Regulus ACC30 CONSTANT TEMPERATURE ACTUATOR Installation Guide

www.regulus.cz

ACC30/ACC40

CONSTANT TEMPERATURE ACTUATOR ACC30, ACC40

Contents

INTRODUCTION

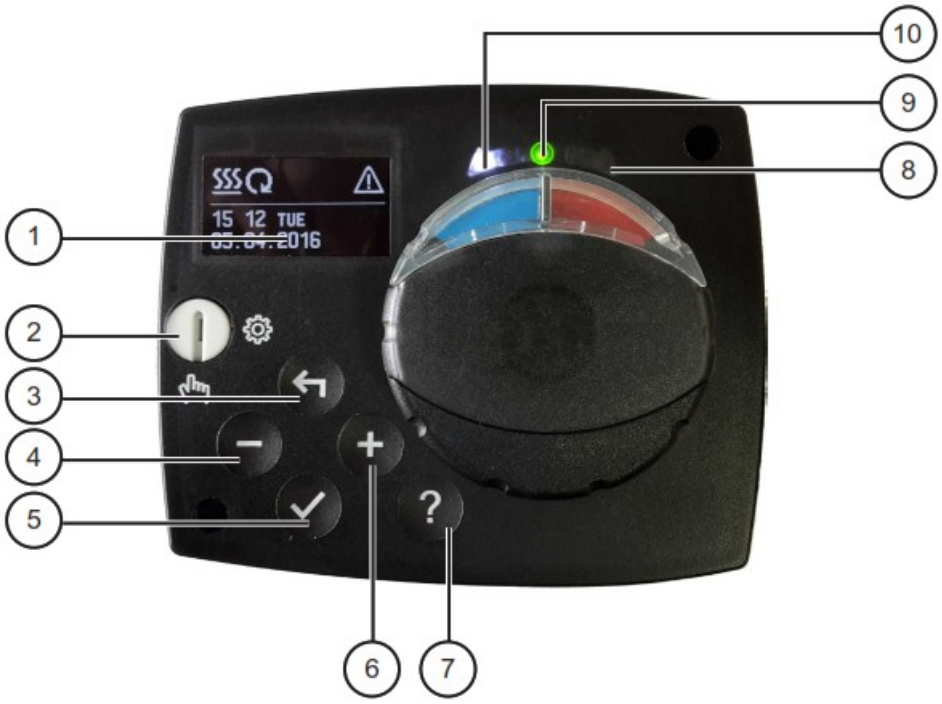
Actuators ACC30, ACC40 are modern designed, microprocessor-driven devices made with digital and SMT technology.
The actuator is intended as a constant temperature controller with actuator designed for heating applications. The

most common use is to control the return temperature in a boiler. Besides controlling the actuator, the ACC40 also controls a circulation pump.

For initial setup see Initial actuator setup, page 6!

USER MANUAL

APPEARANCE OF THE ACTUATOR

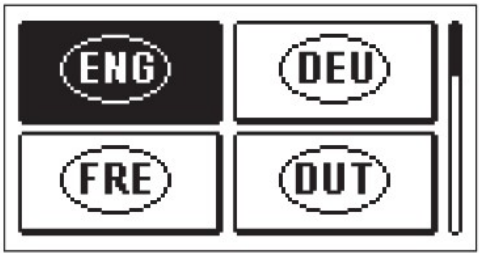
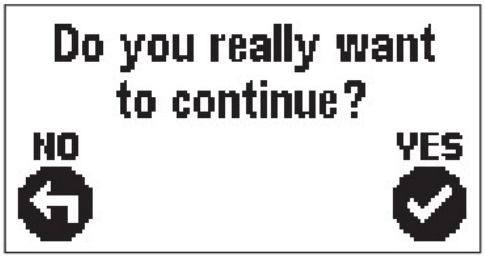


1. Graphic display 2. Switch for manual operation. 3. Button ↰ Return back. 4. Button − Move to left, decreasing. 5. Button ✓ Menu entry, confirmation of selection.	6. Button + Move to right, increasing. 7. Button ? Help. 8. LED indication – valve rotation right. 9. LED indication red – fault, error. 10. LED indication – valve rotation left.

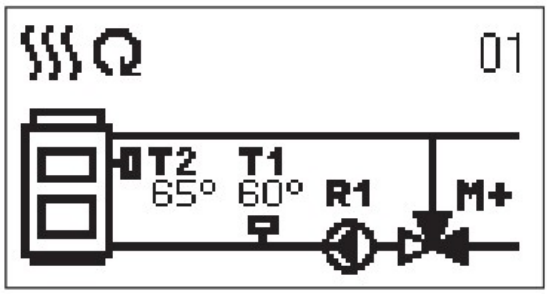
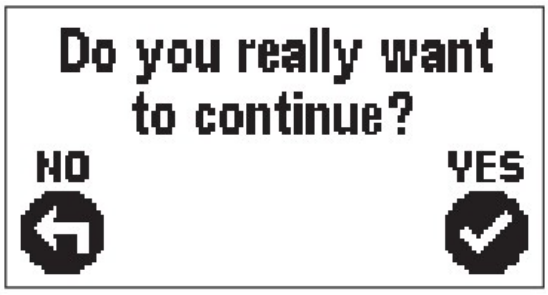
INITIAL ACTUATOR SETUP

Constant temperature actuators are equipped with an innovative solution, which allows initial setup of the controller in only three steps.
When you connect the actuator to the power supply for the first time, the software version is shown. Next, the first step appears on the screen.

STEP 1 – LANGUAGE SELECTION

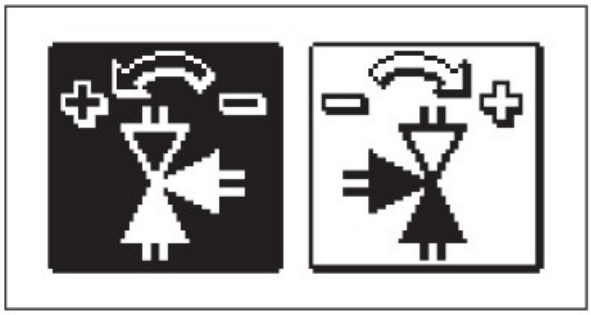
 	Using buttons — and + you select the req Press the button ✓ to confirm the selected After selecting the language, the actuator rec e selection by ressing the button ✓. If you accidentally selected the wrong langua language by pressing button

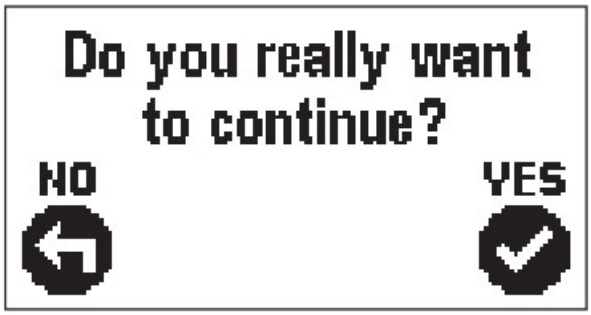
STEP 2 – HYDRAULIC VARIANT SELECTION

	Next, you select a hydraulic variant for the actuator function. Move l means of buttons — and + Confirm the selected variant by pressing the button ✓ .
	After you selected the variant, the actuator requires confirmation of g the button ✓. If you accidentally selected the wrong variant, go back to reset the v n ↩ .

Selected hydraulic variant can be later changed in service parameter S1.1.

STEP 3 – OPENING OF THE MIXING VALVE



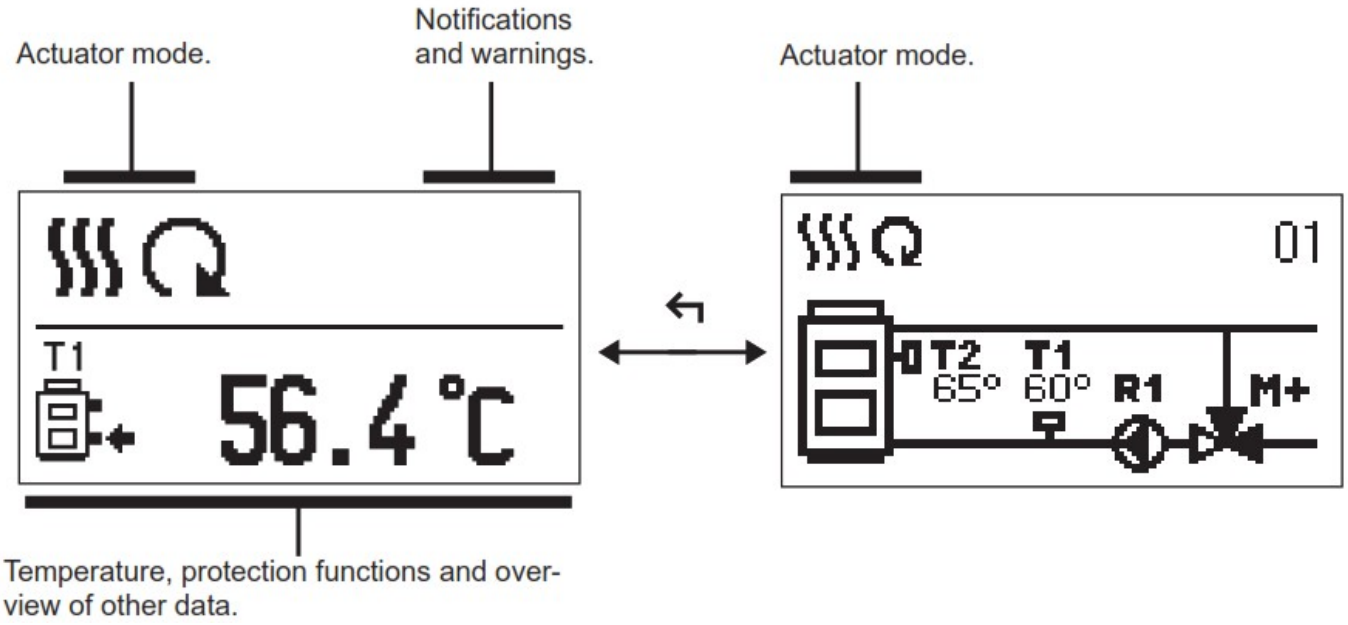


Press icon which indicates the proper direction of opening direction. Between icons you can move w
— and +.
After you selected the correct direction, the actuat
nfirmation of the selection by pressing the button
If you accidentally selected the wrong mixing valv
ction, go back to reset the the selection by pressir
.

Selected mixing valve opening direction can be later changed in service parameter S1.4.

GRAPHIC LCD DISPLAY

All important data of actuator operation are shown on the graphic LCD display.
DESCRIPTION AND DESIGN OF THE MAIN DISPLAY



Display of information on the screen:
The actuator mode, notifications and warnings are displayed in the upper third of the display. For switching between basic display and display of the hydraulic variant use the button ↰.
To check the temperature and other data, use buttons — and +. The number of sensors and other data, which can be listed on the display, depends on the selected hydraulic variant and actuator settings.

If you wish to have a specific data display to appear after you stop using the keyboard then select the desired data with buttons — and + . Confirm the selected screen by pressing the button ✓ for 2 seconds.

When you press the button ↩ for 2 seconds, then the display of the temperature will change from one to two rows and vice versa. On the two line temperature display, the measured temperature is displayed in the first row and the required or calculated temperature in the second row.

DESCPRIPTION OF SYMBOLS ON THE DISPLAY

ACTUATOR MODE SYMBOLS

Symbol	Description
	Heating.
	Cooling.
	Automatic mode.
	Stand by.
	Manual mode.

TEMPERATURE AND OTHER DATA SYMBOLS

Symbol	Description
	Measured temperature.
	Set point or calculated temperature.
	Supply temperature.
	Boiler temperature.
	Heating circuit temperature.
	Heating circuit temperature.
	Return line temperature.
T1, T2	Temperature measured by the sensor T1, T2.

