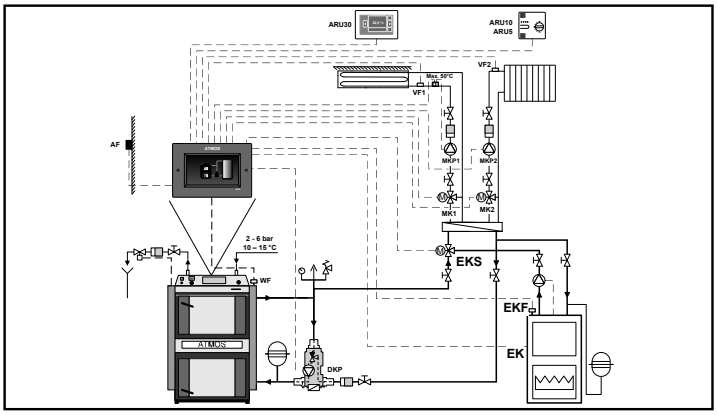


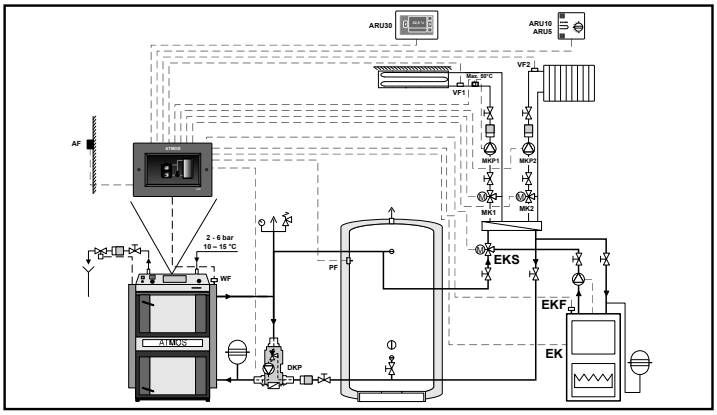
The request for operation of the EK external boiler will be issued by the heating circuit in which the EK external boiler is installed.
Circuits (1, 2, 3, 4) are enabled (started) according to the standard logic, i.e. the temperature of the WF boiler (connection without the accumulation tank) or the PF accumulation tank temperature (connection with the accumulation tank).

When operating the EK external boiler, the heating circuit pump is switched off and the three-way valve is closed. The circulation of the heating medium in the circuit is performed only by the EK external boiler pump.

Off – EK external boiler in front of the heating circuit (distributor)

Example of installation of the external boiler (EK) in front of circuits (distributor)





Each of the circuits (1, 2,3, 4) will issue requirement for the operation of the EK external boiler. Circuits are enabled (started) according to the standard logic, i.e. the temperature of the WF boiler (connection without the accumulation tank) or the PF accumulation tank temperature (connection with the accumulation tank) and when the condition ⚙→ P04[Sources] parameter (reaching the EKstart minimum temperature) is met.

INFO - The method of connecting the EK external boiler, the EKP pump and the **EKS switching valve** is defined in ⚙→ P28[Heating circuit] Parameter.

• P30[Heating circuit] parameter - Room regulation PI

The parameter allows you to switch on a more efficient (Proportionally Integrative) room temperature regulation method for circuits of MK and DK type.
In the case it is **On**, the calculation of the flow temperature is dynamically adjusted according to the course and trend of room temperature.

Factory default setting: On

• P31[Heating circuit] parameter - Room regulation - P-range

The parameter is intended to set the specific values of the proportional part of the room controller defined in ⚙→▥ P30[Heating circuit] parameter.
The function is active for circuits of MK and DK type.

Factory default setting: 15 %/K

INFO - P-range = "Control deviation amplifier" For room temperature control, it is necessary to take into account the fact that the room temperature has much greater inertia and a slower response than when controlling a three-way valve.

• P32[Heating circuit] parameter - Room regulation - I-range

The parameter is intended to set the specific values of the integration part of the room controller defined in P30Circuit parameter.
The function is active for circuits of MK and DK type.

Factory default setting: 60 min

INFO - I-range = readout interval to reach the required temperature faster (time too short = oscillation of the resulting values / time too long = the required temperature is reached slowly).

• P34[Heating circuit] parameter - Proposed thermal gradient of heating circuit

The parameter is intended to set the proposed thermal gradient of the heating circuit for optimal calculation of the temperature of water flowing into the heating circuit.
It is designed for heating circuits of MK and DK type.
Set the values according to the project (calculation) of the heating system (size and type of radiators).

Factory default setting: 10 K

• P35[Heating circuit] parameter - Proposed hot water temperature

The parameter is used to set the proposed water temperature of the selected heating circuit according to the project (proposal) of the heating system (size and type of radiators / exchangers) - the selected thermal gradient for example 60/40.
It is designed for heating circuits of MK and DK type.

Factory default setting: 60 °C

Recommended setting (settings examples):

underfloor heating: 35 - 40 °C

radiator heating: 50 - 80 °C

convector heating: 80 - 90 °C

INFO - The proposed temperature fundamentally affects the overheating or underheating of the building.
If no room unit is used, the heating water temperature is not corrected **automatically**.

• P37[Heating circuit] parameter - Heating circle name

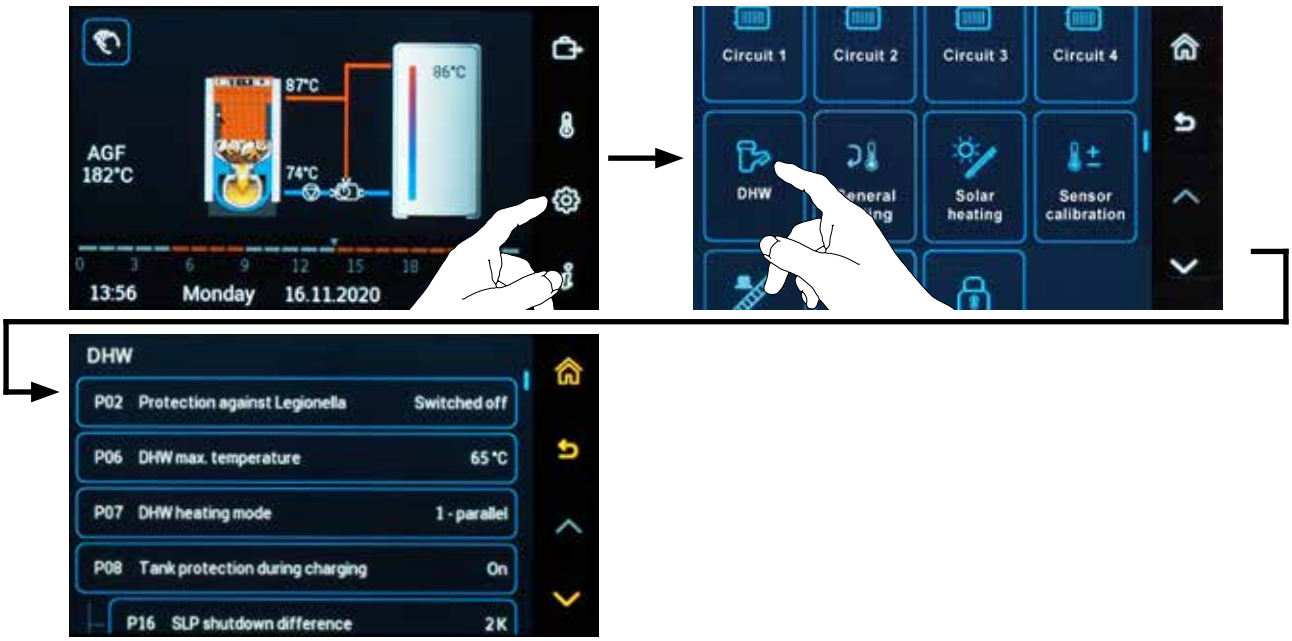
The parameter is used to name the heating circuit according to the user's requirement.

DHW

(Access level - User - P37 parameter/ Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the symbol for DHW.

DHW menu is used to set the parameters for domestic hot water heating.



Parameters:

• P02^{DHW} parameter - Protection against Legionella

The parameter allows you to switch on DHW protection against bacteria (Legionella). Switching on is performed by selecting the day of the week when the temperature in the DHW tank is to increase to the temperature set in ⚙→ P04^{DHW} parameter. The specific time on the selected day is set in P03^{DHW} parameter.

If the ACD03/04 controller also controls the operation of the circulating pump on the DHW distribution, the pump is also switched on.

Factory default setting: Switched off

• P03^{DHW} parameter - Protection time against Legionella

The parameter is used to set the time when the Legionella protection function is switched on, on the selected day.

INFO - It is recommended to select the time of the maximum consumption of the hot domestic water (DHW).

• P04^{DHW} parameter - Protection temperature against Legionella

The parameter is used to set the temperature needed to heat the DHW tank to enable protection against Legionella (bacteria).

Factory default setting: 65 °C

• P06^{DHW} parameter - DHW max. temperature

The parameter is intended to set the maximum required temperature of DHW.

Factory default setting: 65 °C

• P07^{DHW} parameter - DHW heating mode

The parameter is intended to set the DHW heating logic and the associated functions.

Factory default setting: 1 - parallel

Setting options:

1 - parallel – standard method of DHW tank heating, which takes place simultaneously with the operation of other heating circuits..

2 - priority- – DHW tank heating takes precedence (priority) over the operation of other heating circuits. Until the required DHW temperature is reached, the other heating circuits are switched off.

INFO - The function is not suitable for solid fuel boilers connected with the accumulation tank.

3 - flow temperature – DHW tank heating takes **priority** (precedence), if the required heating water temperature to the heating circuits is lower than the required DHW temperature by 5 K + P17^{DHW} parameter.
DHW tank heating in **parallel** mode (DHW + heating circuit), if the required heating water temperature to the heating circuits is higher than the required DHW temperature by 10 K + P17^{DHW} parameter.

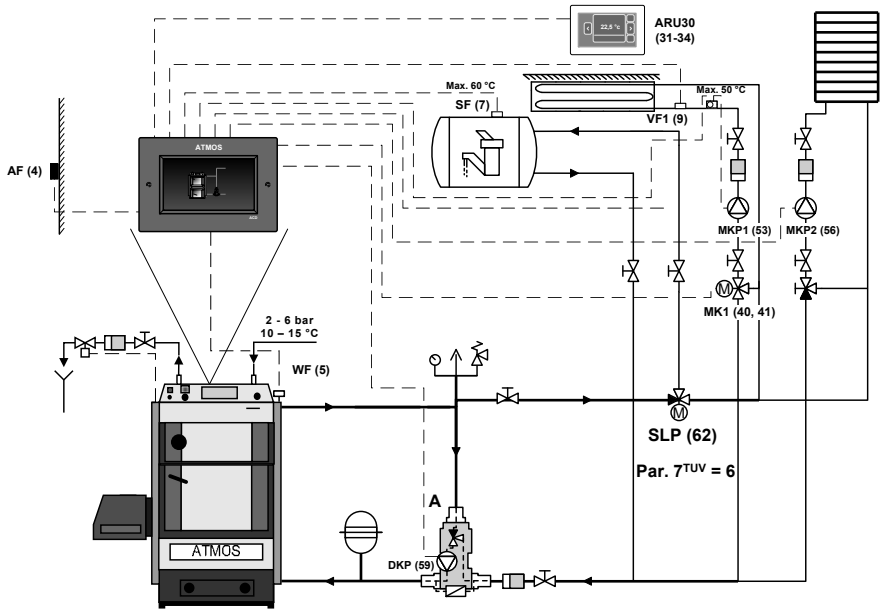
4 - outdoor temperature – heating of the DHW tank is controlled as in the **priority** mode at an outdoor temperature above the temperature of the anti-freeze protection. In case of active anti--freeze protection, the heating of DHW tank is controlled as in **parallel** mode.

5 - auxiliary heating – DHW tank heating is controlled by alternating **priority** and **parallel** mode in 20 min. cycles until the required temperature is reached in the tank.

6 -switching valve – DHW tank heating is solved by means of a three-way switching valve (SLP = **On**) and the tank is hydraulically filled with the pump in the boiler circuit. During the DHW filling, the heating circuits are completely switched off. After the DHW filling (heating) is finished, the three-way valve is switched back to the heating mode (SLP = **Off**) and the heating circuits are enabled again (switched on).

It is a function designed only for boilers without the accumulation tank, it is not accessible in hydraulic diagrams with accumulation tanks.

INFO - In this mode, the tank protection **P08^{DHW} parameter** = fixed **Off**.



7 - external filling – DHW tank heating is not controlled by ACD03/04 controller. The DHW tank temperature is only measured and displayed in $\hat{i}$ Information. The working mode applies only to the circulating pump, if it is defined

8 - ESLP only – the DHW tank heating is not solved by the heat source (boiler), but only byan electric coil (insert) installed directly in the DHW tank (boiler), which is controlled by the **ESLP** output defined in the submenu - ⚙→🔧 Hydraulics/Function configuration/Domestic Water/ **ESLP** - Electric heating.

CAUTION - The value can only be defined if the ESLP electric heating is defined.

INFO - If the set DHW value is not reached after 4 hours, ALARM is indicated on the display, even if logical alarms are switched off.

• P08^{DHW} parameter - Tank protection during charging

The parameter is used to activate the function of the DHW tank protection against unintentional cooling in case the heat source (boiler), the accumulation tank does not have a temperature higher than the DHW temperature.

Factory default setting: On

Switching on and off the DHW charging pump (SLP) is defined by the differences in ⚙→ **P16^{DHW} parameter and P17^{DHW} parameter.**

• P09^{DHW} parameter - Increasing request for source

The parameter is used to increase the temperature of the source (boiler) by difference, which guarantees sufficient temperature for DHW heating (creates a requirement for source temperature).

Factory default setting: 5 K

• P10^{DHW} parameter- DHW heating difference

The parameter is used to set the difference by which the temperature of water in the DHW tank (SF) must decrease to recover heating (switching on the SLP pump) of DHW tank heating.

Factory default setting: 5 K

• P11^{DHW} parameter - SLP filling time prolongation

The parameter is used to extend the heating time (pump rundown) of the DHW heating tank.

Factory default setting: 5 min

INFO - function is also active for ESLP heating mode (DHW electric heating), SFINT (DHW inner tank temperature sensor), etc.

• P12^{DH}W- parameter - Assignment of ZKP working mode (circulating pump)

The parameter is used to connect the circulating pump operation with the operation of the selected heating circuit (in all circuits) A.

The circulating pump is only in operation if the selected heating circuit (s) is operated at the ☼ **Comfort** temperature.

Factory default setting: not assigned

INFO - before assigning (connection) of the circulating pump to the working mode, it is necessary to define (assign) terminals for the ZKP circulating pump in the submenu ⚙→ Hydraulics/Function configuration/Domestic water/ZKP - DHW circulating pump.

• P13^{DHW} parameter - ZKP operation

The parameter is used to set the operation time for the circulating pump cycling, so that the pump does not run continuously and unnecessarily cools the DHW tank. The cycle time should be long enough for the pump to supply the hot water to the last device (water tap).