SYMBOLS FOR NOTICES AND WARNINGS

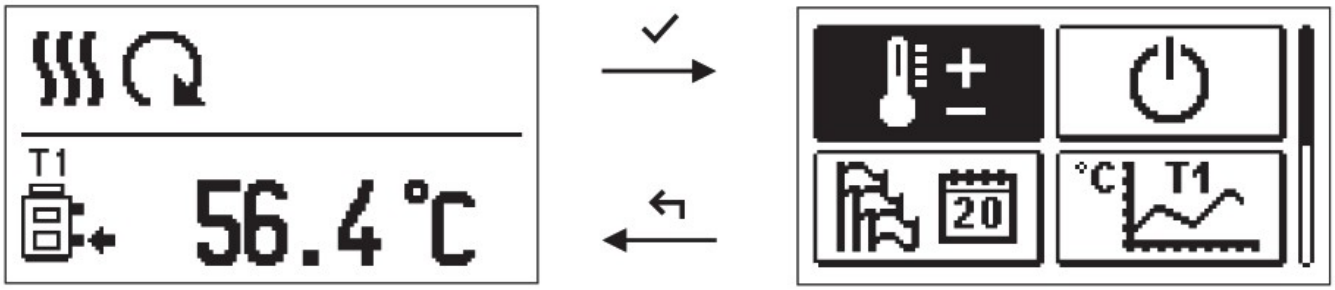
Symbol	Description
	**Notifications** In case of exceeding the maximum temperature or activation of protection function, t he actuator indicates the event with flashing symbol on the display. If the maximum temp erature is no longer exceeded or if the protection function is turned off, a lit symbol in dicates a recent event. Press to open the screen to check notifications.
	**Warning** In the event of sensor failure, the actuator indicates the failure with flashing symbol o n the display. If the issue is resolved or no longer present, a lit symbol indicates a rec ent event. Press to open the screen to check warnings.

DISPLAY FOR HELP, NOTICES AND WARNINGS

By pressing the button ? the screen for help, messages and warnings will be oppened in which the following icons are available.

	**Short manual** Short manual for use of the controller.
	**Actuator version** Overview of controller type and software version.
	**Notifications** Log of exceeded maximum temperatures and activated protection functions. By pressing the buttons — and + move through the list of notifications. Press ↰ to exit the list.
	**Warnings** Log of sensors, pump or flow meter failures. By pressing the buttons — and + move through the list of warnings. Press ↰ to exit the list.
	**Delete warning and noti ication logs** Pressing the button ↰ will erase notification and warning log. All sensors that are not connected will be deleted from the list of failures. **Note:** Failures of sensors that are required for actuator operation can not be deleted.

MENU ENTRY AND NAVIGATION



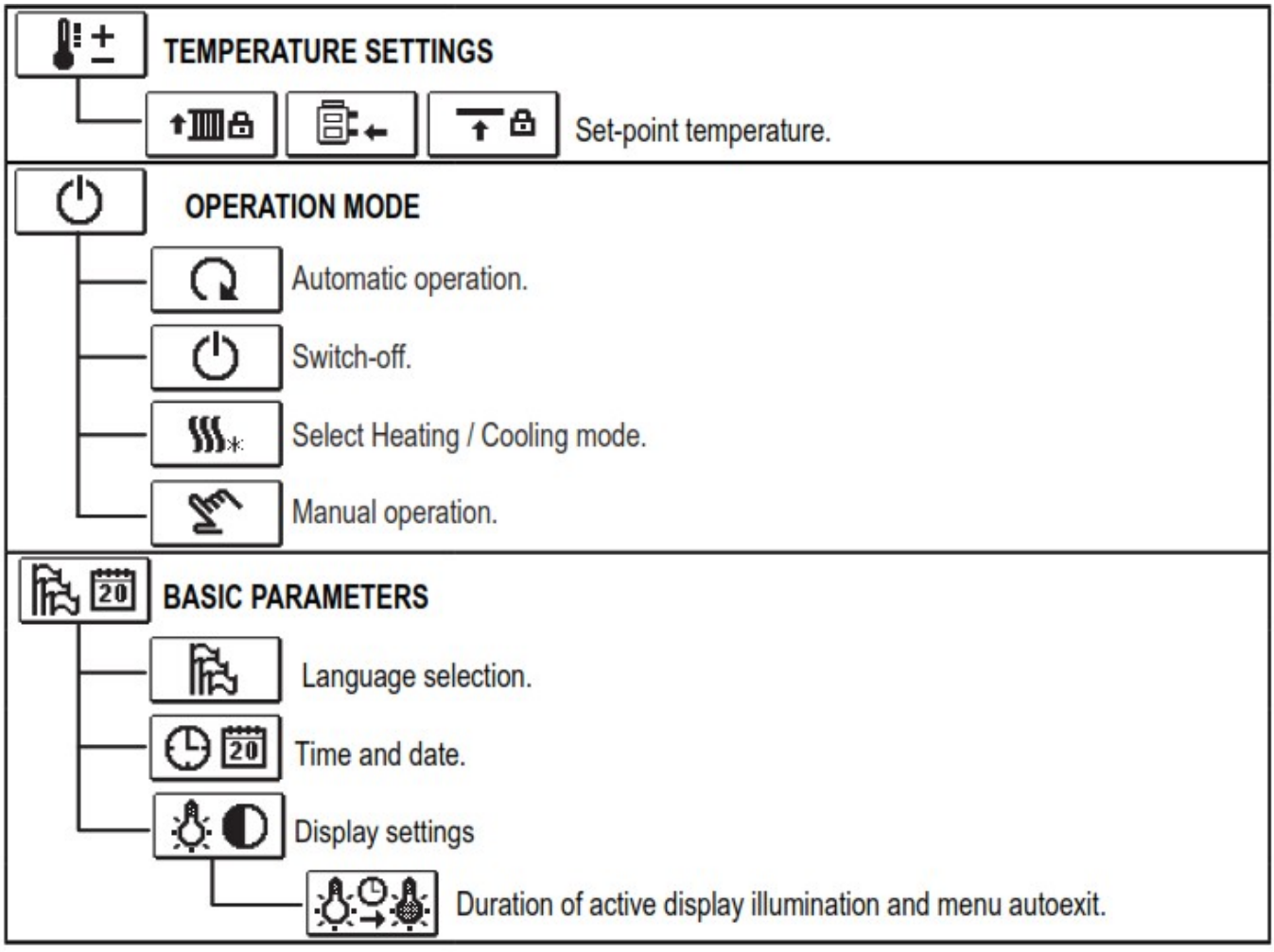
To enter the menu, press the button ✓

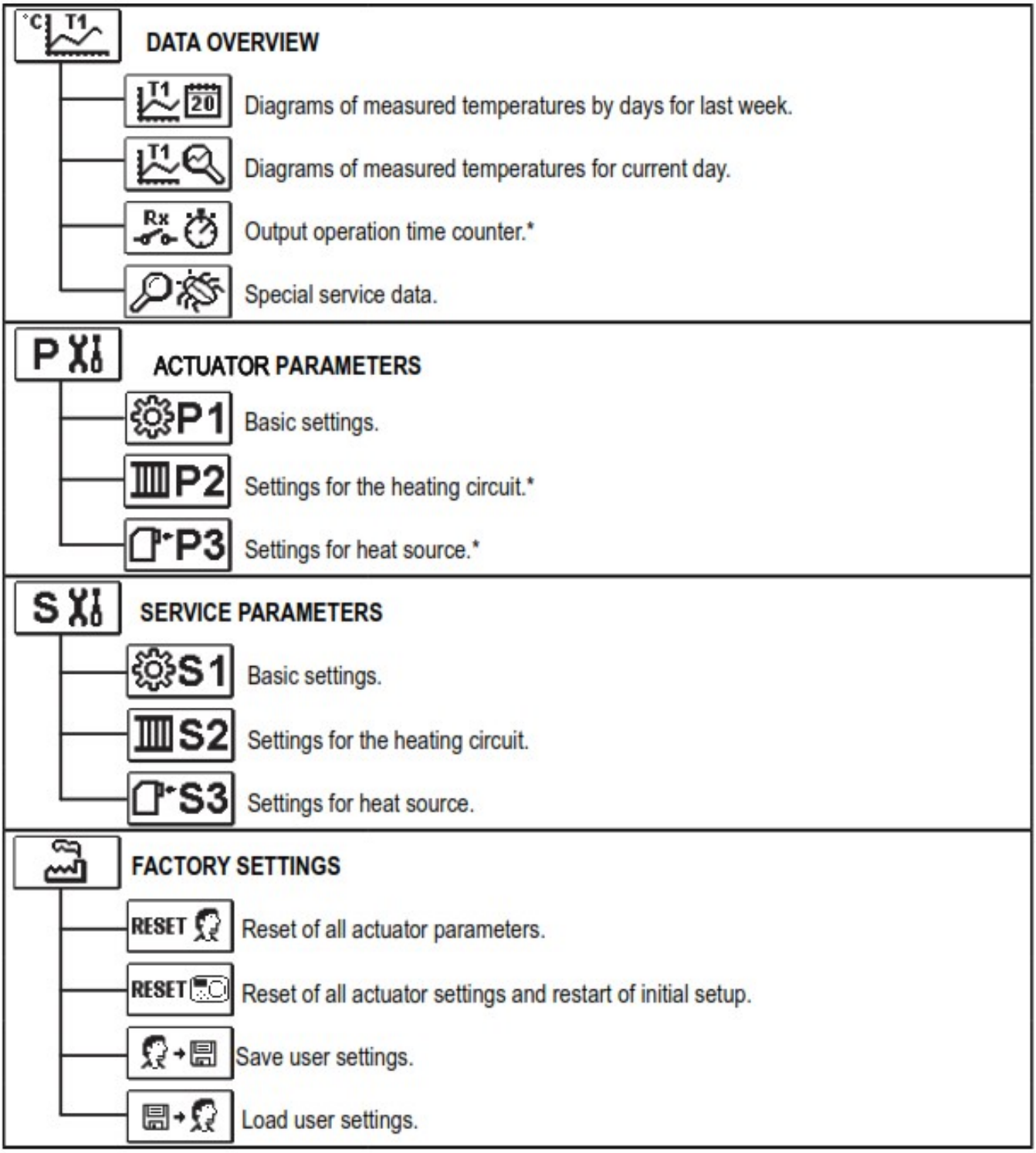
Move in the menu using the buttons − and +, with the ✓ button you confirm your selection.

By pressing the button ↰ you return to the previous screen.

If some time no button is pressed, the backlight turns off or is reduced according to the setting.

MENU STRUCTURE AND DESCRIPTION

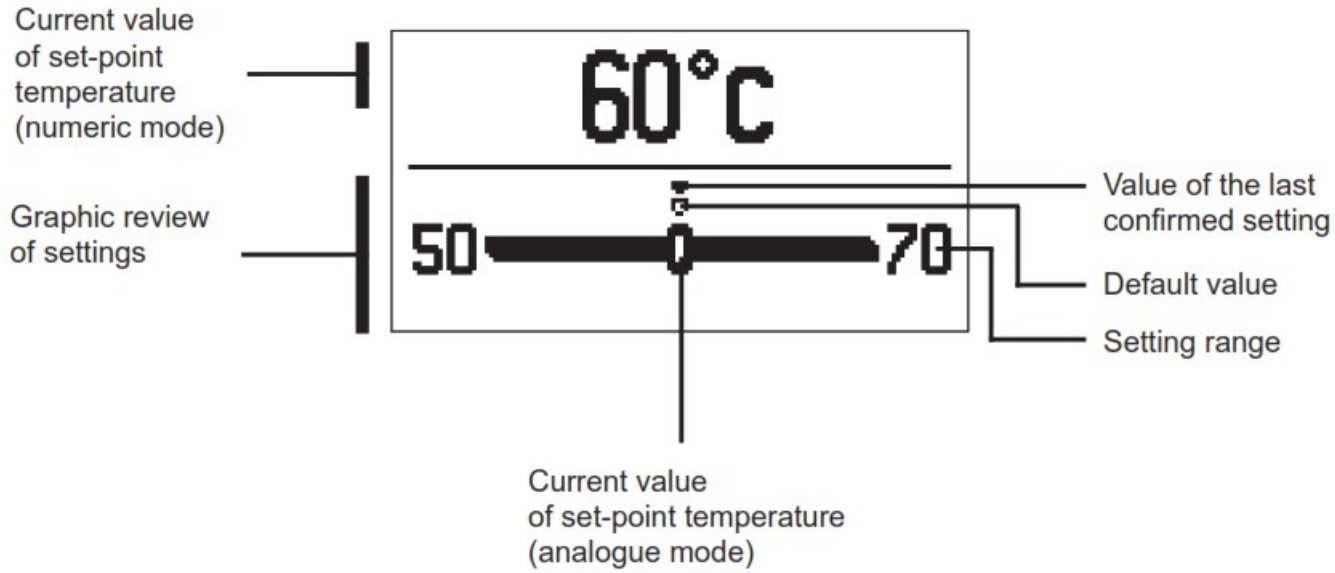




TEMPERATURE SETTINGS

In the menu only the temperatures are displayed, where you can adjust the set-point temperature for the selected hydraulic variant.

By pressing buttons — , + and ✓ you choose the required temperature, and a new window opens:



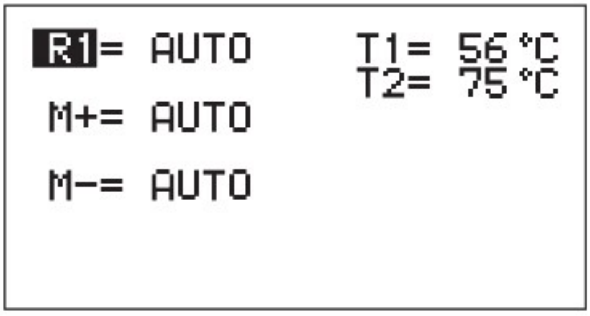
Adjust the set-point temperature with buttons − , + and confirm with button ✓ .
Exit the settings by pressing the button ↰.

OPERATION MODE

In this menu the operation mode of the actuator is selected.
Select the operation mode with buttons − , + and confirm with button ✓.
Exit the settings by pressing the button ↰ .

	Automatic operation
	Actuator switch-off
	Heating or cooling operation mode selector
	Manual mode

MANUAL MODE:



This mode is used for testing the system or in case of malfunction. Every output can be manually activated or deactivated.

Move with the buttons — and + between the individual outputs R1, M- or M +. The output you want to change is selected by pressing the button ✓ . ON, OFF or AUTO starts flashing. Now the output can be changed using the buttons — und +. The setting is confirmed by ressing the button ✓.

Exit the setup menu with the ↰ button.

HEATING OR COOLING OPERATION MODE SELECTOR

Heating operation mode is active.

Cooling operation mode is active.

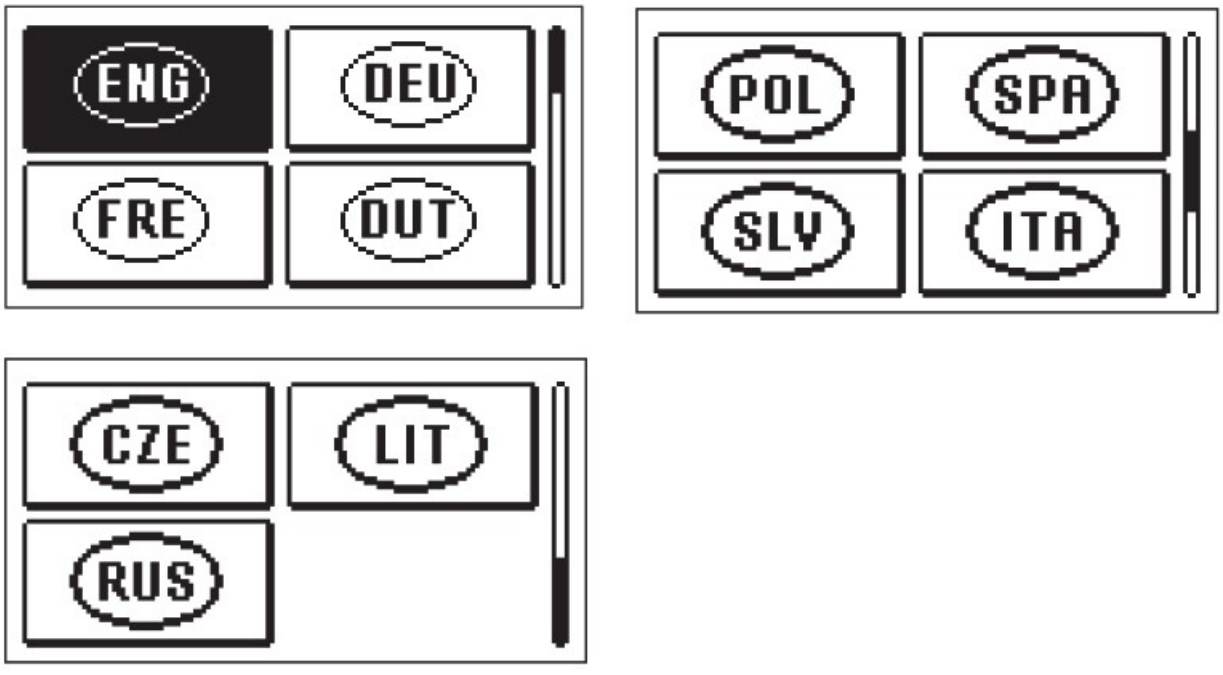
BASIC SETTINGS

The menu is intended for language, time, date and display settings

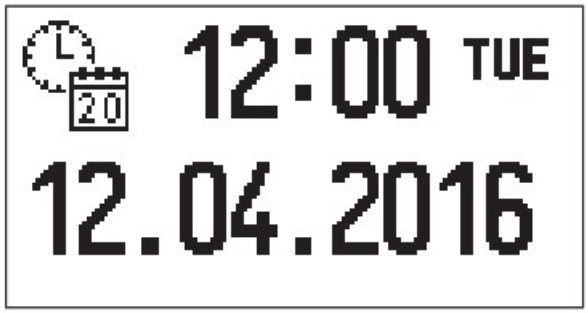
Language selection

The required user language is selected by pressing buttons — , + and confirmed with button ✓ .

Exit settings by pressing the button ↰.



Time and date



You set the exact time and date in the following manner:

By pressing buttons — and + move among individual data. By pressing button ✓ you select data that you want to change. When data flashes, change it by pressing buttons — , + and confirm it with the button ✓.

Exit the settings by pressing the button ↰

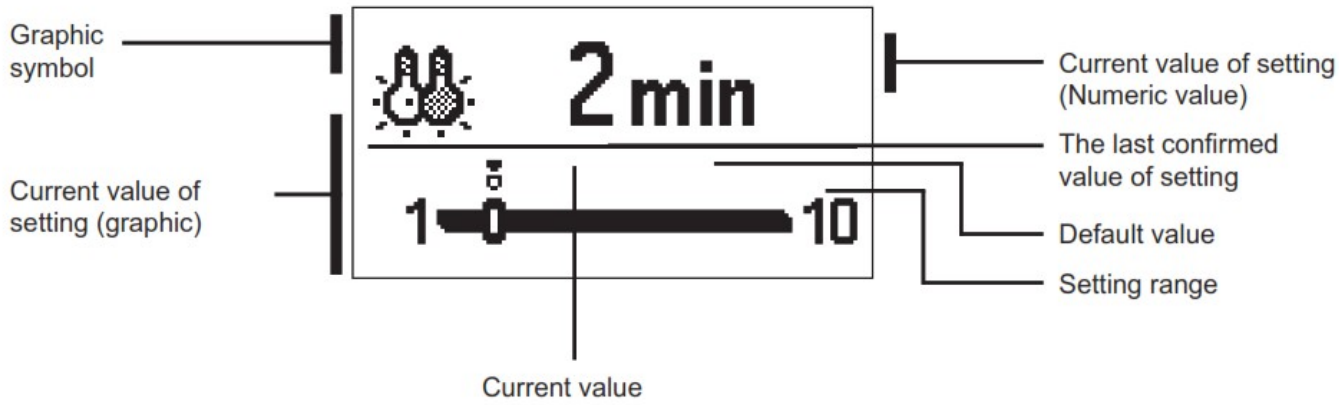
Display settings

The following settings are available:

Time of active screen illumination and autoexit from menu to the main screen.

By pressing buttons — , + and ✓ you select and confirm required setting.

A new window opens:



You change settings by pressing buttons — and + confirm by pressing button ✓.

Exit the settings by pressing button ↰.

The change of settings is carried out when you confirm it by pressing button ↰.

DATA OVERVIEW

In this menu there are icons to access the following data on actuator performance:

DIAGRAMS OF MEASURED TEMPERATURES BY DAYS FOR LAST WEEK

The graphical representation of the temperature profile in days, for each sensor.

There are records of the temperatures for the last week of operation.

DIAGRAMS OF MEASURED TEMPERATURES FOR CURRENT DAY

Detailed graphic overview of temperature in current day for each sensor.
How often are temperatures logged is set with parameter P1.3.

OUTPUT OPERATION TIME COUNTERS*

Counters of actuator's outputs operation time.

SPECIAL SERVICE DATA

Intended for diagnostics for technical service.

To view the sensor diagrams move with buttons − and + between the sensors. By pressing the button ✓ the date of displayed temperature begins to flash. Use buttons − and + to move between days.

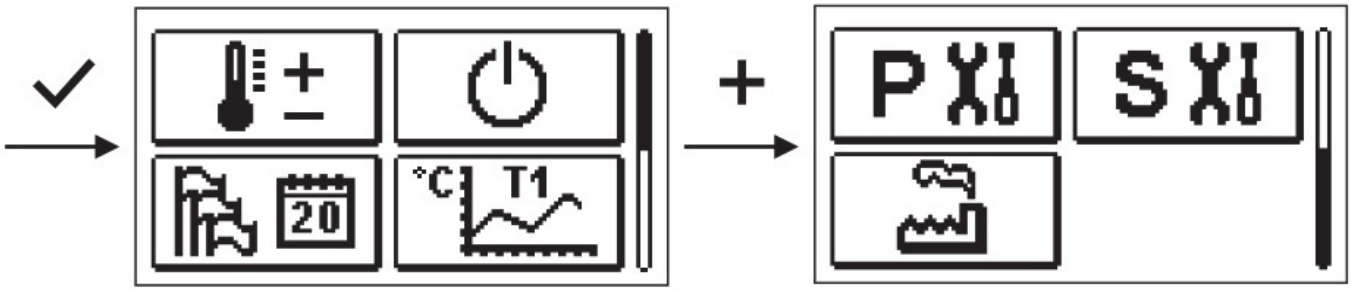
Return to the temperature selection by pressing the button ✓.
The range of the temperature display on the graph can be changed with the the button .

Exit the diagram overview by pressing the button ↰.