Factory default setting: 15 min

• P14^{DHW} parameter - ZKP pause

The parameter is used to set the pause time for the circulating pump cycling, so that the pump does not run continuously and unnecessarily cools DHW tank. The pause time of the circulating pump should only be long enough to prevent the domestic water from cooling too much in the pipe.

Factory default setting: 15 min

• P15^{DHW} parameter - SF and SFR difference

The parameter is intended to set the minimum difference between the current temperature in the DHW tank and the temperature of the outlet (return) water flowing from the DHW exchanger. The function makes it possible to switch off the **SLP filling pump** in case of a small difference between the two temperatures, so that there is no unnecessary circulation of water between the heat source (boiler, accumulation tank) and DHW tank (low efficiency).
This function is active only if terminals are defined (assigned) for the SFR sensor.

Factory default setting: Off

INFO - The function is deactivated in case of active enforced losses of the accumulation tank.

• P16^{DHW} parameter - SLP shutdown difference

The parameter is intended to set the shutdown difference of the SLP filling pump, if the source temperature (boiler, accumulation tank, EK) drops below the current temperature of the DHW tank by the defined value.

Factory default setting: 2 K

INFO - The parameter is accessible only if ⚙→ P08^{DHW} parameter = **On**.

• P17^{DHW} parameter - SLP switching difference

The parameter is intended to set the switching difference of the SLP filling pump, if the source temperature (boiler, accumulation tank, EK) increases above the current temperature of the DHW tank by the defined value.

Factory default setting: 5 K

INFO - The parameter is accessible only if ⚙→ P08^{DHW} parameter = **On**.

• P18^{DHW} parameter - ESLP mode

The parameter is intended to set the function of automatic switching of the electric heating coil in the DHW tank (boiler), if the heat source (boiler, accumulation tank, EK) is not able to ensure the heating of the water in the DHW tank to the required temperature (low PF, WF, EKF temperature).

Factory default setting: 1 - year-round

Setting options:

1 - year-round – electro heating is allowed continuously, regardless of the outdoor temperature

2 - in winter – electric heating of the DHW tank (boiler) is allowed only if the average outdoor temperature is lower than the temperature defined by ⚙→ **P04^{System} parameter** (Temperature of transition to summer mode)

3 - in summer – electric heating of the DHW tank (boiler) is allowed only if the average outdoor temperature is higher than the temperature defined by ⚙→ **P04^{System} parameter** (Temperature of transition to summer mode)

• P19^{DHW} parameter- ESLP filling time prolongation

The parameter allows you to prolong the operation of the electric heating of the DHW tank by a defined time. It is a rundown of the heating element.

Factory default setting: Off

INFO - The function is designed for DHW tanks with a heating element at the bottom and an SF sensor located at the top.

• P37^{DHW} parameter - DHW circuit name

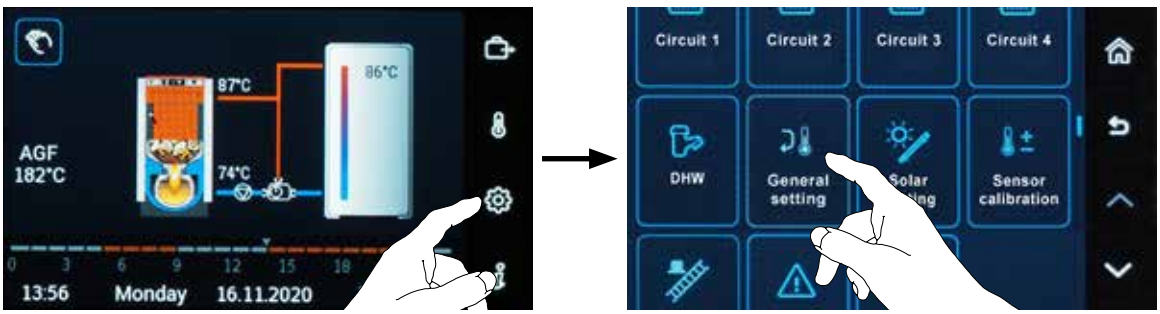
The parameter is intended to name the DHW circuit by its own name.

General function

(Access level - User - nothing / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the symbol for General function.
The **General function** menu is used to set special parameters.

INFO - The menu is active after activating one of the general functions in the ⚙→→ Hydraulics menu **Function configuration/General function**



Parameters:

• P01 General function parameter - Delayed PP, ZUP shutdown

The parameter is intended to set the delayed shutdown of output for PP General functions (output of circuits demand) and ZUP (output of circuits demand and DHW demand).

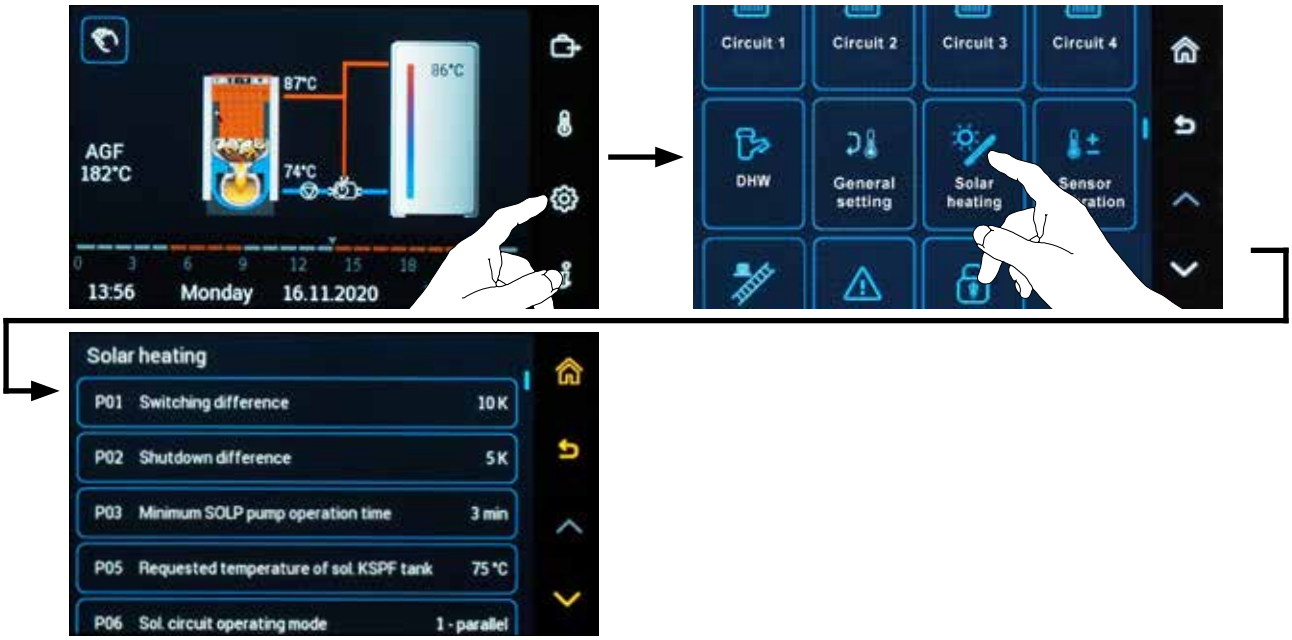
Factory default setting: 3 min

Solar heating

(Access level - User - P10 / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the ☀ symbol for Solar heating.

Solar heating menu is active after activating the function in the ⚙→🔧→ Hydraulics menu, **Function configuration/Solar heating** submenu, where three basic elements are defined - KVLF (solar panel sensor), KSPF (solar tank sensor) and SOLP (solar circuit pump).

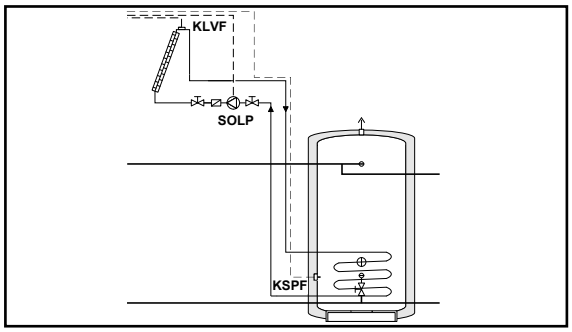


Parameters:

• P01 Solar heating parameter - Switching difference

The parameter is used to set the switching difference (start) of the SOLP solar pump, if the KVLF (KVLF2) temperature on the solar panel is higher by the switching difference than the KSPF (SLVF) temperature in the solar tank.

Factory default setting: 10 K



• P02[Solar heating] parameter - Shutdown difference

The parameter is used to set the shutdown difference (switch off) of the SOLP solar pump, if the KVLF (KVLF2) temperature on the solar panel is lower by the shutdown difference than the KSPF (SLVF) temperature in the solar tank.

Factory default setting: 5 K

• P03[Solar heating] parameter - Minimum SOLP pump operation time

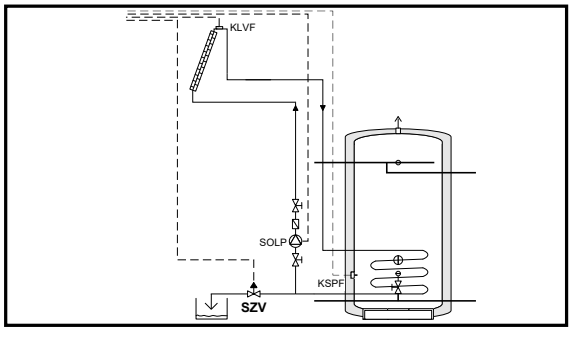
The parameter is used to set the minimum operation time of the SOLP solar pump, so that all usable energy can be transferred from the solar panel to the solar tank with respect to the length of the pipeline.

Factory default setting: 3 min

• P04[Solar heating] parameter - SZV switching temperature

The parameter is intended for the control of the SZV enforced solar losses valve, which opens when the set temperature on KVLF (KVLF2) is exceeded.

Factory default setting: Vyp



INFO - The parameter is visible after activation in the ⚙→🔧→ Hydraulics menu, Function configuration/Solar heating/**SZV submenu - sol. losses valve = Yes.**

• P05[Solar heating] parameter - Requested temperature of sol. KSPF tank

The parameter is intended to set the requested temperature of solar KSPF tank. When the requested temperature is reached, the SOLP solar pump is switched off.
If the temperature in the solar tank drops by more than 5 K below the set temperature, the solar tank will be reheated again (the SOLP pump is switched on).

Factory default setting: 60 °C

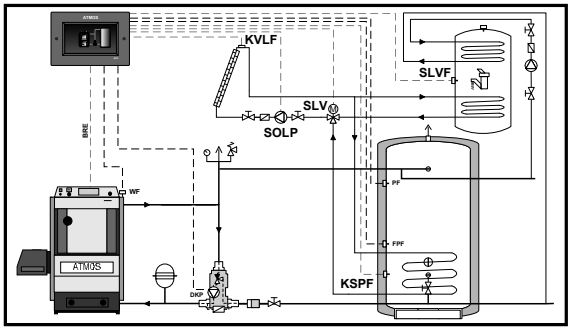
• P06[Solar heating] - Parameter - Solar circuit operating mode

The parameter is used to set the operating mode type of the solar circuit with respect to the heat source, i.e. automatic boiler (for pellets) BRE, EK external boiler and when heating the DHW tank with respect to electric heating.

Factory default setting: 1 – parallel

Setting options:

1 – parallel - solar circuit operates in normal mode simultaneously (parallel) with heat source (automatic boilers - BRE, EK, electric heating).



INFO - This setting is most commonly used when solar heating is used as an additional heat source.

2 – priority - the solar circuit heats the accumulation tank or DHW heating tank as a priority. The heat sources (automatic boiler - BRE, EK, electric heating) are switched off (disabled) or their start is delayed (blocked) by ⚙→☼ P07[Solar heating] parameter. After the time specified by ⚙→☼ P07[Solar heating] parameter, the system operates in mode **1 - parallel.**

INFO - This setting is used when installing sufficiently large solar systems that supply the accumulation tank and the DHW tank without any problems.

3 – DHW priority - solar circuit heats the DHW tank as a priority. The heat sources (automatic boiler - BRE, EK, electric heating) are switched off (disabled) or their start is delayed (blocked) by ⚙→☼ P07[Solar heating] parameter.
After the time specified by ⚙→☼ P07[Solar heating]g parameter, the system operates in mode **1 - parallel.**

4 – priority PF - the solar circuit heats the accumulation tank. The heat sources (automatic boiler - BRE, EK, electric heating) are switched off (disabled) or their start is delayed (blocked) by ⚙→☼ P07[Solar heating] parameter.
After the time specified by ⚙→☼ P07[Solar heating] parameter, the system operates in mode **1 - parallel.**

• P07[Solar heating] parameter - Automatic boiler blocking

The parameter is intended to set the delay (blocking) time of the start of the automatic boiler, external boiler or electric heating of the DHW from the moment of start of the solar system in the priority modes (2, 3, 4) defined by ⚙→☼ P06[Solar heating] parameter.

Factory default setting: Off

INFO - The "BRE blocked!" status is displayed in Information ℹ when the blocking is active.

• P08[Solar heating] parameter - Parallel / priority mode switching

The parameter is intended to set the switching difference from priority to parallel, if the temperature in the relevant solar tank drops by more than the set value below the required value (SET-POINT at the tank) due to insufficient solar gain. The priority mode is activated again as soon as the tank temperature rises above the current required value. Thus, the heat source (BRE, EK, electric heating) starts only, if there is a greater temperature difference in the solar tank by insufficient gain from solar panels.

Factory default setting: Off

INFO - The parameter is functional if the ⚙→☼ P06[Solar heating] parameter is set to 1, 3 or 4.

• P09[Solar heating] parameter - Solar gain balance

The parameter allows you to calculate solar gains from the solar panel based on the temperature of the KVLF (KVLF2) solar panel and the KSPF (SLVF) solar tank. For a more accurate calculation, it is recommended to connect the return temperature sensor from the solar exchanger (KRLF).

Factory default setting: Off

INFO - After setting the parameter to On, the current and total gain from the solar circuit is displayed in ℹ Information.

• P10[Solar heating] Parameter - Solar gain RESET (zeroing)

The parameter is intended to reset (zero) solar gains over a certain period of time.

INFO - Reset by confirming the **Yes** command.

• P11[Solar heating] parameter - Solar circuit flow value

The parameter is intended to adjust the flow of the solar circuit, which is necessary for the calculation of the solar gain (⚙→☼ P09[Solar heating] parameter).

Factory default setting: 0,1 l/min

• P12[Solar heating] parameter - Media density

The parameter is intended to define the density of the liquid in the solar circuit (according to the manufacturer's data), which is necessary for the correct calculation of the solar gain (⚙→☼ P09[Solar heating] parameter).

Factory default setting: 1.05 kg/l

• P13[Solar heating] parameter - Thermal media capacity

The parameter is intended to define the thermal capacity of the liquid in the solar circuit (according to the manufacturer's data), which is necessary for the correct calculation of the solar gain (⚙→☼ P09[Solar heating] parameter).

Factory default setting: 3.6 kJ/kgK

• P14[Solar heating] parameter - Solar panel shutdown temperature

The parameter is intended to activate the protection of the solar circuit (switching off the SOLP pump), if the temperature of the solar panel media is too high.

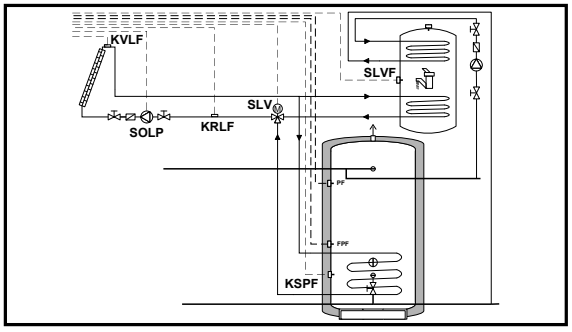
Factory default setting: Off

CAUTION - When this protection is switched on, set the maximum safe temperature of the solar panel.

• P15[Solar heating] Parameter - SLV switching period

The parameter is intended to set the interval (time) of check that the accumulation tank charging conditions were met (for DHW heating) with the SLVF sensor defined in ⚙→☼ P16 Parameter[Solar heating]. When the required accumulation tank temperature (for DHW heating) with SLVF sensor is reached, the SLV valve switches to the accumulation tank with KSPF sensor.
The time countdown is switched on after charging the tank (for DHW heating) with the SLVF sensor and after the SLV valve switching. After the switching period (time), the charge status of the tank (for DHW heating) with the SLVF sensor is checked. If the accumulation tank (for DHW heating) does not reach the required temperature defined in ⚙→☼ P16 Parameter[Solar heating], the SLV valve is switched back to the tank (for DHW heating) with the SLVF sensor.

Factory default setting: 10 min



INFO - The parameter is visible if the SLV switching valve is defined (⚙→🔧 Hydraulics/ Function configuration/Solar heating/SLV/SLVF - switching to solar tank = Yes).
The tank (for DHW heating) with SLVF sensor is charged as a priority.

• P16[Solar heating] Parameter - Required SLVF sol. tank temperature

The parameter is intended to set the required water temperature in the tank (for DHW heating) with the SLVF sensor.
The parameter defines the temperature at which the SLV switching valve switches, after charging the tank (for DHW heating) with the SLVF sensor to the required temperature, to the accumulation tank with the KSPF sensor.
The interval (period) for checking that the required temperature has been reached is defined in ⚙ →☼ P15 Parameter[Solar heating].

Factory default setting: 60 °C

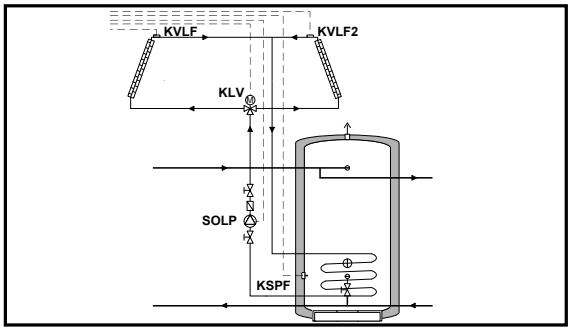
INFO - The parameter is visible if the SLV switching valve is defined (⚙→🔧 Hydraulics/ Function configuration/Solar heating/SLV/SLVF - switching to solar tank = Yes).

• P10[Solar heating] Parameter - KLV switching period

The parameter is intended for setting the interval (time) of temperature control of solar panels and subsequent switching of the KLV valve for energy consumption from a warmer solar panel (KVLF or KVLF2).

The temperatures of solar panels are checked (compared) continuously in a set time interval (period).

Factory default setting: 10 min



INFO - The parameter is visible if the KLV switching valve is defined (⚙→🔧 Hydraulics/ Function configuration/Solar heating/KLV/KLVF2 - switching to solar panel = Yes).

Sensors calibration

(Access level - User - nothing / Service technician - everything)

The setting is performed with the ⚙ button (to enter the menu), under which click on the ± symbol for Sensors calibration.

Sensors calibration menu is used to calibrate (correct) connected sensors on specific inputs.
The measured sensor values (inputs) can be corrected within ± 20 K with an accuracy of 0.5 K.

INFO - Correction can be performed at the following inputs: • AF, • WF, • SF, • VF1, • VF2, • AGF, • VI1, • VI2, • VI3, • VI4, • VI5

Sweeper

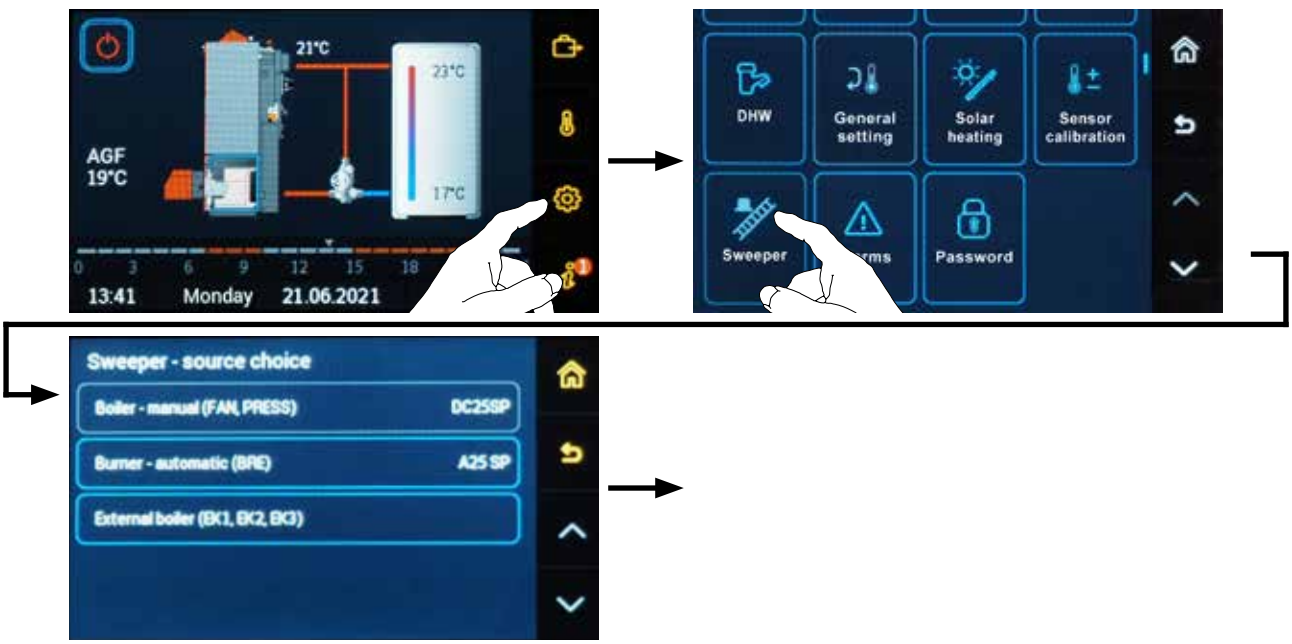
(Access level - User - nothing / Service technician - all)

The setting is performed with the ⚙ button (to enter the menu), under which click on the Sweeper symbol.

Sweeper menu (function) is intended for service technicians and sweepers. The function is activated when adjusting the boiler and performing authorized measurement of combustion quality.
After its switched on, the boiler does not switch off when the required temperature is reached, but the boiler always works up to the maximum operating temperatures. Excess energy is transferred into accumulation tanks, DHW tank and heating system regardless of the requirements of the object.

The **Sweeper** function can always activate only one of the selected sources:

Boiler - manual (FAN, PRESS) (manual stoking)
Burner - automatic (BRE)
External boiler (EK1, EK2, EK3)

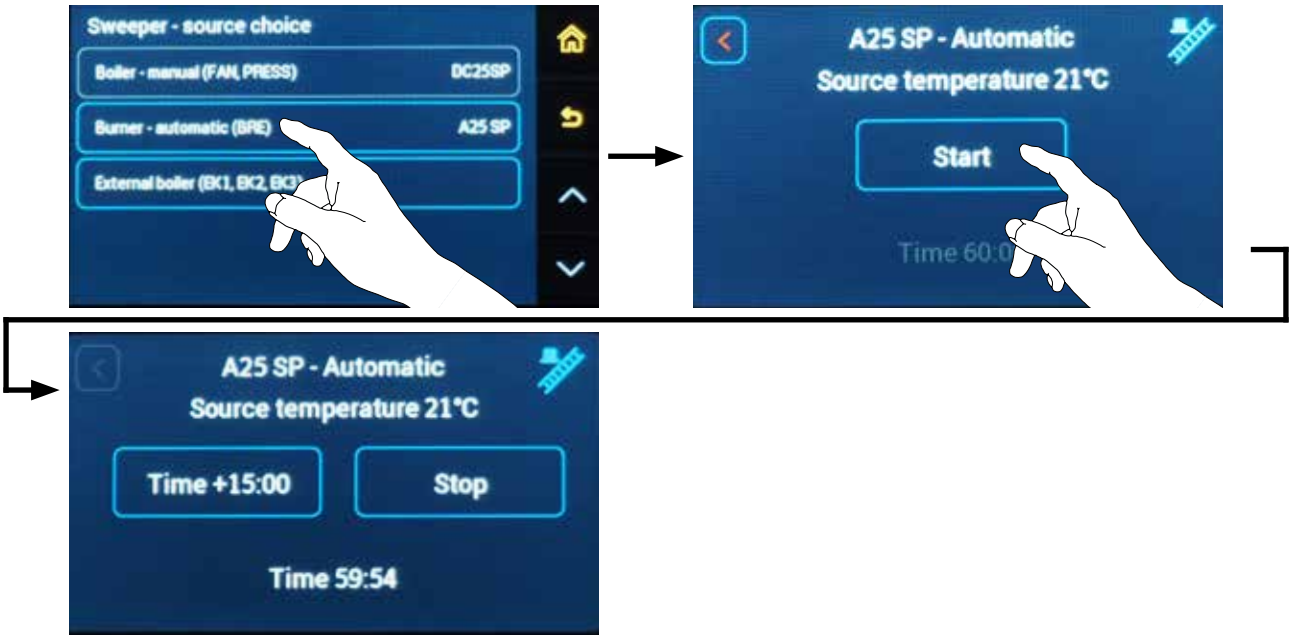


For DCxxSP(X) and DCxxGSP combined boilers and boilers with modification for pellet burner (manual/automatic operation) controller must be switched to the required fuel (source) before starting the Sweeper function by holding the symbols ✋ / ⏻ for 3 seconds.

Turn on the Sweeper function we carry out by pressing the "Start" button. The function starts automatically for 60:00 minutes. To extend the time of the Sweeper function press the "Time +15:00" button. Each press of the "Time +15:00" button increases the on time of the function by 15 minutes, but for a maximum of 60 minutes.

During the measurement the type of source, its temperature (xx °C) and the time countdown until the automatic termination of the Sweeper function are displayed.

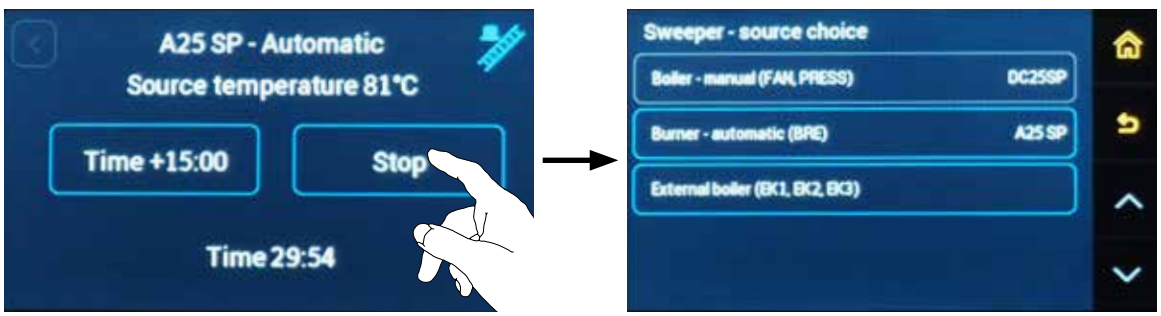
Source selection and starting the Sweeper function (Start):



Extension of the Sweeper function time (Time +15:00):

The Sweeper function can also be terminated at any time using the "Stop" button.

To end (Stop) the Sweeper function:



Alarms

(Access level - User - everything / Service technician - everything)

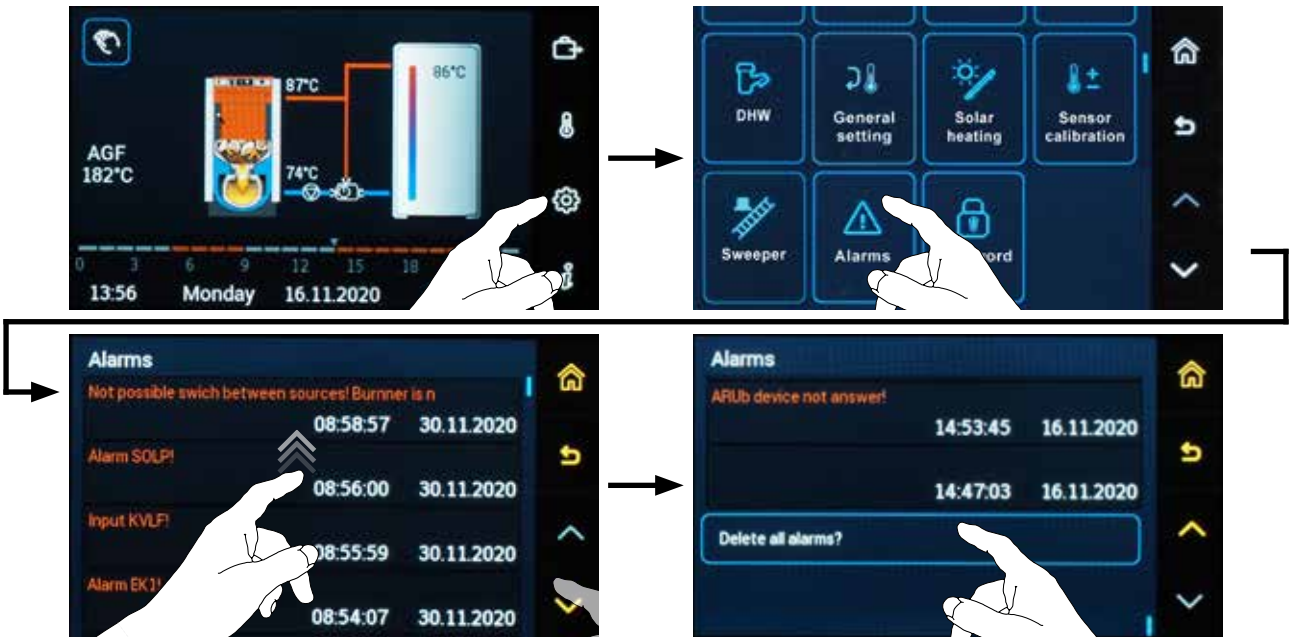
The setting is done with the ⚙ button (to enter the menu), under which click on the ⚠ symbol for Alarms.