SERVICE MANUAL

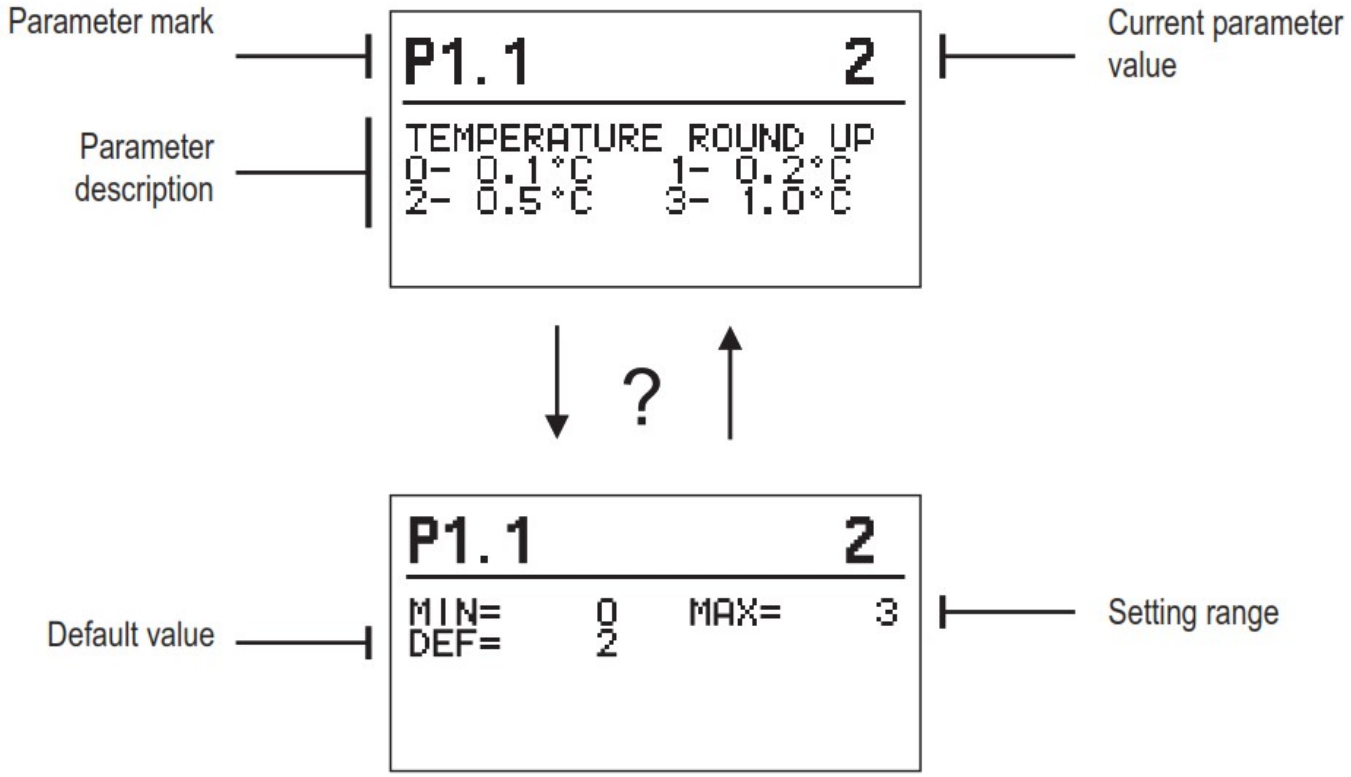
ACTUATOR PARAMETERS AND AUXILIARY TOOLS

All additional settings and adjustments of actuator performance are carried out by means of parameters. Basic and Service parameters are found on the second menu screen.



BASIC PARAMETERS

The basic parameters are listed in one group **P1** – basic parameters.
Content of basic parameters is displayed as follows:



The setting is changed by pressing the button ✓.

The value will start blinking and can be changed with the — and + . The setting is confir- med by pressing the button ✓.

Move with buttons — and + to other parameters and repeat the procedure.

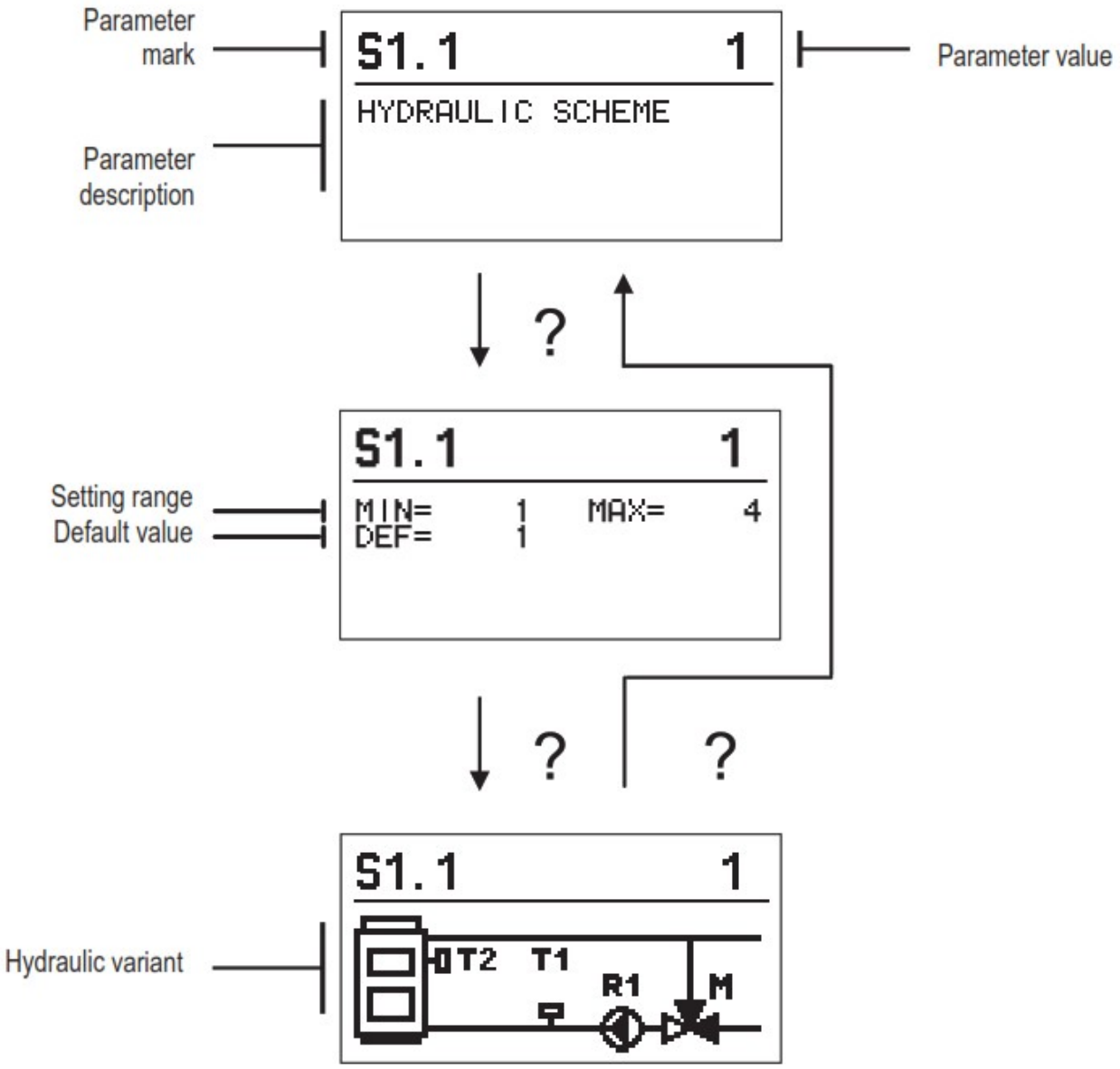
Exit the parameter settings by pressing the button ↰.

Basic parameters:

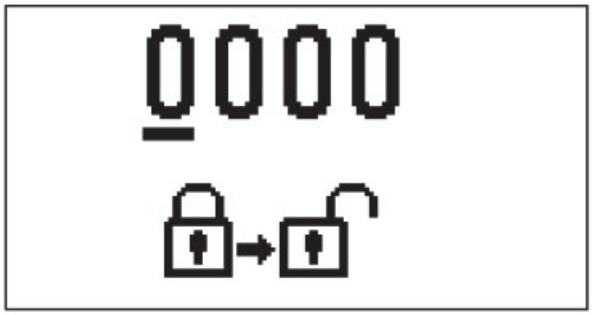
Para-meter	Function	Parameter description	Setting range	Default value
P1.1	TEMPERATURE ROU ND UP	You set the accuracy of displayed temperatur es.	0- 0.1 °C 1-0.2 °C 2-0.5 °C 3-1 °C	2
P1.2	AUT. SHIFT OF CLOC K TO DST/WINTER TI ME	With the help of a calendar, the actuator carri es out the automatic changeover between da ylight saving time and winter time.	0- NO 1- YES	1
P1.3	PERIOD OF TEMPER AT. LOGGING	By setting this field you define how often the measured temperatures are saved.	1 ÷ 30 min	5
P1.4	TONES	By setting this field you define sound signals of the actuator.	0- OFF 1-KEYPAD 2-ERRORS 3-KEYPAD AN D ERRORS	1
P1.5	ADVANCED TEMPER ATU- RE SCREEN	Advanced screen means that while checking temperatures you can see measured and de sired or calculated temperature.	0- NO 1- YES	1

SERVICE PARAMETERS

Service parameters are arranged in groups **S1** – Basic parameters, **S2** – Parameters for the heating circuit. With service parameters it is possible to activate or select many additional functions and adaptations of actuator performance. When you select the required parameter group in the menu, a new screen opens:



The setting is changed by pressing the button ✓. Because the parameters are factory locked, a new screen appears. Here you have to enter the unlock code.



By pressing buttons + and — you mark the number which you want to modify and press the button ✓. When the number flashes you can modify it by pressing buttons +, — and confirm it by pressing button ✓. When the correct code is inserted, the actuator unlocks the parameters for editing and returns to the selected group of parameters. Return back from unlocking by pressing button ↰.

Factory set code is “0001”.

Modify the value of the unlocked parameter by pressing buttons + and — The setting is confirmed by pressing the button ✓. By pressing buttons +, — you can move to another parameter and repeat the procedure.
Exit parameter settings by pressing the button ↩.

 Change of service and functional parameters must be carried out only by a properly qualified expert.

 **Basic parameters :**

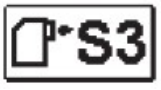
Para-meter	Function	Parameter description	Setting range	Default value
S1.1	HYDRAULIC VA RIANT	Selection of hydraulic variant.	01 – 04	1
S1.2	CODE FOR UNL OC- KING THE S ERVICE SETTIN GS	This setting enables the change of code which is necessary to unlock the service settings. WARNING! Keep new code in a safe place. With out this code it is impossible to change service s ettings.	0000 ÷ 9999	1
S1.4	ACTUATOR OPE-NING DIRECTIO N	Setting of actuator turning direction – valve opening.	0- RIGHT 1- LE FT	0
S1.5	DISPLAY ORIEN TA- TION	Setting of display orientation.	0 – REGULAR 0° 1- ROTATED 180°	0
S1.9	ANTI-BLOCK FU N- CTION FOR P UMP AND VALVE	All outputs that haven’t been activated in the last week are activated on Friday at 20:00 for 60 seconds.	0- OFF 1- ON	0
S1.17	SENSOR T1 CAL IB- RATION	Correction of displayed measured temperature f or sensor T1.	-5 ÷ 5 K	0
S1.18	SENSOR T2 CAL IB- _ RATION	Correction of displayed measured temperature f or sensor T2.	-5 -:- 5 K	0