Alarms menu is used to display the last 20 error messages:

logical (e.g. failure to reach DHW temperature, exceeding the recommended flue gas temperature, etc.)

system (sensor error, etc.).

Alarms are displayed with date and time in the order in which the most recent alarm is displayed first (at the top).



• Types of ALARMS:

Logical - alarms issued due to non-compliance of a function

System - alarms caused by a fault in the connected devices or the controller.

Sensor alarms - sensor values are not in its measuring range. Interruption (index 0) or short-circuiting (index 1) of the sensor (conductor).

Communication alarms

Controller alarms

Device in the network alarms

• Delete all alarms

Delete all alarms by confirming the **Yes** command. Deletion can only be done at the level of OEM technician or manufacturer.

Alarm overview

Function abbreviation	Description	Cause of alarm	Number	Alarm type	Note
AF	Outdoor temperature	interruption	01_0	system	Heating according to AF=P08^{System}, or. AF2
		short circuit	01_1		
AF2	Outdoor temperature no. 2	interruption	02_0	system	Heating according to AF
		short circuit	02_1		
WF	Boiler water temperature	interruption	03_0	system	FAN = OFF, BRE = OFF, DKP = ON
		short circuit	03_1		
		KT_{Max} exceeded	03_3	logical	WF > P03^{Boiler} > 10min
		failure to reach KT_{Min}	03_4		PF = nundefined and Á = active and WF < P14^{Boiler} > 3 hod
AGF	Boiler flue gas temperature	interruption	04_0	system	FAN = OFF, BRE = OFF, DKP = ON
		short circuit	04_1		
		AGF_{Max} exceeded	04_2	logical	afetr 30min
WF2	External boiler temperature EK	interruption	05_0	system	EK = OFF, EKP = ON
		short circuit	05_1		
		AGF_{Max} exceeded	05_2	logical	
SF	DHW tank temperature	interruption	06_0	system	SLP = OFF
		short circuit	06_1		
		failure to reach $DHW_{request}$	06_3	logical	po 240 min
SFB	DHW tank no. 2 temperature	interruption	07_0	system	Heating according to SF
		short circuit	07_1		
SFINT	Inner DHW tank temperature	interruption	08_0	system	
		short circuit	08_1		
		failure to reach $DHW_{request}$	08_3	logical	po 240 min
SFR	Return temperature from DHW tank	interruption	09_0	system	
		short circuit	09_1		
SME	General alarm	aktivní	10_0	system	
RL1	Return temperature Mix-1	interruption	11_0	system	MKP1 = OFF, actuator MK1 = CLOSE
		short circuit	11_1		
		KT_{Max} exceeded	11_2	logical	
RL2	Return temperature Mix-2	interruption	12_0	system	MKP2 = OFF, actuator MK2 = CLOSE
		short circuit	12_1		
		KT_{Max} exceeded	12_2	logical	
RL3	Return temperature Mix-3	interruption	13_0	system	MKP3 = OFF, actuator MK3 = CLOSE
		short circuit	13_1		
		KT_{Max} exceeded	13_2	logical	
RLF	Indirect return control	interruption	14_0	system	RLP = OFF
		short circuit	14_1		
INFO	Information temperatures	interruption	15_0	system	
		short circuit	15_1		
KVLF	Solar panel temperature	interruption	16_0	system	SOL = OFF
		short circuit	16_1		
		$KVLF_{Max}$ exceeded	16_2	logical	
KVLF2	Solar panel temperature	interruption	17_0	system	SOL = OFF
		short circuit	17_1		
		$KVLF2_{Max}$ exceeded	17_2	logical	
KSPF	Solar tank temperature	interruption	18_0	system	SOL = OFF
		short circuit	18_1		

* alarm numbers are only additional information

KRLF	Solar circuit return temperature	interruption	19_0	system	
		short circuit	19_1		
SLVF	Solar tank no. 1 temperature	interruption	20_0	system	SOL = OFF
		short circuit	20_1		
PF	Upper accu tank temperature	interruption	21_0	system	PF = $P1^{Tank}$
		short circuit	21_1		
		failure to reach $DHW_{request}$	21_3	logical	If Á = active and PF < $P01^{Accumulation\ tank}$ > 3 hours
PF2	Accumulation tank 2nd temperature	interruption	22_0	system	
		short circuit	22_1		
PF3	Accumulation tank 3nd temperature	interruption	23_0	system	
		short circuit	23_1		
FPF	Lower accu tank temperature	interruption	24_0	system	BRE according to PF
		short circuit	24_1		
VF1	Flow temperature Mix-1	interruption	25_0	system	MKP1 = OFF, actuator MK1 = CLOSE
		short circuit	25_1		
		$VF1_{Max}$ exceeded	25_2	logical	
		failure to reach $VF1_{request}$	25_3	logical	
VF2	Flow temperature Mix-2	interruption	26_0	system	MKP2 = OFF, actuator MK2 = CLOSE
		short circuit	26_1		
		$VF2_{Max}$ exceeded	26_2	logical	
		failure to reach $VF2_{request}$	26_3	logical	
VF3	Flow temperature Mix-3	interruption	27_0	system	MKP3 = OFF, actuator MK3 = CLOSE
		short circuit	27_1		
		$VF3_{Max}$ exceeded	27_2	logical	
		failure to reach $VF3_{request}$	27_3	logical	
RSNEMix	Room temperature of the UNMix circuit	interruption	28_0	system	Heating without room correction
		short circuit	28_1		
		failure to reach $RS_{request}$	28_3	logical	po 180 min
RSMix1	Mix1 circuit flow temperature	interruption	29_0	system	Heating without room correction
		short circuit	29_1		
		failure to reach $RS_{request}$	29_3	logical	after 180 mins
RSMix2	Mix2 circuit flow temperature	interruption	30_0	system	Heating without room correction
		short circuit	30_1		
		failure to reach $RS_{request}$	30_3	logical	after 180 mins
RSMix3	Mix3 circuit flow temperature	interruption	31_0	system	Heating without room correction
		short circuit	31_1		
		failure to reach $RS_{request}$	31_3	logical	after 180 mins
UHF	Cooler temperature	interruption	32_0	system	UHK = OFF
		short circuit	32_1		
BRSP	Burner blocking	sclass < 1 sek	33_0	system	BRSP = log 0
ANF	Switching contact	sclass < 1 sek	34_0	system	ANF = log 0
MODEM	Modem	sclass < 1 sek	35_0	system	MODEM = log 0
COM	Communication error	loss	40_1	system	
COM	Address collision	same GR addresses	40_2	system	
EPROM	Program error		50_1	system	
	Damaged memory		50_2	system	
NET	Device error on the network	xyz	100_x	system	

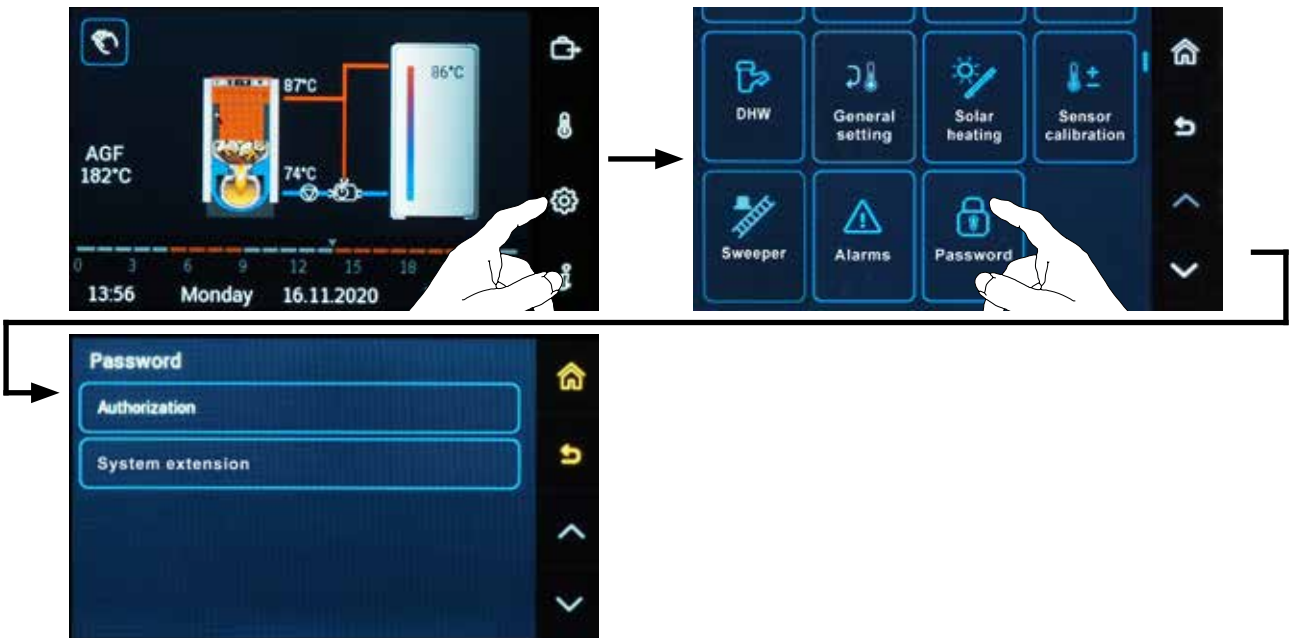
* alarm numbers are only additional information

Password

(Access level - User - child protection function / Service technician - selected levels)

The setting is performed with the ⚙ button (to enter the menu), under which click on the 🔒 symbol for Password.

Password menu is used to log in and unlock various functions of the controller.



• Authorization

It is intended for entering a numeric code for unlocking (logging in) to a higher level of authorization, which allows changes to settings.
After entering the appropriate password (code) for the relevant level, the **tools** on the right side of the screen will be **colored**.

Coloring type - level of authorization

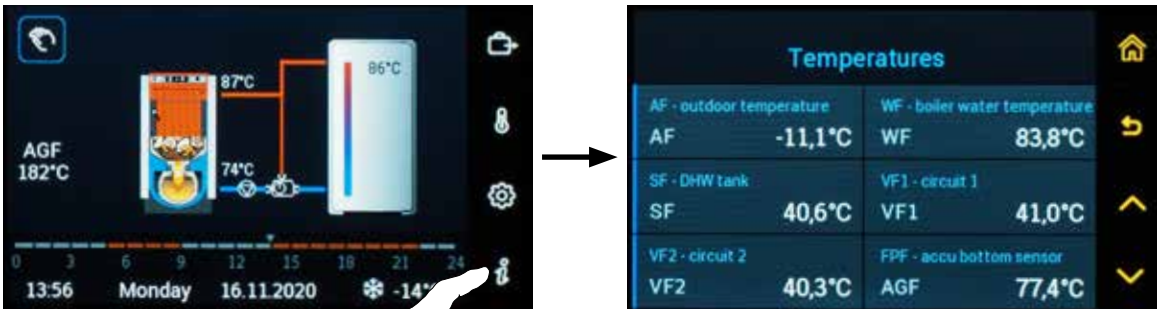
white = user
yellow = technician
red = OEM
blue = manufacturer

• System extension

It is intended for entering a numeric code to unlock other functions, such as opening the German language for the CZ / EN version.

11. INFORMATION MENU ℹ

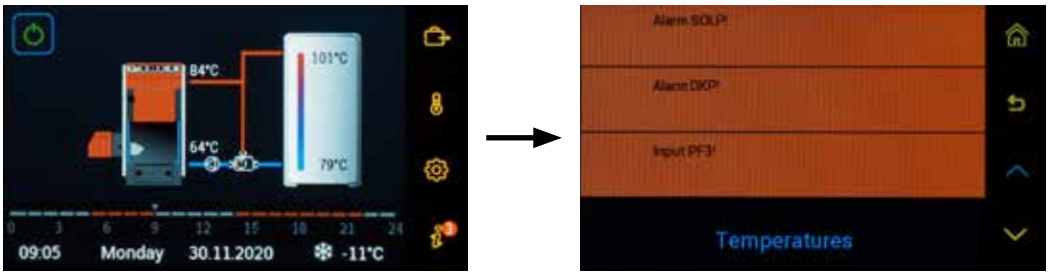
All the necessary information about the ACD03/04 controller and the heating system can be found in the ℹ **Information** menu.



The information is sorted in the following order:

Alarms - error messages regarding unconnected or defective sensors and connected peripherals (pumps, actuators, burner, ...)

If an alarm is currently active, an index with the number of alarms is displayed next to the "ℹ" symbol on the main screen.



Operational information – for example about the status of automatic wood ignition

Automatic wood ignition
Time plan – date (e.g. Today)
Time plan – time (e.g. 12:39 p.m.)
AIW output (e.g. OFF)

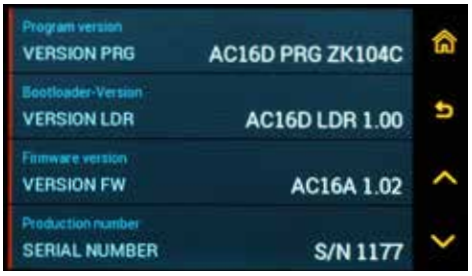
Temperatures - information about temperatures and connected sensors

Abbreviation and its description (e.g. AF - outdoor)
Connection to a terminal and current measured value (e.g. AF 5 °C)

Boiler, Accumulation tank, Boiler pump, DHW, Circuit 1, 2 , 3, 4, Solar heating, etc. - information on devices, statuses and temperatures

System information

Program version (software)
Bootloader version
Firmware version
Controller production number



12. OVERVIEW OF MENUS AND THEIR PARAMETERS

SYSTEM menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P01	Language	-	-	
P02	Enabling planning of weekly programs	1 - week A 2 - week A, B, C	1 - week A	
P04	Temperature of transition to summer mode	(P05 + 1 K) – 40	20 °C	
P05	Antifreeze protection temperature	-20 – (P04 - 1 K)	-5 °C	
P07	Enabling the temperature of comfort block of time program	Off / On	On	
P08	Fixed outdoor temperature	-20 – 20 °C	0,0 °C	
P09	Climate zone	-20 – 20 °C	-12 °C	
P10	Building type	1 – light 2 – medium 3 – heavy	2 – medium	
P11	Automatic exit menu time	1 – 60 min	5 min	
P12	Anti-blocking protection	Off / On	Off	
P13	Logical alarms display	Off / On	Off	
P14	Information - last position	Off / On	Off	
P15	Password for user (child protection function)	-	0	
P16	Password for technician	-	-	
P17	Password for OEM	-	-	
P18	Proposed room temperature	0 – 30 °C	20 °C	
P20	Screen brightness settings	10 – 100 %	100 %	
P21	Screen brightness settings - screensaver	10 – 40 %	15 %	
P25	Antifreeze protection - run	1 – 120 min	Off (20 min)	
P26	Antifreeze protection - pause	1 – 120 min	Off (60 min)	
P28	Default parameter values			
P29	Controller factory setting (reset)			
P30	Back up / System Recovery	Recovery Back up		
P31	Program update			

BOILER menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P02	KTmin minimum boiler operating temperature	20 – P03 - (P06 + 1 K)	85 °C	
P03	KTmax maximum boiler operating temperature	P02 + (P06 + 1 K) – 105 °C	95 °C	
P04	DKP switching temperature of boiler pump	-4 – 40 °C	with accumulation tank: 30 °C without accumulation tank: 70 °C	
P05	DKP shutdown difference	1 – 30 K	2 K	
P06	FAN, PRESS, BRE switching difference	1 – 30 K	3 K	
P07	Max. flue gas temperature FAN, PRESS	50 – 400 °C	Vyp (180 °C)	
P08	FAN fire up time	5 – 90 min	60 min	
P09	FAN, PRESS ventilation time	0,5 – 10 min	3,0 min	
P10	Maximum flue gas temperature for FAN	100 – 400 °C	400 °C	
P11	Flue gas temperature for SEKGS servo flap	50 – 400 °C	180 °C	
P12	Servo flap SEKGS shutdown difference	1 – 30 K	10 K	
P13	Recommended flue gas temperature for BRE		Vyp	
P14	Enabling of heating circuits	20 – 95 °C	75 °C	
P15	Shutdown difference of enabling	1 – 30 K	2 K	
P16	Enforced boiler losses	Off / On	On	
P17	DKP control	1 - according to WF 2 - according to WF and AGF 3 - according to WF and BRE	1 - according to WF - for automatic pellet boiler and for not controlled boiler 2 - according to WF and AGF - for boiler with manual stoking and combined boilers (DCxxSP, DCxxGSP)	
P18	AGFmin minimal flue gas temperature	50 – 380 °C	80 °C	
P19	DKP rundown after BRE burnout	1 – 30 min	10 min	
P20	Boiler protection according to DKP	Off / On	according to hydraulic diagram	
P21	FAN operation with BRE for combined boiler	Off 1 - BRE 2 - BRE + time 3 - BRE + AGF 4 - AGF	Off	
P22	Summer DHW heating by boiler	Off / On	Off	
P23	Switching between sources	1-manually 2-automatically	1-manually	
P24	Delayed FAN shutdown	1 – 60 min	20 min	
P25	Display AGF	Off / On	On	
P26	DKP operating hours zeroing	-	-	
P27	BRE operating hours zeroing	-	-	
P37	Boiler name + boiler production number	-	-	
P38	Burner name + burner production number	-	-	
P40	Ignition for antifreeze protection	No / Yes	No	

ACCUMULATION TANK menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P01	PFmin minimum temperature	5 – (P02 - 1 K)	40 °C	
P02	PFmax maximum temperature	(P01 + 1 K) – 110	110 °C	
P03	Increasing filling requirement	0 – 20 K	5 K	
P04	PFmin switching difference	0 – 50 K	2 K	
P05	Enforced losses	Off / On	On	
P08	Tank protection during discharge	Off / On	On	
P09	Tank protection during charging	Off / On	On	
P10	Tank operating mode	1 - accumulation 2 - buffer	according to selected hydraulic diagram	
P14	Minimal tank requirement value	5 – 110 °C	70 °C	
P15	Shutdown difference of the DKP protection during charging	-10 – 10 K	-3 K	
P16	Switching difference of the DKP protection during charging	-2 – 10 K	0 K	

SOURCES menu

Parameter	Desription	Setting range / Setting value	Factory default setting	Setting
P04	EKstart default temperature	10 – (P05 - 1 K)	40 °C	
P05	EKmin minimum temperature	(P04 + 1 K) – (P05 + 4 K)	80 °C	
P06	EKdif shutdown difference	1 – 7 K	3 K	
P07	EKmax maximum temperature	(P05 + 4 K) – 95 °C	95 °C	
P08	DHW summer heating using EK	Off / On	Off	
P09	EHP comfort operation	Off / On	On	
P10	DHW summer heating using EHP	Off / On	Off	
P11	EHP delayed start	0 – 480 min	60 min	
P16	Enforced losses EK	Off / On	On	
P37	Source name	-	-	

HEATING CIRCUIT 1 / 2 / 3 / (4) menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P01	Pump operation in the setback modeu	ECO – economical operation of the pump OFF – the pump is completely switched off during setback mod ON – pump runs permanently		
P02	Equithermal curve (Heating system temperature exponent)	1,0 … 1,3 - underfloor heating 1,3 … 2,0 - radiator heating 2,0 … 3,0 - convector heating		
P07	Heating limit (summer shutdown)	1 - 30 K	Off	
P08	Frost protection room temperature	0,0 - 30,0 °C	8 °C	
P09	Room thermostat function	0,5 - 10,0 K	Vyp	
P11	Constant flow temperature		78 °C	
P12	Minimum flow temperature		15 °C	
P13	Maximum flow temperature	30 - 40 °C - underfloor heating 70 - 80 °C - radiator heating 80 - 90 °C - convector heating with forced airflow	70 °C	
P14	Source temperature increase		4 K	
P15	Circuit shutdown delay	0 min - connection of a boiler with accumulation tank 15 min - connection of a boiler without accumulation tank	0 min	
P16	Critical circuit temperature	underfloor heating: 45 °C radiator heating: 95 °C convector heating with forced airflow: 95 °C	95 °C	
P18	P-range	1,0 - 10,0 %K	circuit MK, FR, KR - 3,0 %/K circuit RLA - 4,0 %/K	
P19	Readout frequency	10 - 120 s	20 sek	
P20	I-range	60 - 600 s	circuit MK, FR, KR – 160 s circuit RLA – 240 s	
P21	Actuator speed	30 - 180 s	120 sek	
P24	D-range	1,0 - 20,0 s	circuit MK, FR, KR – 4,0 s circuit RLA – 15,0 s	
P25	Holiday mode operation	ECO – operation as in the Setback mode STBY – operation as in the Standby mode	STBY	
P26	Flow temperature dynamic protection	1 – off 2 – according to PF, WF	2 - according to PF, WF	
P28	EK connection	Off - EK external boiler in front of the heating circuit On - EK external boiler connected in the heating circuit	Off	
P30	Room regulation PI	Off / On	On	
P31	Room regulation - P-range	1 - 100 %K	15 %/K	
P32	Room regulation - I-range	10 - 500 min	60 min	
P34	Proposed thermal gradient of heating circuit	2 - 10 K	10 K	
P35	Proposed hot water temperature	20 - 95 °C		
P37	Heating circle name			

DHW menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P02	Protection against Legionella	Switched of Monday-Tuesday-Wednesday-Thursday-Friday-Saturday-Sunday Every day	Switched of	
P03	Protection time against Legionella	- any option to choose the time		
P04	Protection temperature against Legionella	60 – 90 °C	65 °C	
P06	DHW max. temperature	20 – 90 °C	65 °C	
P07	DHW heating mode	1 - parallel 2 - priority 3 - flow temperature 4 - outdoor temperature 5 - auxiliary heating 6 - switching valve 7 - external filling 8 - ESLP only	1 - parallel	
P08	Tank protection during charging	Off / On	On	
P09	Increasing request for source	0 – 20 K	5 K	
P10	DHW heating difference	1 – 20 K	5 K	
P11	SLP filling time prolongation	5 – 360 min	5 min	
P12	Assignment of ZKP working mode (circulating pump	Circuit 1 - 3 (4) DHW	not assigned	
P13	ZKP operation	1 – 60 min	15 min	
P14	ZKP pause	1 – 60 min	15 min	
P15	SF and SFR difference	Off / On	Off	
P16	SLP shutdown difference	1 – 3 K	2 K	
P17	SLP switching difference	4 – 10 K	5 K	
P18	ESLP mode	1 - year-round 2 - in winter 3 - in summer	1 - year-round	
P19	ESLP filling time prolongation	-	-	
P37	DHW circuit name	-	-	

GENERAL FUNCTION menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P01	Delayed PP, ZUP shutdown		3 min	

SOLAR HEATING menu

Parameter	Description	Setting range / Setting value	Factory default setting	Setting
P01	Switching difference	8 - 30 K	10 K	
P02	Shutdown difference	2 - 7 K	5 K	
P03	Minimum SOLP pump operation time	1 - 10 min	3 min	
P04	SZV switching temperature		Off	
P05	Requested temperature of sol. KSPF tank	20 - 110 °C	75 °C	
P06	Solar circuit operating mode	1 – parallel 2 – priority 3 – priority TUV 4 – priority PF	1 – parallel	
P07	Automatic boiler blocking		Off	
P08	Parallel / priority mode switching	10 - 50 K	Off	
P09	Solar gain balance		Off	
P10	Solar gain RESET (zeroing)			
P11	Solar circuit flow value	0,1 - 30,0 l/min	0,1 l/min	
P12	Media density	0,80 - 1,20 kg/l	1.05 kg/l	
P13	Thermal media capacity	2,0 - 5,0 kJ/kgK	3.6 kJ/kgK	
P14	Solar panel shutdown temperature	25 - 210 °C	Off	
P15	SLV switching period	10 - 60 min	10 min	
P16	Required SLVF sol. tank temperature	20 - 110 °C	60 °C	
P17	KLV switching period	10 - 60 min	10 min	

13. ROOM UNITS

ARU5 Room unit (sensor)

DESCRIPTION
The ARU5 room unit represents a passive sensor of room temperature supplied as an accessory of the ACD03/04 electronic control unit. It measures room temperature in such a way that the ACD03/04 electronic control unit could perform optimizing of the heating (water temperature) for the given heating circuit.

Technical Data of the Room Unit
Sensing element: NTC 20 kΩ
Electrical parts protection: IP20
Protection against electric shock: III
Connecting terminals: electric wires of the 0,2 to 0,75 mm^2
Dimensions (WxHxD): 80x80x25 mm

Environment
Rooms: indoor
Operational temperature: -30 ÷ +60 °C
Storage temperature: -30 ÷ +50 °C
Humidity: 0 to 90 % relative humidity, non-condensing

ASSEMBLY
The ARU5 room unit is intended for fixing assembly on a wall by means of two screws (4x35) and dowels (6x30) or on an installation box. The access to assembly openings and to the connection block is possible after removing the front part of the box. It is necessary to process carefully in order to prevent mechanical damages of the sensor.

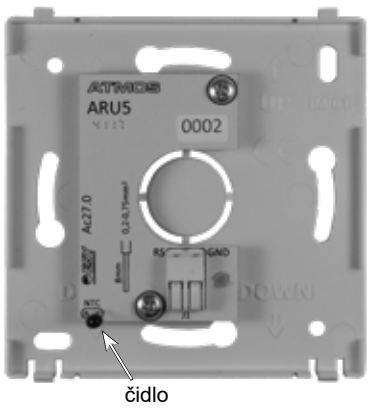
PLACE OF THE ASSEMBLY
The wall unit must be placed at a height of approximately 1.2 to 1.5 m in a neutral place, i.e. to a reference point for all rooms (heating circuit). It is advisable to choose one of the inner partition walls of the coldest room of the stay during the day.

The wall unit must not be situated at following points

- in places with direct sunlight (taking into account seasonal changes)
- close to heat - generating devices such as TVs, refrigerators, wall lamps, radiators, etc.
- on the walls behind which heating pipelines or hot water pipelines are situated or if there are heated chimneys
- on external walls
- in the corners of wall niches, racks or behind curtains (because of the insufficient air circulation)
- close to doors to unheated rooms (due to the influence of cold temperature)

ELECTRICAL CONNECTION

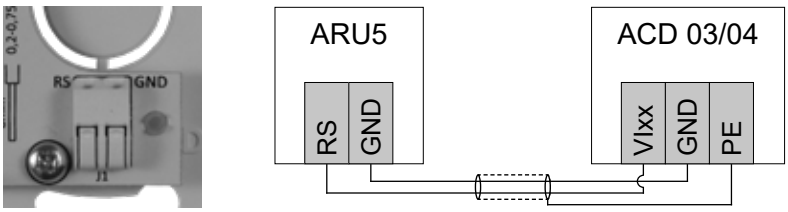
There is intended for the connection a screened cable with two cores of cross-section of 0,2 to 0,75 mm2. Screening is to be connected on the side of the ACD03/ACD04 control unit to the PE protective-conductor terminal. Screening is to be not connected on the side of the room unit.
It is recommended, to led the connecting cable separately from the 230 V conductors and other power lines (at least 5 cm



Recommended cable type

PVC screened twisted-pair - code: S0636
Silicone screened twisted-pair - code: S0637

General circuit diagram of the connection



POZOR - We always connect the ARU5 room unit (sensor) to the variable inputs. Especially for inputs VI4 (terminals 23 - 24) and VI5 (terminals 25 - 26). Alternatively, we can use inputs VI2 or VI3
There is possible to interchange electric wires at the ARU5 (sensor) room unit (except shielding).

ARU10 Room unit with temperature correction

DESCRIPTION

ARU10 room unit is designed for easy control of the heating circuit, providing information on the set modes and room temperature and humidity measurement. It allowes adjusting the required room temperature using the rotary knob. It alowes changing the (operating) mode using the toggle button. The ARU10 room unit enables the ACD03/04 electronic controller to optimize the building heating (water temperature for the given heating circuit).

Technical Data of the Room Unit

Supply voltage: 12 VDC (5,0 VDC ÷ 14,0 VDC)
Max. consumption: 10 mA / 5,0 V (5 mA / 12 V)
Electrical parts protection: IP20
Protection against electric shock: III
Connecting terminals: electric wires of the 0.2 to 0.75 mm^2 cross-section
Communication line: ATMOSNET - cable length max. 200 m
Dimensions (WxHxD): 80x80x44 mm

INFO - From one ACD 03/04 controller it is possible to power 3 (5) pcs of ARU10 room units.

Environment

Rooms: indoor
Operational temperature: -20 ÷ +50 °C
Storage temperature: -20 ÷ +50 °C
Humidity: 0 to 90 % relative humidity, non-condensing

ASSEMBLY

The ARU10 room unit is intended for fixing assembly on a wall by means of two screws (4x35) and dowels (6x30) or on an installation box. The access to assembly openings and to the connection block is possible after removing the front part of the box. It is necessary to pay attention to the flatness of the base layer to avoid twisting the back wall of the box and poor contact in the connector of the terminal block.
The room unit is powered by default directly from the ACD03/ACD04 controller (four-line).

ATTENTION - The person performing the installation and repair of the ACD03/04 electronic controller and accessories must be properly trained and professionally qualified. All work must be performed in accordance with valid standards and safety regulations!