 **Parameters for heating circuit:**

Para-meter	Function	Parameter description	Setting range	Default value
S2.1	MIN. SETPOINT TEMPERATURE IN HEATING MODE	Setting of minimal allowed setpoint temperature in heating mode. Setpoint temperature cannot be adjusted lower than this parameter.	5 + 70 °C	50 °C
S2.2	MAX. SETPOINT TEMPERATURE IN HEATING MODE	Setting of maximal allowed setpoint temperature in heating mode. Setpoint temperature cannot be adjusted higher than this parameter.	10 + 95 °C	70 °C
S2.3	MIN. SETPOINT TEMPERATURE IN COOLING MODE	Setting of minimal allowed setpoint temperature in cooling mode. Setpoint temperature cannot be adjusted lower than this parameter.	10 + 25 °C	15 °C
S2.4	MAX. SETPOINT TEMPERATURE IN COOLING MODE	Setting of maximal allowed setpoint temperature in cooling mode. Setpoint temperature cannot be adjusted higher than this parameter.	15 + 35 °C	30 °C
S2.7	BACKLASH OF MIXING VALVE	Setting of mixing valve running time to compensate the backlash of actuator and mixing valve assembly, which occurs by change of rotation direction.	0 + 5 s	1
S2.8	MIXING VALVE P – CONSTANT	Setting of mixing valve position correction intensity. Smaller value means shorter movements, higher value means longer movements,	0,5 + 2,0	1
S2.9	MIXING VALVE I – CONSTANT	Setting of mixing valve control frequency – how often mixing valve position is being controlled. Smaller value means low frequency, higher value means higher frequency.	0.4 — 2.5	1
S2.10	MIXING VALVE D – CONSTANT	Sensitivity of mixing valve for heating circuit temperature changes. Smaller value means low sensitivity, higher value means high sensitivity.	0,4 + 2,5	1

S2.13	BOILER CIRCULA TI- ON PUMP – TI ME OF BOILER T EMPERATURE IN CREASE (SECON DS)	This function is used in control of return in solid fuel boiler. In the set time, the actuator determin es temperature increase of the boiler by 2 °C. If an increase in the boiler is determined, the actu ator activates the circulation pump.	30 ÷ 900 secon ds	300
S2. 14	BOILER CIRCULA TION PUMP OPE RATION 1. STANDARD 2. PERMANENT	The setting informs about the operation of the ci rculation pump of the boiler: 1-STANDARD means that the pump is operating according to the minimum set temper ature of the system, and when the difference be tween the boiler and return Hine is exceeded. 2 -PERMANENT means that the pump is operatin g continuously when boiler temperature is highe r than the set minimum set temperature of the b oiler. This mode is used for pellet boilers when t here is no sensor available in the thermal store.	1-STANDARD 2-PERMANEN T	1
S2.15	BOILER CIRCULA TION PUMP – SW ITCH-OFF DELAY (SECONDS)	Setting of delayed circulation pump switch-off w hen there is no requirement for heating.	30 ÷ 900 secon ds	300
S2.16	BOILER CIRCULA - TION PUMP – S WITCH-OFF DIFF ERENCE T2-T1 (° C)	This setting determines the difference between sensors T2 and T1 which switches off circulatio n pump of the boiler.	2.0 ÷ 8.0 °C	3.0

S2.19	INITIAL VALVE M OVEMENT FROM OPEN POSITION (SECONDS)	Setting of initial valve movement duration when moving from open position. With this setting, the valve is moved to its control range (with immedi ate response) at startup of system.	0 ÷ 30 seconds	15
S2.20	INITIAL VALVE M OVEMENT FROM CLOSED POSITIO N (SECONDS)	Setting of initial valve movement duration when moving from closed position. With this setting th e valve is moved to its control range (with imme diate response) at startup of system.	0 ÷ 30 seconds	15



Parameters for heat source:

Para-meter	Function	Parameter description	Setting range	Default value
S3.1	SYSTEM PROTE C- TION IN HEAT ING MODE – SE NSOR T2	Setting of actuator response in case if T2 sensor is installed. If T2 temperature is lower than parem eter S3.2, the actuator fully closes the valve. If T 2 is higher than parameter S3.3, the actuator full y opens the valve. 0 – Sensor T2 is not used for s ystem protection. 1-Only minimal temperature is respected for syst em protection (parameter S3.2). 2-Only maximal temperature is respected for syst em protection (parameter S3.3). 3-Minimal and maximal temperature is respected for system protection (parameter S3.2 in S3.3).	0- WITHOUT 1-TMIN 2-TMAX 3-TMIN IN TMA X	0
S3.2	MIN. SYSTEM T EMPERATURE I N HEATING MO DE	Setting of minimal temperature at which the actu ator fully doses the valve.	10 + 70 °C	55 °C
S3.3	MAX. SYSTEM T EMPERATURE I N HEATING MO DE	Setting of maximal temperature at which the actu ator fully opens the valve.	30 t 95 °C	90 °C
S3.4	SYSTEM PROTE C- TION IN COO LING MODE – S ENSOR T2	Setting of actuator response in case if T2 sensor is installed. If T2 temperature is lower than param eter S3.5, the actuator fully closes the valve. If T 2 is higher than parameter S3.6, the actuator full y opens the valve. 0 – Sensor T2 is not used for s ystem protection. 1-Only minimal temperature is respected for syst em protection (parameter S3.5). 2-Only maximal temperature is respected for syst em protection (parameter S3.6). 3-Minimal and maximal temperature is respected for system protection (parameter S3.5 in S3.6).	0- WITHOUT 1-TMIN 2-TMAX 3-TMIN IN TMA X	0
S3.5	MIN.SYSTEM TE MPERATURE IN COOLING MODE	Setting of minimal temperature at which the actu ator fully doses the valve.	10 ÷ 30 °C	15

S3.6	MAX. SYSTEM TEMPERATURE IN COOLING MODE	Setting of maximal temperature at which the actuator fully opens the valve.	20 ÷ 40 °C	30

 **FACTORY SETTINGS**

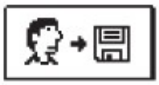
In the menu there are software tools to help with setting the actuator.
Actuator settings can be restored by selecting:

 **RESET OF ALL ACTUATOR PARAMETERS**

Restores all settings of parameters P1, S1 (except S1.1) and S2.

 **RESET OF ALL ACTUATOR SETTINGS AND RESTART INITIAL SETUP**

Restores all parameters to default values and starts the initial setup.

 **SAVE USER‘S SETTINGS**

Save current parameter values as user‘s settings.

 **LOAD USER‘S SETTINGS**

Load previously saved user‘s settings.

 Before performing the commands stated above, the actuator requires a confirmation of the selected command.

OPERATION MODE BY SENSOR FAILURE

Heating circuit temperature sensor isn’t connected or has a malfunction.
Mixing valve opens.

TABLE: Resistance values for temperature sensors type Pt-1000

Temp. [°C]	Resist. [Ω]	Temp. [°C]	Resist. [Ω]	Temp. [°C]	Resist. [Ω]	Temp. [°C]	Resist. [Ω]
-20	922	35	1136	90	1347	145	1555
-15	941	40	1155	95	1366	150	1573
-10	961	45	1175	100	1385	155	1592
-5	980	50	1194	105	1404	160	1611
0	1000	55	1213	110	1423	165	1629
5	1020	60	1232	115	1442	170	1648
10	1039	65	1252	120	1461	175	1666
15	1058	70	1271	125	1480	180	1685
20	1078	75	1290	130	1498	185	1703
25	1097	80	1309	135	1515	190	1722
30	1117	85	1328	140	1536	195	1740

INSTALLATION MANUAL

ACTUATOR INSTALLATION

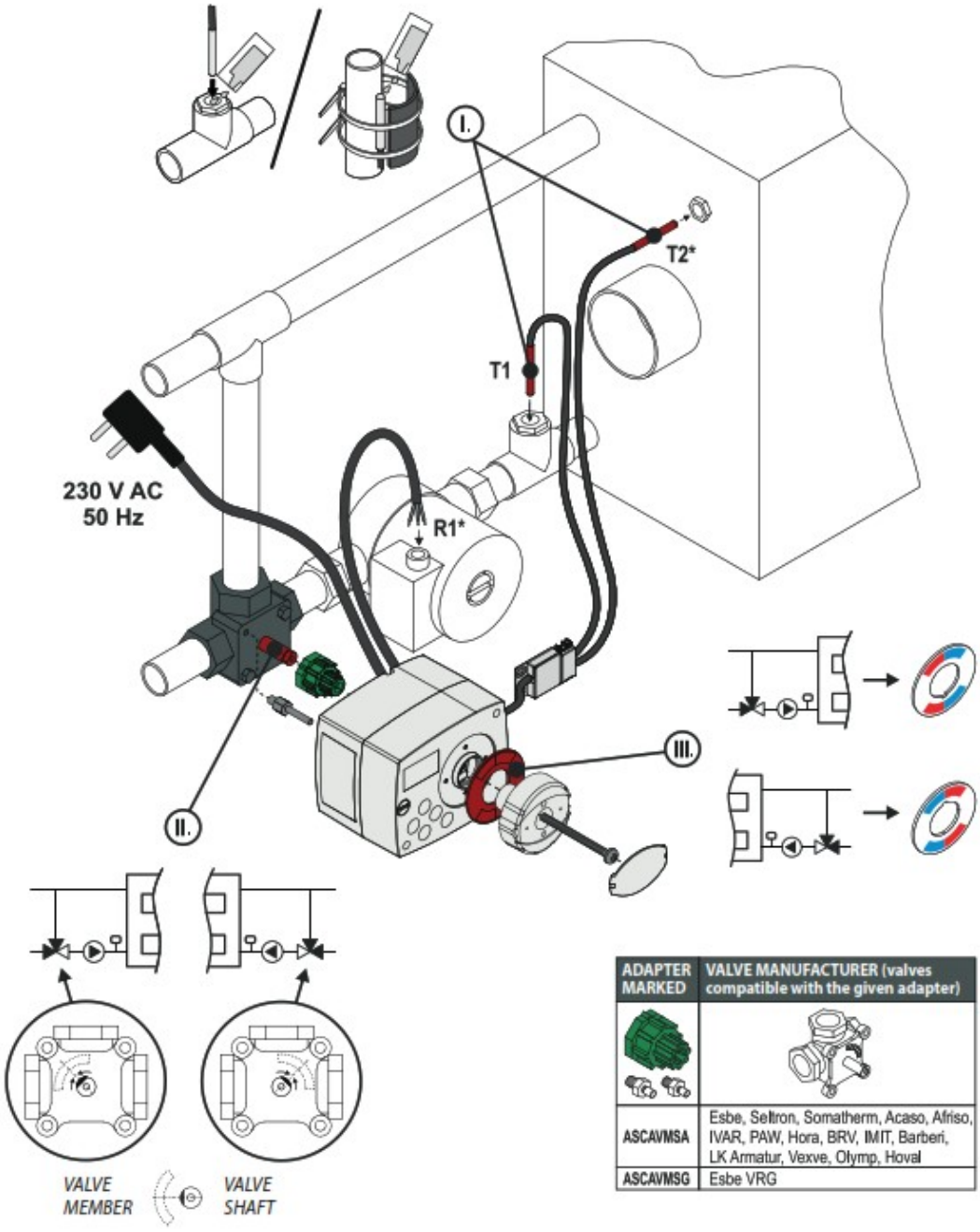
Install the actuator indoors in a dry place, where it is not exposed to any strong electromagnetic fields.

ACTUATOR'S ELECTRIC CONNECTION

Each project with constant temperature actuator needs to be based exclusively on customer design and calculations and needs to be in compliance with valid rules and regulations. Pictures, diagrams, and text in this manual are intended solely as an example and the manufacturer does not accept any responsibility for them. If you use content of this manual as a base for your project, then you carry also full responsibility for it. Responsibility of publisher for unprofessional, wrong and false information and consecutive damage are explicitly excluded. We retain the right for technical errors, mistakes, changes and corrections without prior notice.

Installation of control devices should be done by an expert with suitable qualifications or by an authorised organisation. Before you deal with the main wiring, make sure that the main switch is switched off.

You have to follow the rules for low-voltage installations IEC 60364 and VDE 0100, valid laws for prevention of accidents, valid laws for environmental protection, and other national regulations.