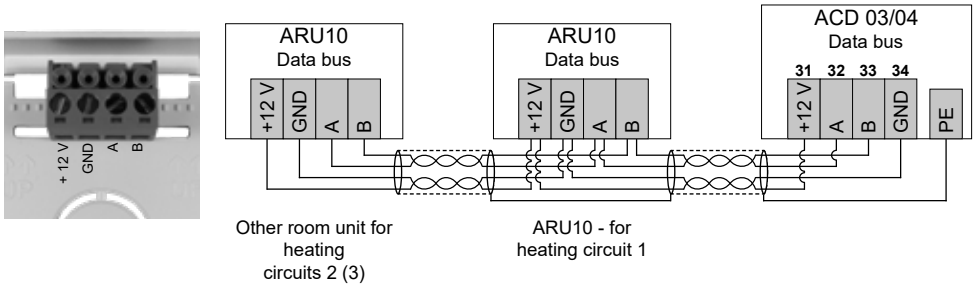
PLACE OF THE ASSEMBLY:
The wall unit must be placed at a height of approximately 1.2 to 1.5 m in a neutral place, i.e. to a reference point for all rooms (heating circuit).
It is advisable to choose one of the inner partition walls of the coldest room of the stay during the day.

The wall unit must not be situated at following points
- in places with direct sunlight (taking into account seasonal changes)
- close to heat - generating devices such as TVs, refrigerators, wall lamps, radiators, etc.
- on the walls behind which heating pipelines or hot water pipelines are situated or if there are heated chimneys
- on external walls
- in the corners of wall niches, racks or behind curtains (because of the insufficient air circulation)
- close to doors to unheated rooms (due to the influence of cold temperature)

ELECTRICAL CONNECTION
For the connection, use screened four-wire cable (two twisted pairs) with a cross-section of 0.2 to 0.75 mm^2. One pair is used for the power supply, the other pair for data transfer. Connect the screening on the side of the ACD03/ACD04 electronic controller to the PE protective terminal. On the side of the room unit, leave the screening unconnected.
We recommend leading the cable separately from 230V conductors and other power lines (at least 5 cm)..

Recommended cable type: J-Y(ST)Y 2x2x0,8 cross-section 0,5 mm^2 - code: S0659

General circuit diagram of the connection

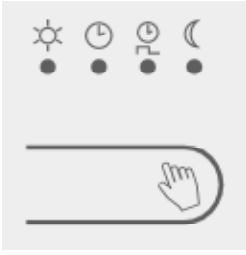


ATTENTION: - We connect the ARU10 room unit to the 12V/A/B/GND communication (terminals 27 - 30 or 31 - 34). We always **connect room units in series**.

CURRENT ROOM TEMPERATURE ADJUSTMENT

To adjust the current room temperature, turn the control knob.
To increase the required room temperature by 0,5 to 3 K (°C) compared to the value set in ACD03/04 controller, turn the control knob clockwise (+).
To decrease the required room temperature by 0,5 to 3 K (°C) compared to the value set in ACD03/04 controller, turn the control knob anticlockwise (-).
If the control knob is in the horizontal position (on the largest dot), the temperature correction is zero (off).
One dot = 1 K (°C) - the desired temperature can be changed (corrected) by 0.5 K (°C).

SWITCHING OPERATING MODES



Use the ✋ button to switch from one mode to another one. This is done by briefly pressing the button repeatedly until the desired mode (indicated by the light diode) is set.

You can switch between the following four operating modes:

☼ **Permanent mode - COMFORT (day)**
In this mode, the heating circuit is permanently regulated to the COMFORT temperature (day) set in the ACD03/04, taking into account the position of the rotary knob (required temperature correction). Temperature correction is active when the diode is permanently on.

◷ **Automatic mode - AUTO**
In this mode, the heating circuit is permanently regulated according to the program set in the ACD03/04, taking into account the position of the rotary knob (required temperature correction).
Temperature correction is active in all day/night modes when the diode is permanently on.

◷ **Automatic mode with temporary correction**
In this mode, the heating circuit is permanently regulated according to the program set in the ACD03/04, taking into account in short term the position of the rotary knob (required temperature correction).
Temperature correction is active only during the duration of the current block - the diode is permanently on. After changing the time block (see the setting in the ACD03/04 controller), the correction turns off and the room unit switches automatically to normal AUTO mode - ◷ - the diode flashes.
ATTENTION: the flashing diode in the normal AUTO mode ◷ means, that the room unit operates according to the values (temperatures) set in the ACD03/04 controller without taking into account the position of the rotary knob (without correction).
To reactivate the temperature correction, turn the knob by more than 0.5 K (°C), or briefly press the button ✋. If the control knob is in the horizontal position (on the largest dot), the temperature correction is zero (off) and this kind of operation (temporary correction) cannot be set. Also, simply turning the knob to the largest dot ("0") will exit the temporary correction mode and switch to operation (mode) AUTO - ◷.

☾ Permanent mode - SETBACK (ECONOMIC) (night)
In this mode, the heating circuit is permanently regulated to the Setback (attenuation) temperature (night) set in the ACD03/04, taking into account the position of the rotary knob (temperature correction). Temperature correction is active when the diode is permanently on.

LED indication

Operating mode		☼ ●	🕒 ●	PL ●	☾ ●
🕒	Automatic mode with permanent correction - AUTO		●		
PL	Automatic mode with temporary correction			●	
☼	Permanent mode - COMFORT (day)	●			
☾	Permanent mode - SETBACK (night)				●
	Visit - temporary COMFORT temperature (set in ACD 03/04)	●	●		
	Absence - temporary SETBACK temperature (set in ACD 03/04)		●		●
	Holiday - temporary STBY - anti-freeze/permanent attenuation (set in ACD 03/04)			●	●
	STBY - Standby mode		●	●	●
The ARU10 unit is properly paired, but the control is not assigned to any circuit		●	●	●	●
Unit not paired / COMMUNICATION failure = flash of all LEDs 1x / min		◐	◐	◐	◐

The modes in the gray field set in the ACD03/04 controller

● - LED indicator is on
◐ - LED indicator is flashing

ATTENTION: If the diode is flashing under two symbols at the same time, the room unit is in the special mode (- -) and temperature correction is active depending on the rotary knob setting. This modes can only be set on ACD 03/04.
If the LED flashes ◐ in any operating mode, this is a condition without taking into account the position of the rotary knob (without temperature correction). To make correction active it is enough to turn rotary knob more than 0,5 K or briefly press the button .

ADDRESSING THE BUS - PAIRING WITH ACD 03/04
After connecting the room unit to the communication line (four-wire cable), it is necessary to add the room unit to the list of devices on the line. This is done by pairing the connected product (room unit) with the ACD 03/04 controller.
The regulation allows **several ways of pairing**, so choose the one that is most advantageous for us (see the instruction for use of ACD 03/04 controller).

INFO - If the unit is not correctly paired with ACD 03/04, all LEDs still on.

• Pairing

ARU10 room units (devices) pairing with ACD 03/04 controller.

Proceed as follows: first, on the **ACD03/04** controller under the ⚙ button (to enter the menu), click on the **Hydraulics** symbol. Then go to the **Communication** button and click on it, then go to pairing:

Under the **Communication** button click on the **Room units** button. Select the room unit you want to switch on and activate it to **Yes** (⚙→ Hydraulics / Communication / Room units).

The controller allows to define up to 5 room units (ARUa, ARUb, ARUc, ARUd and ARUe), by default one for each circuit (Circuit 1, 2, 3 and 4 and DHW).

INFO - Predefined default setting: for circuit 1 - ARUa unit and RSEa sensor, for circuit 2 - ARUb unit and RSEb sensor , for circuit 3 - ARUc unit and RSEc sensor,...

The **basic concept** counts on the setting of **one room unit for one heating circuit**. Therefore, after switching on (activation of) the room unit (Yes), a predefined heating circuit is automatically assigned to the relevant room unit (Circuit 1 is assigned to ARUa, Circuit 2 is assigned to ARUb, Circuit 3 is assigned to ARUc, etc.).
At the same time, the RSE room temperature sensor of the respective unit is automatically assigned to the circuit. All provided that no other sensor and unit have been already assigned.

The controller also allows you to set **one room unit for more heating circuits or more room units for one heating circuit** concept.

INFO - If more sensors (from more room units for one heating circuit) are selected, the controller shall work with their average value (T_{RSEa} + T_{RSEb} / 2).

Pairing from the ACD 03/04 controller by entering the address

On the **ACD 03/04** controller, under the **Communication** button click on the Room units button (⚙ →Hydraulics / Communication / Room units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

Go back one step in the menu by clicking on the symbol ⮌ and click on (select) the activated unit, for example ARUa (b, c, d, e), we want to pair.

Click on the **Device** button and select the relevant type of **ARU10** room unit (device) that is to be paired.

Click on the **Address** button and enter the **serial (production) number** of the room unit, which can be found inside the room unit (device), e.g. 0009.

This will automatically pair the ARU10 room unit with the ACD 03/04 controller, which is indicated on the ARU10 room unit by the LED signaling change, **displaying the currently set working mode.**

Pairing from the ACD03/04 controller using the pairing button

On the **ACD 03/04** controller, under the **Communication** button click on the Room units button (⚙ →🔧 Hydraulics / Communication / Room units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

Go back one step in the menu by clicking on the symbol ⮌ and click on (select) the activated unit, for example ARUa (b, c, d, e), we want to pair.

Click on the **Pairing** button and go to the **ARU10** room unit that is to be paired.

On the ARU10 room unit, press and hold the button with the **Hand** ✋ symbol for more than 3 seconds,(time limit to pair is **300 s** (5 minutes)).

The pairing of the ARU10 room unit with the ACD03/03/04 controller is **confirmed** by lighting up all 4 LEDs for 3 seconds and changing the LED signaling, **displaying the currently set working mode.**

Pairing from the ARU10 room unit with the pairing button

On the **ARU10** room unit, press and hold the button with the **Hand** ✋ symbol for more than 3 seconds and go to **ACD 03/04** controller to be paired.

This starts the pairing process, which is displayed on the ARU10 room unit (signaled) by gradual lighting the LEDs from left to right and back for 300 seconds (5 minutes).

On the **ACD 03/04** controller, under the **Communication** button click on the Room units button (⚙ →🔧 Hydraulics / Communication / Room units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

Go back one step in the menu by clicking on the symbol ⮌ and click on (select) the activated unit, for example ARUa (b, c, d, e), we want to pair.

Click on the **Pairing** button.

The pairing of the ACD 03/04 controller with the ARU10 room unit is **confirmed by terminating the time countdown** (before it expires).

With this pairing method, it is forbidden to invoke the pairing process on more than one unit.

ATTENTION - Each device (ARU10, ARU30, other devices) **is slightly different, so it requires a different pairing procedure!**

INFO - When the ARU10 room unit is connected to the communication line, **the ARU10 unit signals unconnected communication by flashing all 4 LEDs regularly.**
The **pairing process can be interrupted** on the ACD 03/04 controller (⚙→ Hydraulics/ Communication) by clicking on the **Pairing button** again (the time countdown disappears).

Update - The button is used to update the program in the room unit using the SW program stored on the SD card in the controller.
The update is performed only by the Service Technician in necessary cases (new SW version, malfunctions, etc.)

For the **ARU10** room unit, the **update takes 30 s** and is signaled on the room unit by simultaneous flashing of the 1st and 2nd LEDs or the 3rd and 4th LEDs.

Controlled circuit - the button allows you to change the default setting (assignment) of the relevant heating circuit to the relevant room unit.

Predefined default setting:

- **Circuit 1 is predefined for the ARUa unit**
- **Circuit 2 is predefined for the ARUb unit**
- **Circuit 3 is predefined for the ARUc unit**
- **Circuit 4 is predefined for the ARUd unit**
- **Circuit DHW is predefined for the ARUe unit**

INFO - Circuits can only be assigned to room units if they are defined as DK or MK.

ATTENTION - For the **ARU10** room unit (unit without display), it is p**ossible to select only one circuit to be controlled under the Controlled circuit button.** If control of more circuits by the ARU10 unit is required, the additional circuits must be set as Dependent on the circuit currently assigned to the unit. The setting of the dependence is performed in the ⚙→ Hydraulics / Function configuration / Heating circuit functions / Type of connection to the circuit menu.

Hotel mode - The button deactivates the controls of the ARU10 room unit so that the set values can only be read but not changed (used in common rooms of hotels, companies, schools, etc.).

ARU30 Room unit with touch screen

DESCRIPTION

ARU30 room unit is designed for intuitive control of the heating circuit, provision of information on the set parameters and modes, and for the measurement of room temperature and humidity. The use of the touch screen allows you to change the required room temperature in dependence on time, change modes using preset functions and communicate with the ATMOS ACD 03/04 controller. ARU30 room unit enables the ACD 03/04 electronic controller to optimize heating of the building (water temperature for the relevant heating circuit).

Technical Data of the Room Unit

Supply voltage: 12 VDC (6,0 VDC ÷ 14,0 VDC)
Max. consumption: 180 mA / 8 V (250 mA / 6 V, 120 mA / 12 V)
Electrical parts protection: IP20
Protection against electric shock: III (safe low voltage supply)
Connecting terminals: electric wires ofthe 0.2 to 0.75 mm^2 cross-section
Communication line: ATMOSNET - cable length max. 200 m
Dimensions (WxHxD): 124x84x27 mm

Environment

Rooms: indoor
Operational temperature: -20 ÷ +50 °C
Storage temperature: -20 ÷ +50 °C
Humidity: 0 to 90 % relative humidity, non-condensing

ASSEMBLY

The ARU30 room unit is intended for fixing assembly on a wall by means of two screws (4x35) and dowels (6x30) or on an installation box. The access to assembly openings and to the connection block is possible after removing the front part of the box. It is necessary to pay attention to avoid mechanical damage or contamination of the connecting contacts. It is necessary to pay attention to the flatness of the base layer to avoid twisting the back side of the box and poor contact between the terminal board and electronics.
The box can be opened by hand, by applying finger pressure (by pressing) in the middle of the bottom side.

ATTENTION - The person performing the installation and repair of the ACD 03/04 electronic controller and accessories must be properly trained and professionally qualified. All work must be performed in accordance with valid standards and safety regulations!

PLACE OF THE ASSEMBLY

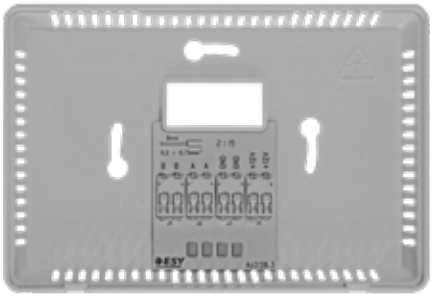
The wall unit must be placed at a height of approximately 1.2 to 1.5 m in a neutral place, i.e. to a reference point for all rooms (heating circuit).
It is advisable to choose one of the inner partition walls of the coldest room of the stay during the day.

The wall unit must not be situated at following points

- in places with direct sunlight (taking into account seasonal changes)
- close to heat - generating devices such as TVs, refrigerators, wall lamps, radiators, etc.
- on the walls behind which heating pipelines or hot water pipelines are situated or if there are heated chimneys
- on external walls
- in the corners of wall niches, racks or behind curtains (because of the insufficient air circulation)
- close to doors to unheated rooms (due to the influence of cold temperature)

ELECTRICAL CONNECTION

For the connection, use screened four-wire cable (two twisted pairs) with a cross-section of 0.2 to 0.75 mm2. One pair is used for the power supply, the other pair for data transfer. Connect the screening on the side of the ACD03/ACD04 electronic controller to the PE protective terminal. On the side of the room unit, leave the screening unconnected. The GND terminals are interconnected on the printed circuit board. We recommend leading the cable separately from 230 V conductors and other power lines (at least 5 cm).