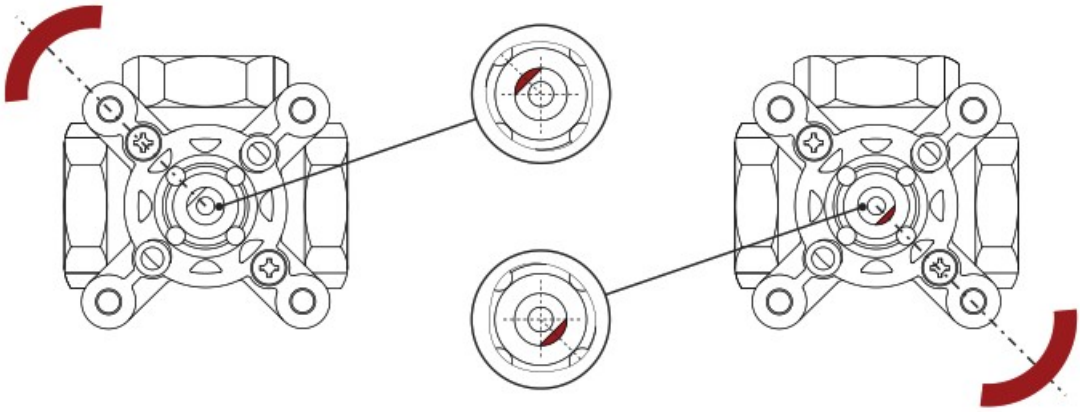


ADAPTER MARKED	VALVE MANUFACTURER (valves compatible with the given adapter)
ASCAVMSA	Esbe, Seltron, Somatherm, Acaso, Afriso, IVAR, PAW, Hora, BRV, IMIT, Barberi, LK Armatur, Vexve, Olymp, Hoval
ASCAVMSG	Esbe VRG

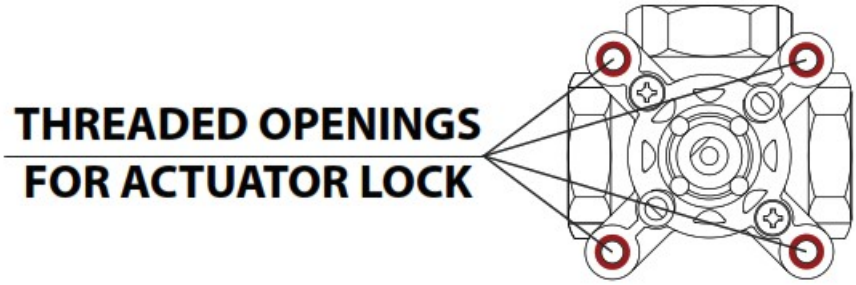
1. Pt1000 temperature sensors can be inserted in a sheath or placed on a surface of a pipe. The supply includes besides the sensors also a heat conductive paste, a special sticker and tie wraps to fix the sensors onto the pipe surface.
2. Prior to fitting the actuator, the valve member shall be turned to the basic position where both the valve inlets are 50% open, and check whether this setting corresponds to the desired function of the valve in the system. Examples of valve adjustments, when installed on the left or right of a boiler, are shown in the picture under pos. II. The position of the flat spot on the valve shaft corresponds to the position of the valve member.
3. After the actuator is fitted, it is necessary to check the indication label of the valve member movement direction (red/blue). That label shall also correspond to the position and desired function of the mixing valve in the system (see the fig., pos. III). only at ACC40

INSTALLATION OF ACC30/ACC40 ACTUATOR ONTO A MIXING VALVE

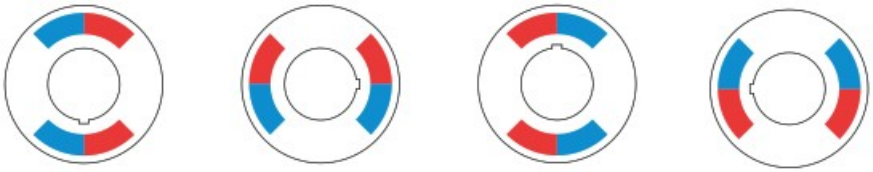
1. check the valve member position adjustment, see point II on the preceding page



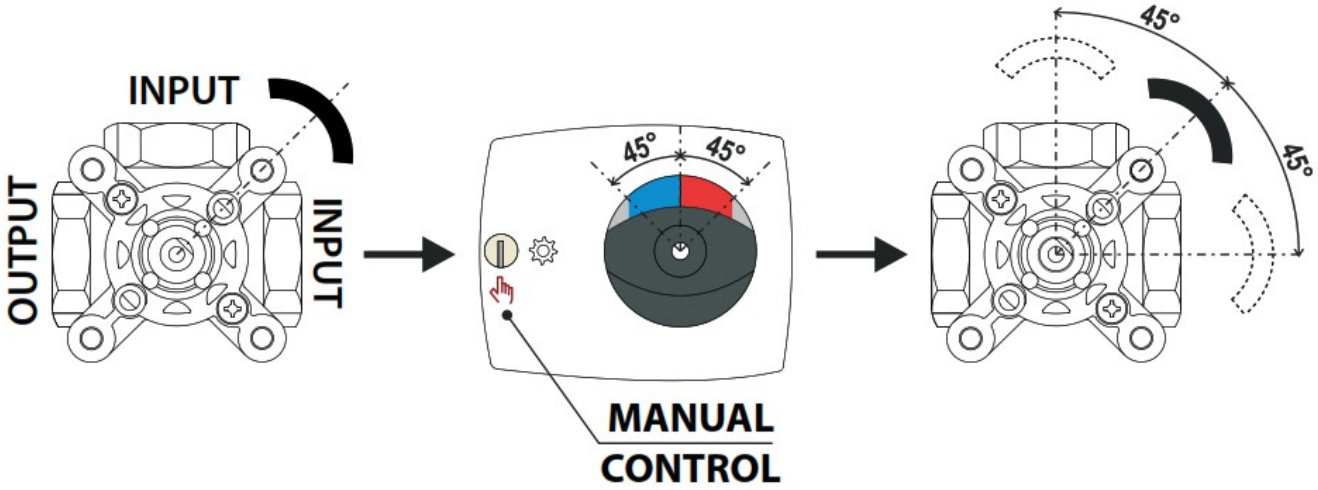
2. screw the actuator lock into one of the end openings in the cross on the mixing valve body; after the actuator is fitted, the actuator lock shall not protrude to places where cables run, if this happens, the actuator lock shall be re-positioned to another opening



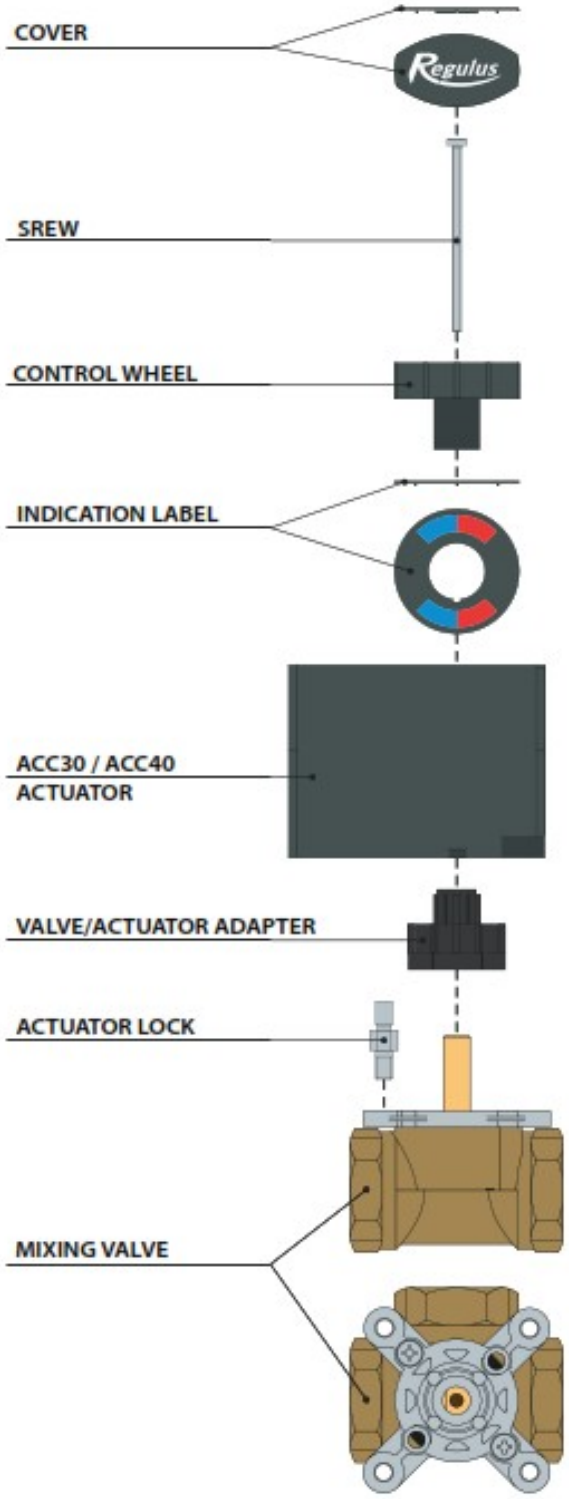
3. fit the plastic adapter onto the valve shaft
4. fit the actuator onto the plastic adapter
5. fit the label “indication of the valve member movement direction” to its designated place in the actuator plastic cover and check its orientation, see point III on the previous page



6. insert the control wheel into the actuator and check the proper function of the mixing valve – when fitted, the control wheel should be in the middle of the valve movement range (in the middle between the blue and red colours on the label), and after switching to manual control it should be possible to turn the wheel clockwise and anticlockwise by 45° which fully opens one inlet and closes the other one and vice versa; when the check is finished, switch back to automatic control



7. make a tight connection between the valve and the actuator using the enclosed screw
8. fit the cover onto the control wheel



! **The position of the valve member shown by the flat spot on the valve D-shaft needn't always correspond to the examples shown in the figures in this Manual. Valves from a different series or by another manufacturer may have a different setup. For this reason it is necessary to consult technical documentation of a specific mixing valve prior to installing the actuator on the mixing valve.** !

HYDRAULIC VARIANTS

ATTENTION! Installation diagrams show operation principles and do not include all auxiliary and safety elements! Observe the regulations in force when performing installations!

HYDRAULIC SCHEMATICS FOR ACC30 ACTUATOR

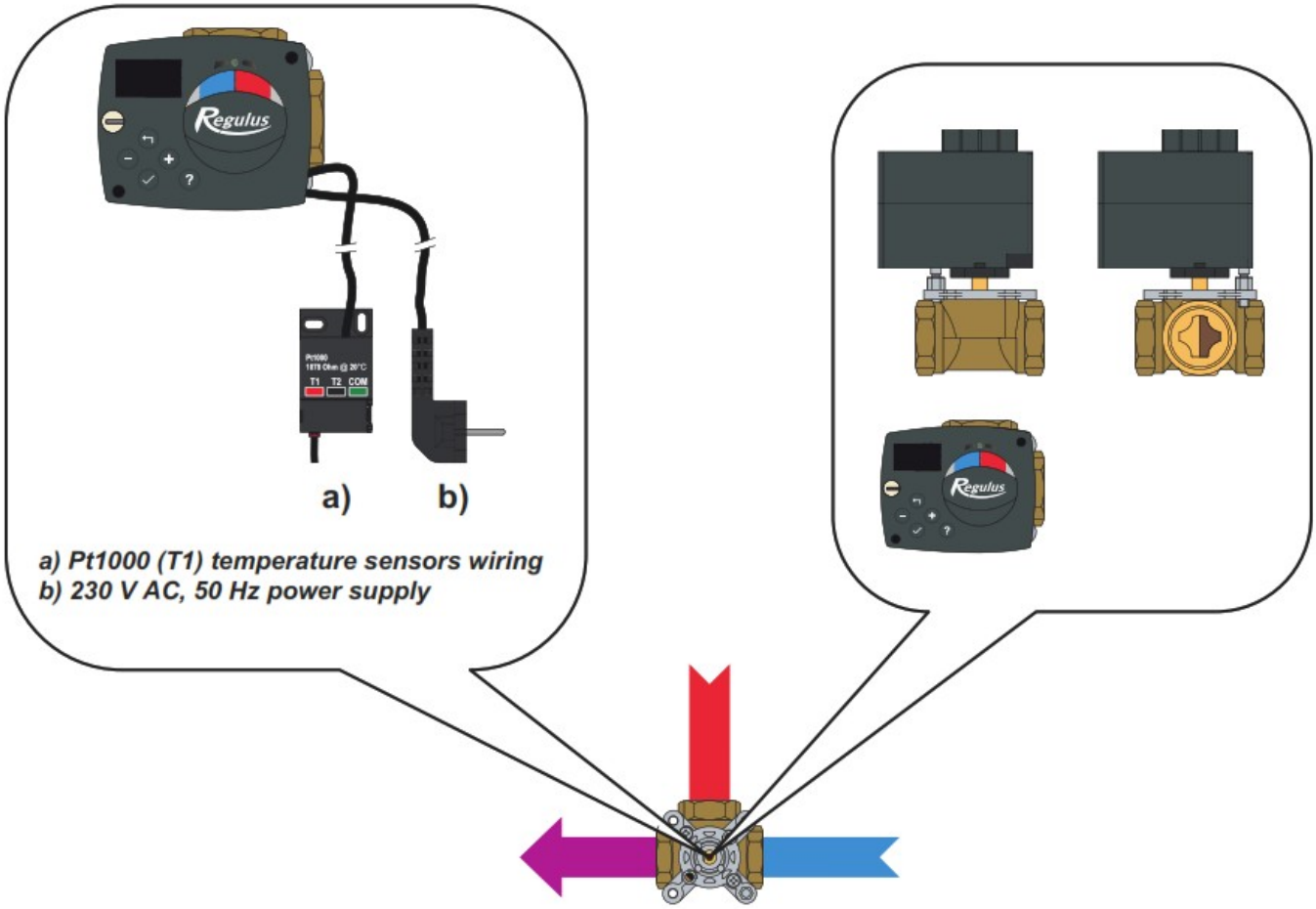


DIAGRAM 01

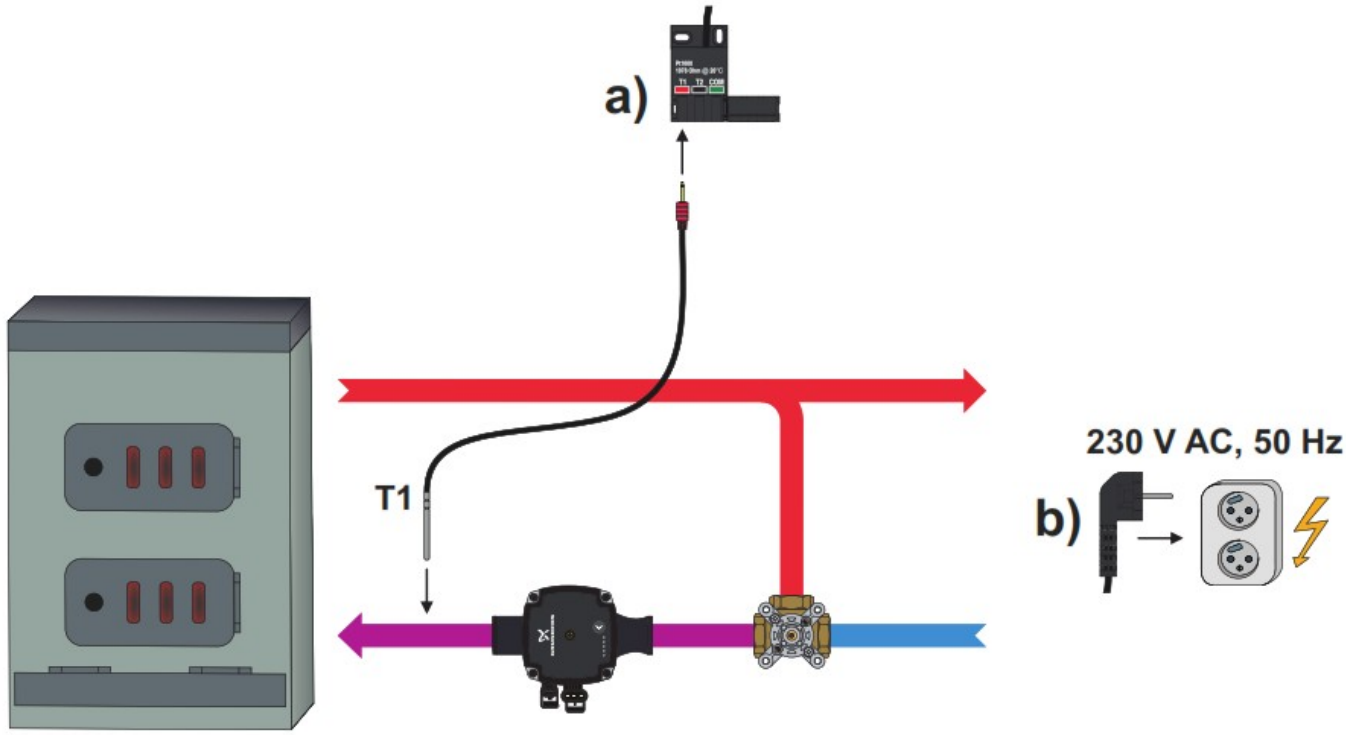


DIAGRAM 02

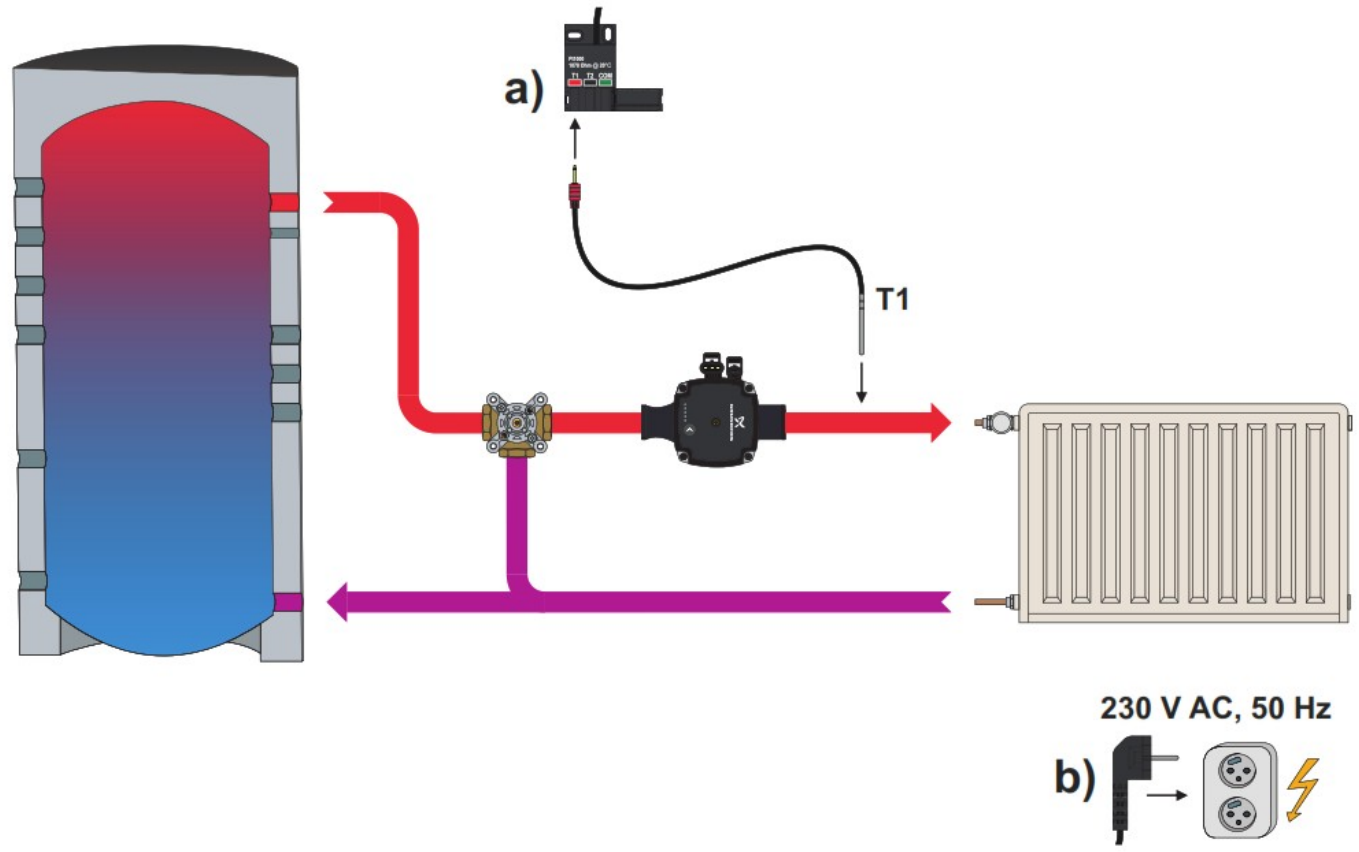
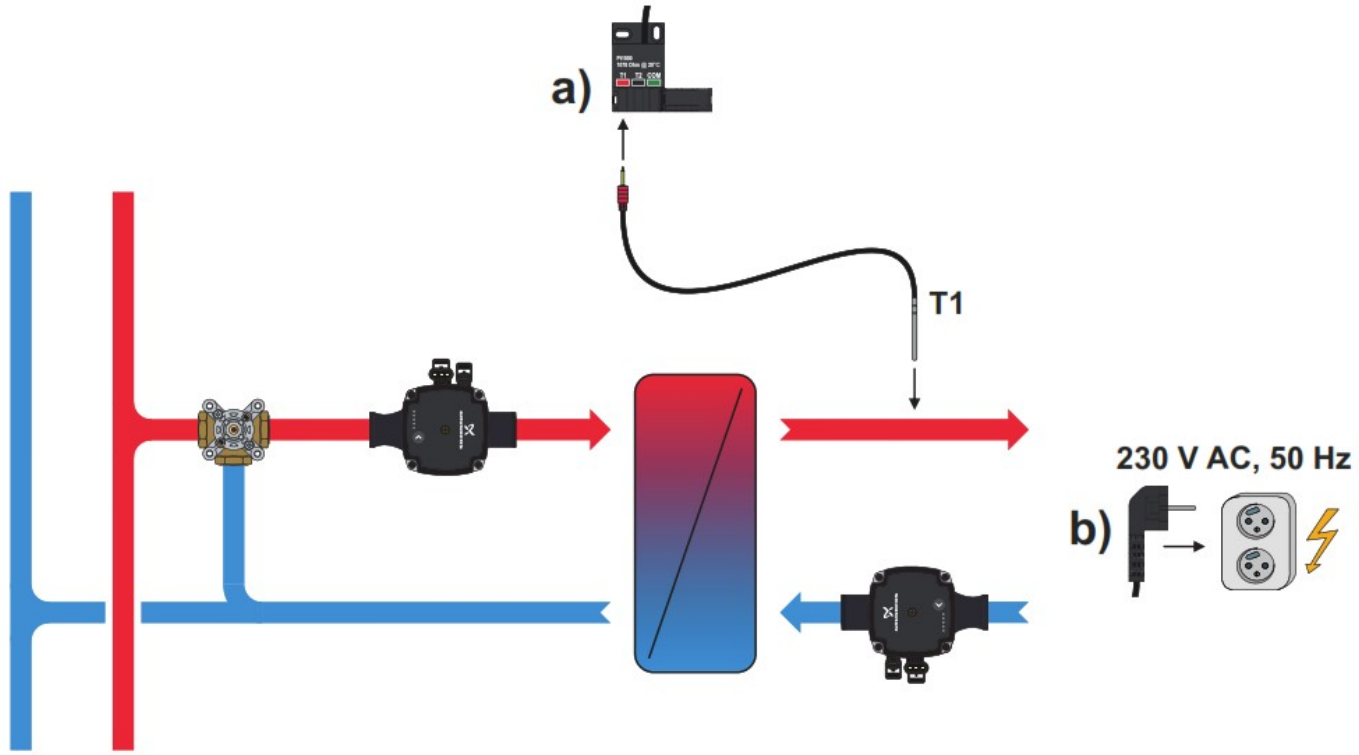