For longer lines, make sure that the supply lines have sufficient cross-sections so that there is no large drop in the supply voltage.
The table assumes a total resistance of the supply line back and forth of 14 Ω.
If the cable is used to power other devices, this fact and the total power input must be taken into account!

ATTENTION - Only one ARU30 room unit together with or without up to three ARU10 units can be supplied directly **from the ADC 03/04 controller**. In the case of using two or three ARU30 room units, the first unit is powered directly from the ACD 03/04 controller and the other two are provided with their own power sources. As the network power supply we will use the DE06-12 device (order code: P0488), which we place in the KU 68 type box on a wall (standard box), to which the room unit ARU30 is screwed on the wall. Alternatively, we ca use the MEAN WELL GS06E-3P1J adapter as the power supply (order code: P0484), which we connect to the power connector on the bottom side of the ARU30 unit and plug it into a standard wall socket (230 V / 50 Hz).

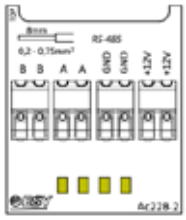
Table of max. cable length for supply voltage drop of approx. 3 V:

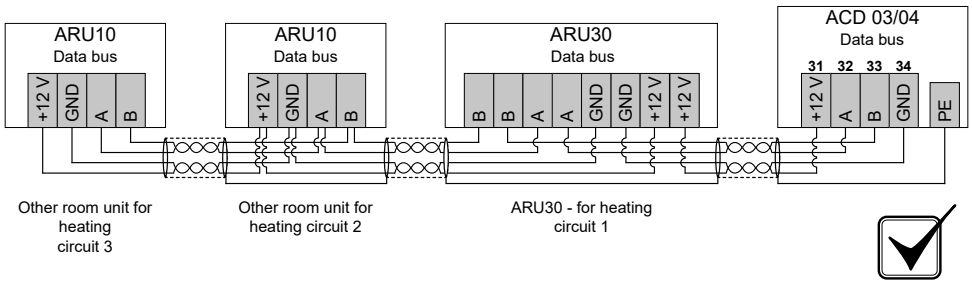
diameter (cross section) of the supply line	cable length max
0,6 mm (0,28 mm^2 cross-section)	100 m
0,8 mm (0,5 mm^2 cross-section)	200 m

Recommended cable type:
J-Y(ST)Y 2x2x0,8 cross-section 0,5 mm^2 - order code: S0659

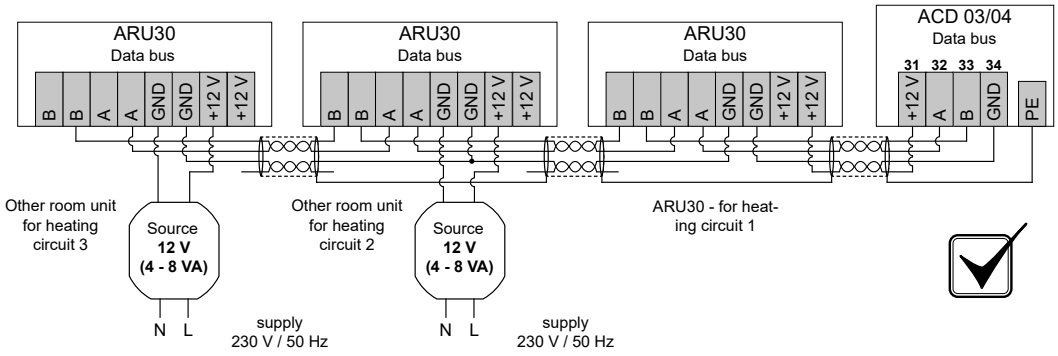
General circuit diagram of the connection

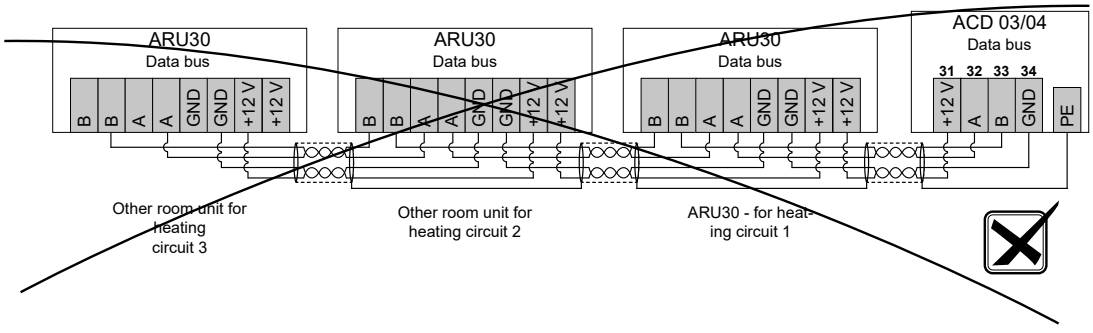
ATTENTION - ARU30 spring terminals do not allow to intentionally connect two lines to one terminal **(one line = one terminal)**.


ARU30



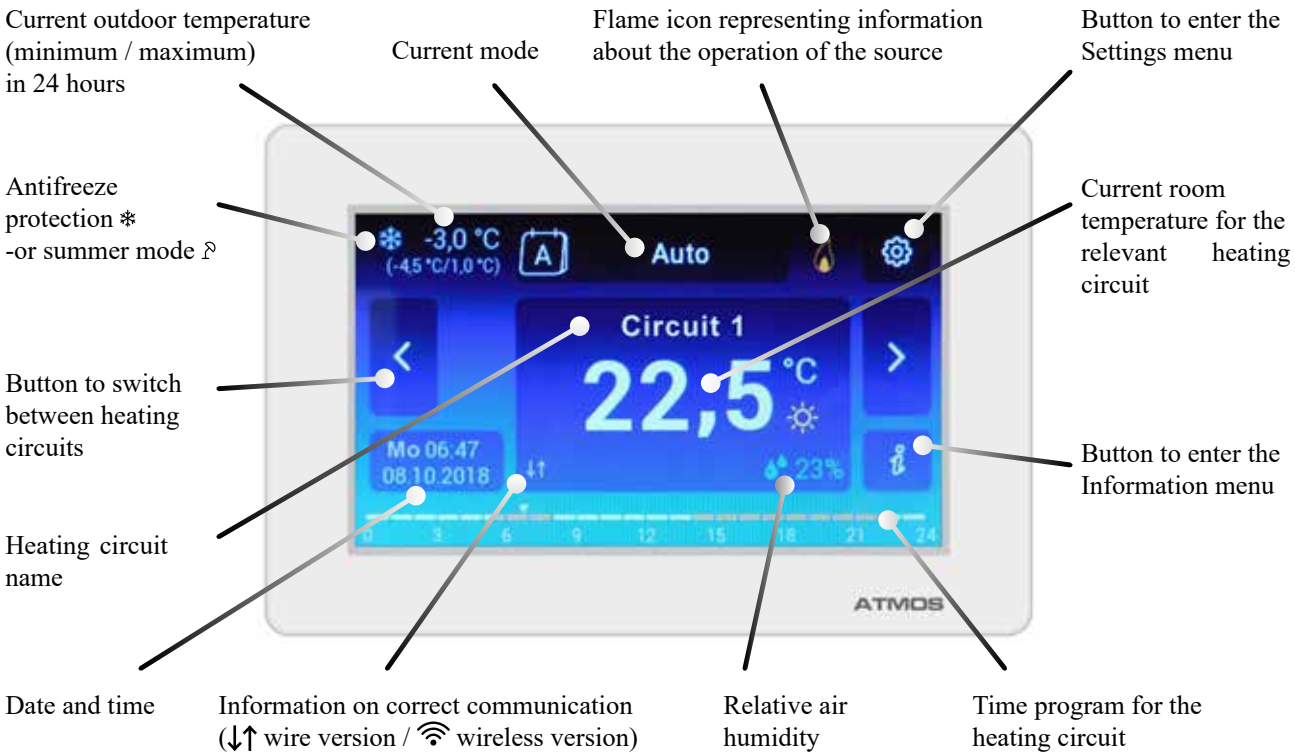
Source
12 V (4 - 8 VA)





Pay attention to the maximum output load of 12 V on the ACD 03/04 controller

BUTTONS AND INFORMATION ON THE DISPLAY (default screen)



BUTTONS AND INFORMATION ON THE DISPLAY

The following information is displayed directly on the touch screen:

- Current room temperature for the relevant heating circuit

- Heating circuit name

- Information on proper communication

- Time program for the relevant heating circuit - current day (ongoing)

The orange segments show the desired operation set to COMFORT temperature ☼ , the white ones to SET BACK temperature ☾

- Button to switch between heating circuits

Using the arrows < > , it is possible to briefly display (10 s) the room temperature (time program) read by other room units connected (paired) to the ACD03/04 controller. It is also possible to display the domestic hot water temperature (if read).

- Relative air humidit

Relative humidity is only measured at room temperatures higher than 0 °C.

- Current outdoor temperature

- Minimum / maximum outdoor temperature in 24 hours

- Date and time

- Flame representing information about the operation of the source

The illuminated flame indicates the request for burner operation for pellet boilers (phase L2 closed). The burner is in START or OPERATION mode.

For boilers with manual feeding, the illuminated flame indicates that the boiler has been put into operation. The boiler is in firing up or operation mode (min. water and combustion gases temperatures reached).

INFO - The flame does not indicate whether the boiler fan is in operation or not.

SYMBOL FOR ENTERING THE SETTINGS MENU (gear) - used to change settings

- **Date, time** - setting of the current date and time

- **Time programs -** setting of time programs for individual assigned heating circuits and domestic hot water

- **System -** setting of language, parameters and color design of the display (display graphics)

- **Comunication** - setting of communication (pairing) with ACD 03/04 controller and other devices (if connected)

- **Password -** allows access to the service interface - service technician / manufacturer (OEM)

- **symbol** (house) - used to return to the default screen

- **symbol -** used to go one step back (one level)

- **symbol** (arrows) - used to move in the menu if the features of the touch screen are not used

INFORMATION SYMBOL - used to enter the Information menu.

In the Information menu, all the necessary information about the system, as on the ACD 03/04 controller, can be found.

ADDRESSING THE BUS - PAIRING WITH ACD 03/04

After connecting the room unit to the communication line (four-wire cable), it is necessary to add the room unit to the list of devices on the line. This is done by pairing the connected product (room unit) with the ACD03/04 controller.

The controller allows several ways of pairing, so that the most convenient one can be selected.

• Pairing

The function is used to pair ARU30 room units (devices) with ACD 03/04 controller.

Proceed as follows: first, on the ACD03/04 controller under the ⚙ button (to enter the menu), click on the **Hydraulics** symbol. Then go to the **Communication** button and click on it, then go to pairing:

Under the **Communication** button click on the **Room units** button. Select the room unit you want to switch on and activate it to **Yes** (⚙→ Hydraulics / Communication / Room units).
The controller allows to define up to 5 room units (ARUa, ARUb, ARUc, ARUd and ARUe), by default one for each circuit (Circuit 1, 2, 3 and 4 and DHW)

INFO - Predefined default setting: for circuit 1 - ARUa unit and RSEa sensor, for circuit 2 - ARUb unit and RSEb sensor , for circuit 3 - ARUc unit and RSEc sensor,...

The **basic concep**t counts on the setting of **one room unit for one heating circuit.** Therefore, for MK and DK circuits after switching on the room unit (Yes), a predefined heating circuit is automatically assigned to the given room unit (Circuit 1 is assigned to ARUa, Circuit 2 is assigned to ARUb, Circuit 3 is assigned to ARUc, etc.).
At the same time, the RSE room temperature sensor of the respective unit is automatically assigned to the circuit. All provided that no other sensor and unit have been already assigned.

The controller also allows you to set the **Room unit for more heating circuits or more room units for one heating circuit concept in the next steps.**

INFO - If more sensors (from more room units for one heating circuit) are selected, the controller shall work with their average value (T_{RSEa} + T_{RSEb} / 2).

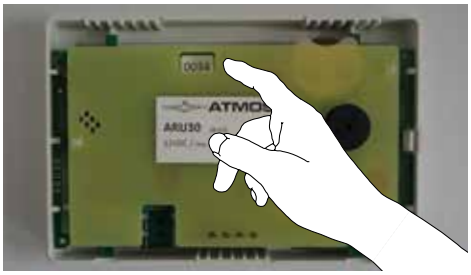
Pairing from the ACD 03/04 controller by entering the address

On the **ACD 03/04** controller, under the **Communication** button click on the Room units button (⚙ →Hydraulics / Communication / Room units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

Go back one step in the menu by clicking on the symbol ⮌ and click on (select) the activated unit, for example ARUa (b, c, d, e), we want to pair.

Click on the **Device** button and select the relevant type of **ARU30** room unit (device) that is to be paired.

Click on the **Address** button and enter the **serial (production) number** of the room unit, which can be found inside the room unit (device), e.g. 0012.



This will automatically pair the ARU30 room unit with the ACD03/04 controller, which is indicated on the ARU30 room unit by displaying the communication on the display (↓↑ or).

Pairing from the ACD03/04 controller using the pairing button

On the **ACD 03/04** controller, under the **Communication** button click on the Room units button (→ Hydraulics / Communication / Room units). Select the room unit you want to be switched on and activate it by setting it to **Yes**.

Go back one step in the menu by clicking on the symbol and click on (select) the activated unit, for example ARUa (b, c, d, e), we want to pair.

Click on the **Pairing** button and go to the **ARU30** room unit that is to be paired.

Before pairing, first log in to the ARU30 room unit at the **Service Technician** authorization level (→ Hydraulics / Password / Authorization).

On the **ARU30** room unit, enter the → **Communication** menu and click on the **Pairing** button (time limit to pair is **300 s** (5 minutes)).

This will automatically pair the ARU30 room unit with the ACD03/04 controller, which is indicated on the ARU30 room unit by displaying the communication on the display (↓↑ or).

Pairing from the ARU30 room unit using the pairing button

Before pairing, first log in to the ARU30 room unit at the **Service Technician** authorization level (→ Hydraulics / Password / Authorization).

On the **ARU30** room unit, enter the → **Communication** menu, click on the Pairing button and go to **ACD 03/04** controller to be paired.

INFO - If the room units have not been activated yet, proceed as follows.

On the **ACD 03/04** controller (⚙→ Hydraulics / Communication / Room units), activate connected room units by setting them to **Yes**.

On the **ACD 03/04** controller, go back one step in the menu by clicking on the symbol ⮌ and click on (select) the activated unit, for example ARUa (b, c, d, e).

Click on the **Pairing** button (time limit to pair is **300 s** (5 minutes)).

The pairing of the ACD 03/04 controller with the ARU30 room unit is **confirmed by terminating the time countdown** (before it expires).

With this pairing method, it is forbidden to invoke the pairing process on more than one unit.

INFO - Finally, we check the correct pairing. If the unit is not properly paired with the ACD03/04 controller, the current values are missing in the *i* Information menu.
When communication is lost, the last status is displayed.

ATTENTION - Each device (ARU10, ARU30, other devices) **is slightly different, so it requires a different pairing procedure!**

INFO - The **pairing process can be interrupted** on the ACD 03/04 controller (⚙→ Hydraulics/ Communication) by clicking on the **Pairing button** again (the time countdown disappears).

ATTENTION - If the current room temperature for individual circuits is not displayed on the ARU30 room unit, no room units (their temperature sensors) for the heating circuit are assigned, assign them in the submenu ⚙→ Hydraulics / Function configuration / Heating circuit functions / RS(E)x - room sensors - **RSa (b, c) a RSEa (b, c, d, e)**.

RSa (b, c) button - for **ARU5** room unit (sensor)

RSEa (b, c, d, e) button - for **ARU10 and ARU30** room units (external room temperature sensor).

Update - The button is used to update the program in the room unit using the SW program stored on the SD card in the controller.
The update is performed only by the Service Technician in necessary cases (new SW version, malfunctions, etc.).

INFO - For the ARU30 room unit, the **update takes a longer time** and depends on the length of the wires.

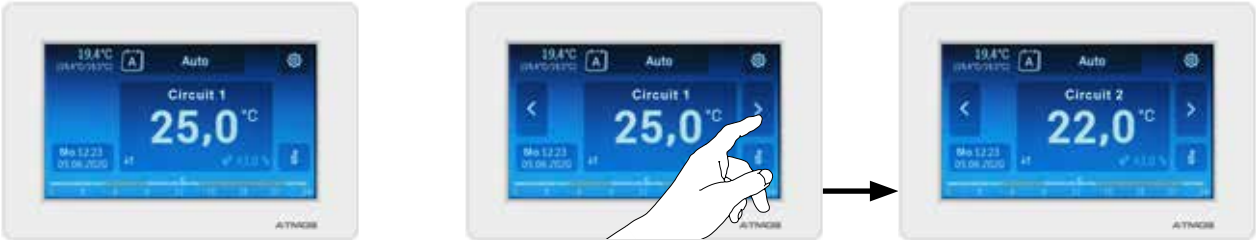
Controlled circuit - the button allows you to change the default setting (assignment) of the relevant heating circuit to the relevant room unit.

Predefined default setting:

- **Circuit 1 is predefined for the ARUa unit**
- **Circuit 2 is predefined for the ARUb unit**
- **Circuit 3 is predefined for the ARUc unit**
- **Circuit 4 is predefined for the ARUd unit**
- **Circuit DHW is predefined for the ARUe unit**

INFO - Circuits can only be assigned to room units if they are defined as DK or MK.

For the **ARU30** room unit, it is possible to select **more circuits** under the **Controlled circuit** button, which will be displayed on the room unit display and for which we can change the required room temperatures (Comfort temperature ☼, Setback temperature ☾).



Hotel mode - The button deactivates the display of the ARU30 room unit so that the set values can only be read but not changed (use in common rooms of hotels, companies, schools, etc.).

INFO - In you want to keep the possibility of control (activated functions) of the ARU30 room unit (for selected users), select the Password for user (Child protection) function instead of the "Hotel mode" function, see ⚙→🏠 P15[System] parameter - Password for user (Child protection).

PARAMETERS FOR ARU30 ROOM TEMPERATURE - ⚙→🏠🔧

• P22^{System} parameter – ARU30 default circuit

The parameter is used to set the default circuit (Circuit 1, Circuit 2, Circuit 3 (Circuit 4)) for the ARU30 room unit, which will be displayed on the room unit (default display).

Factory default setting: Circuit 1

• P23^{System} parameter – ARU30 colour scheme

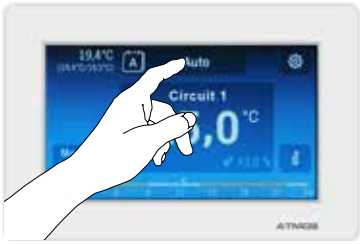
The parameter is used to set the colour scheme for the ARU30 room unit according to the user's requirement.

Setting options:

- **0 - Black antracit**
- **1 - Dark grey**
- **2 - Light grey**
- **3 - Sky blue**
- **4 - Deep blue**
- **5 - Light green**
- **6 - Ruby**
- **7 - Pink violet**

Factory default setting: 3 - Sky blue

SWITCHING OPERATING MODES



Adjustment and activation of operating modes is performed by setting on the touch screen.

By touching the displayed current mode (button above the current room temperature for the relevant heating circuit), the screen with the individual modes is opened.

Touch the relevant symbol to select the required mode:
Holiday | **Absence** | **Visit** | **Auto** | **Summer** | **Comfort** | **Setback** | **Standby**

- for **Summer** | **Comfort** | **Setback** | **Standby** modes, the required mode is automatically set after touching the symbol.

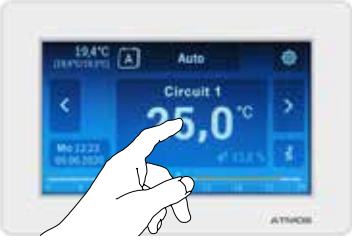
- for **Absence** mode, it is necessary to set the end time of the mode (hours, minutes) when the system returns to the earlier defined mode (**Auto** | **Comfort** | **Setback** | **Standby**).
  For the duration of **Absence** mode, the room temperature the same as in the **Setback** mode.

- for the **Visit** mode, it is necessary to set the end time of the mode (hours, minutes) when the system returns to the earlier defined mode (**Auto** | **Comfort** | **Setback** | **Standby**).
  For the duration of **Visit** mode the room temperature is the same as in **Comfort** mode.

- for **Holiday** mode, it is necessary to set the end of the mode (days), during which the room unit remains in the relevant mode and then the system returns to the earlier defined mode (**Auto** | **Comfort** | **Setback** | **Standby**).
  For the duration of **Holidays** mode , the room temperature is the same as in the Standby mode (according to its settings, e.g. antifreeze or **Setback** (attenuation) temperature).

- for **Auto** mode, you can select the type of weekly program. You can choose from two different options of weekly programs (one week / three week A - B - C), according to the previous custom setting (→ SYSTEM menu).

SETTING OF THE REQUIRED ROOM TEMPERATURE



Set up the required room temperature by selecting the required value on the touch screen.

By touching the displayed current room temperature, enter the screen, and by using the arrows or directly by adjusting the setting point (white point), set the required COMFORT ☼ and SETBACK (ECONOMIC) ☾ temperature for the relevant room and heating circuit.

At the bottom of the display, you can set the increment by which the temperature can be adjusted (0.5 °C or 0.1 °C).

To save the new setting, it is always necessary to confirm the entered value with the ✔ symbol. Otherwise, the new setting can be canceled with the ✖ symbol

14. TECHNICAL PARAMETERS

General

Power voltage	230 V ± 10 %
Power frequency	50 Hz
Power in standby mode	ACD 03/04A controller - 2.8 W (5.0 VA) ACD 03/04B relay module - 2.7 W (4.0 VA)
Recommended fuse	Ceramic fuse, max. 6.3 A / 1,500 A (slow, with high shutdown capability)
Max. switching current	max. 35 A / 230 V
I^2t of switching current	max. 0.1 A^2s
Communication bus	RS485 for connecting external devices (ARU units, etc.)
Max. length of conductors for RS485 bus	200 m (total sum)
Auxiliary power supply on RS485 connector for ARU10, ARU30	12 V / 200 mA (total sum), electronically protected
Ambient temperature	0 °C - 60 °C
Storage temperature	-20 °C - 60 °C
Humidity relative	0 - 90 % (non-condensing)
Degree of protection/electrical protection	IP 20
EN 60730-1 electric shock protection class	I
EN 60730-1 overvoltage category	II
Radiation	EN 60730-1
Interference resistance	EN 60730-1
Housing dimensions	ACD 03/04A controller with ACD 03B module connected and 144x96x110 mm (WxHxD) connectors ACD 03/04A controller - 144 x 96 x 75 mm (WxHxD) ACD03/04B relay module - 133 x 65 x 55 mm (WxHxD)
Controller housing material	Polyamide (Saxamide) self-extinguishing UL94 V0
Weight	ACD 03/04A controller - 390 g ACD 03/04B relay module - 215 g
ACD 03/04A controller outputs	2x output 230 V (relay switching contact) 1x analog output: 0 - 10 V, (output resistance 82 Q, short-circuit resistant) 1x PWM output: (f = 490 Hz, PNP transistor, short-circuit resistant, (H = 11.5 V internal current source 10 - 15 mA; L = 0 V internal pulldown 10 kΩ per GND)
ACD 03/04B relay module outputs	4x output: 230 V (relay circuit-opening contact) 7x output: 230 V (relay switching contact)
Max. output relay contact load	4 (4) A (total sum of all output relays max. 6 A)
ACD 03/04A controller inputs	1x fan speed sensing: (pull up 4k7/3.3 V), power supply 5 V/5 mA, short-circuit resistant 3x NTC20 kΩ temperature sensor (-40 - 110 °C), optimized for ambient temperature measurement (air) (AF, AF2, RS) 9x NTC20 kΩ temperature sensor (-10 - 120 °C) or PT1000 (-40 - 400 °C), optimized for water or flue gas temperature measurement
ACD 03/04B relay module inputs	2x output 230 V (relay switching contact)

Installation recommendations

Power cables (mains supply, burners, pumps, actuators):		
Cross-section	1.5 mm2	
Maximum length	no restrictions	
Low voltage cables (sensors, external switches, modem cables, analog signal cables, etc.)		
Cross-section	0.5 mm2	
Maximum length	100 m (double conductor); longer connection cables should not be used to prevent electromagnetic interference.	
INFO - For longer wiring, use a shielded cable connected to PE of the ACD 03/04 controller		
RS485 data bus cables		
Cross-section	0.5 mm2	0,28 mm2
Maximum length/ maximum power supply	200 m / max. 250 mA (twisted multi-pair conductor)	100 m / max. 250 mA (twisted multi-pair conductor)
Recommended cable type	J-Y(St)Y 2 x 2 x 0,8 (Order code - S0659)	

Resistance values (resistivity) of sensors

Resistance (resistivity) of NTC20 kΩ sensor - sensor for AF, WF, SF(2), VF, EKF, PF(2, 3), FPF, SLVF, KSPF(2)							
°C	**kΩ**	**°C**	**kΩ**	**°C**	**kΩ**	**°C**	**kΩ**
-20	220,60	0	70,20	20	25,34	70	3,100
-18	195,40	2	63,04	25	20,00	75	2,587
-16	173,50	4	56,69	30	15,88	80	2,168
-14	154,20	6	51,05	35	12,69	85	1,824
-12	137,30	8	46,03	40	10,21	90	1,542
-10	122,40	10	41,56	45	8,258	95	1,308
-8	109,20	12	37,55	50	6,718	100	1,114
-6	97,56	14	33,97	55	5,495		
-4	87,30	16	30,77	60	4,518		
-2	78,23	18	27,90	65	3,734		

Resistance (resistivity) of PT1000 sensor - AGF, KVLF(2)							
°C	**Ω**	**°C**	**kΩ**	**°C**	**kΩ**	**°C**	**kΩ**
0	1000,00	80	1308,93	140	1535,75	280	2048,76
10	1039,02	85	1327,99	150	1573,15	300	2120,19
20	1077,93	90	1347,02	160	1610,43	320	2191,15
25	1093,56	95	1366,03	170	1647,60	340	2261,66
30	1116,72	100	1385,00	180	1684,65	360	2331,69
40	1155,39	105	1403,95	190	1721,58	380	2401,27
50	1193,95	110	1422,86	200	1758,40	400	2470,38
60	1232,39	115	1441,75	220	1831,68	450	2641,12
70	1270,72	120	1460,61	240	1904,51	500	2811,00
75	1289,84	130	1498,24	260	1976,86		

Temperature ranges of sensors

Name	Function abbreviation	Sensor type	Measuring range
Outdoor sensor	AF, AF2	NTC20 kΩ	-40 °C ... 70 °C
Room temperature sensor	RS (ARU5 room unit)	NTC20 kΩ	-30 °C ... 60 °C
Room temperature sensor	ARU10, ARU30 room unit	digital	-40 °C ... 50 °C
Humidity sensor (RH)	ARU10, ARU30 room unit	digital	0 ... 100 %
Boiler sensor	WF	NTC20 kΩ	-10 °C ... 120 °C
External boiler sensor	EKF	NTC20 kΩ	-10 °C ... 120 °C
Circuit temperature sensor	VF, RL, KRLF	NTC20 kΩ	-10 °C ... 120 °C
DHW sensor	SF(2), SFR, SFint	NTC20 kΩ	-10 °C ... 120 °C
Tank sensor	PF(2, 3) / FPF / SLVF / KSPF	NTC20 kΩ	-10 °C ... 120 °C
Flue gas / solar panel sensor	AGF / KVLF(2)	PT1000	-40 °C ... 350 (400) °C

The ACD 03/04 controller is equipped with two types of inputs:

3 K: intended to measure the temperature of water, flue gas and solar panels (WF, SF, VF1, VF2, AGF, PF, VI1, VI2, VI3)

15 K: intended to measure ambient temperature (air) - outdoor sensor, room sensor (AF, VI4, VI5)

Types of temperature sensors:

PT1000 - intended to measure flue gas temperature and solar panel temperature (measuring -40 °C to 400 °C), **can only be connected to 3 K input**

NTC20 kΩ - intended for other uses (-10 (-40) to 120 °C), can be connected to 3 K and 15 K inputs.

GARANTIEBEDINGUNGEN

ATMOS ACD 03/04

1. We guarantee that the product will meet the characteristics determined by relevant technical standards and conditions for 24 month from delivering to the user and max. 32 months from the manufacturer selling the product to a business representative, provided that all methods of usage, service and maintenance stated in this manual are adhered to.

2. Should there be a defect within the guarantee period that was not caused by the user, the product will be repaired cost-free.

3. Guarantee period is extended for the period of time the product was being repaired.

4. Customer must claim the request for a repair within guarantee period by the service staff.

5. Guarantee claim can be acknowledge only if the product was installed by a qualified professional, in accordance with valid standards and the user manual. The guarantee is conditioned by providing full and legible information about company that performed the installation. In case of a damage caused by the installations, the costs are covered by the installation company.

6. The buyer has been informed about using the product.

7. Request for repairs after the end of guarantee period are also claimed by the service staff. In this case, the customer covers the financial costs.

8. User is obliged to respect the instructions in the manual. When the service and maintenance instructions are not respected, or when the product is handled carelessly or unprofessionally, the guarantee claim is terminated and the repair must be paid by the customer.

Repairs within and after the guarantee period are carried out by:
- Company representing ATMOS in the given country and region
- Installation company that installed the product
- Jaroslav Cankař a syn ATMOS
Velenského 487, 294 21 Bělá pod Bezdězem, Czech Republic, Phone: +420 326 701 404