DIAGRAM 03



HYDRAULIC SCHEMATICS FOR ACC40 ACTUATOR

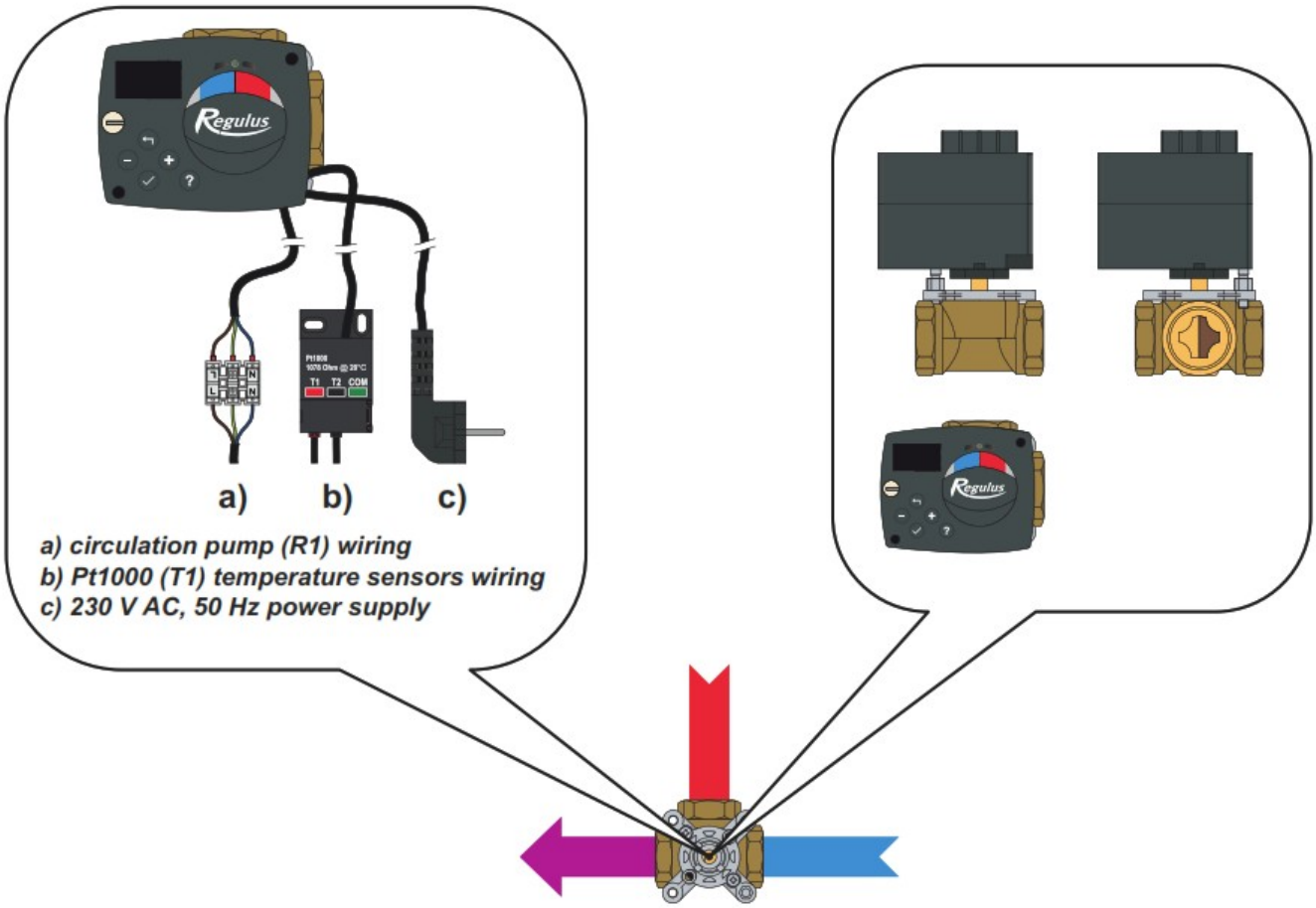


DIAGRAM 01

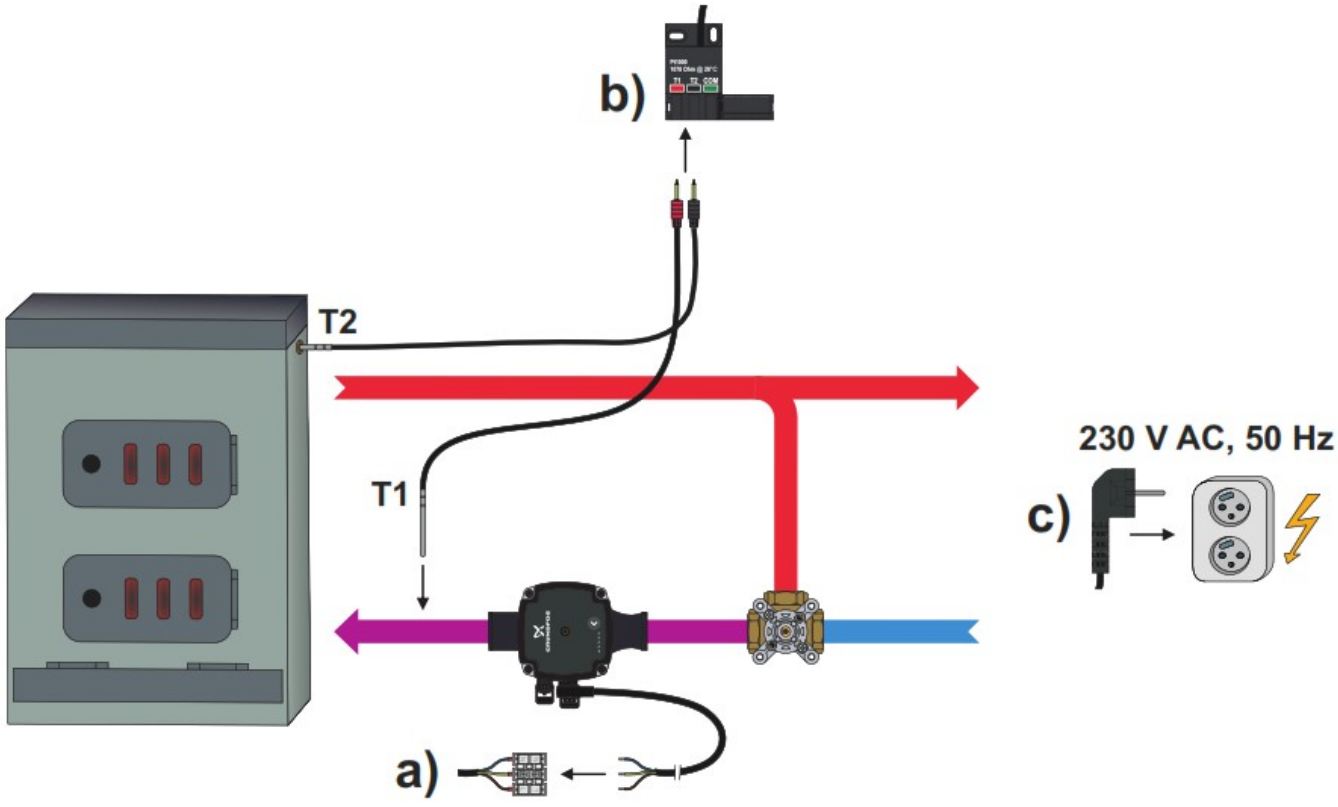


DIAGRAM 02

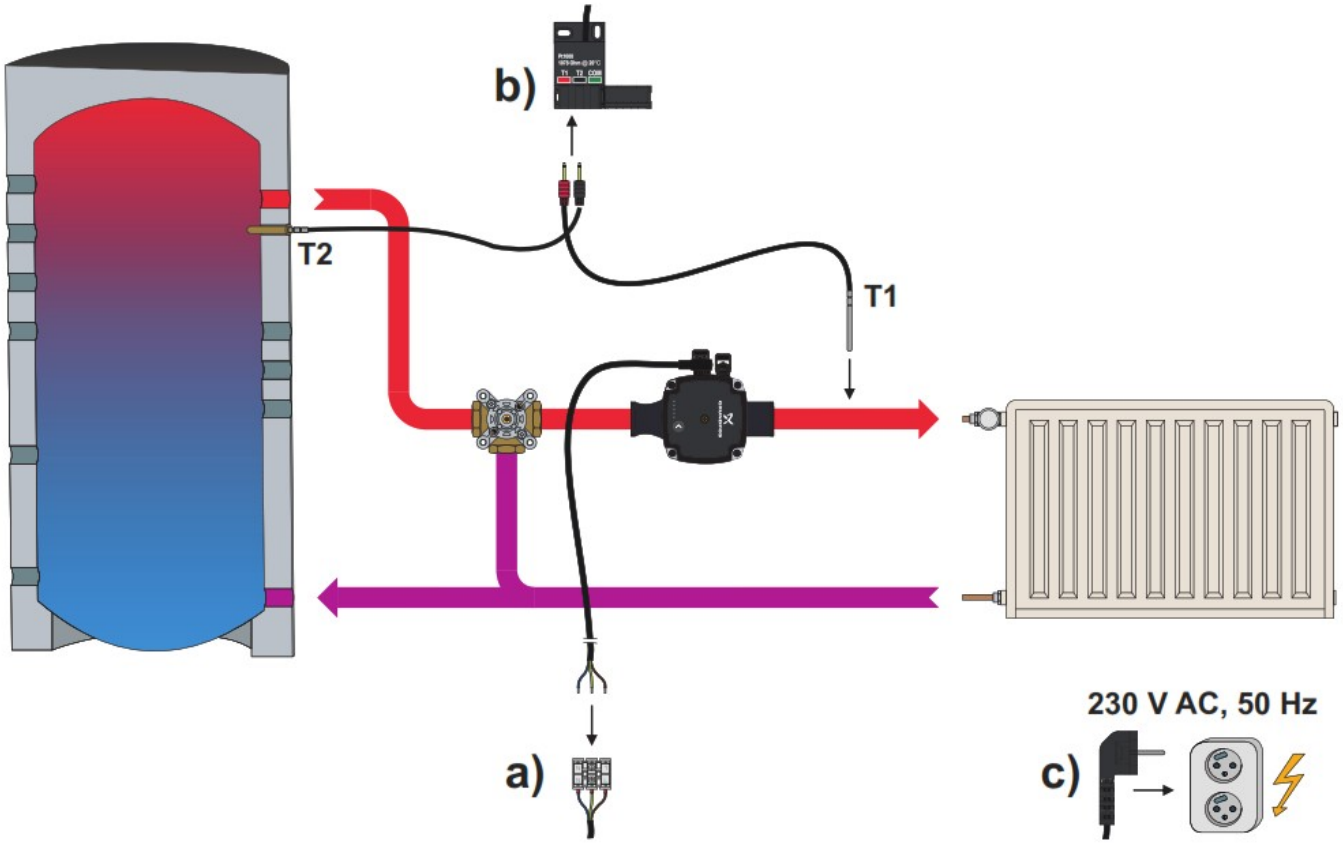
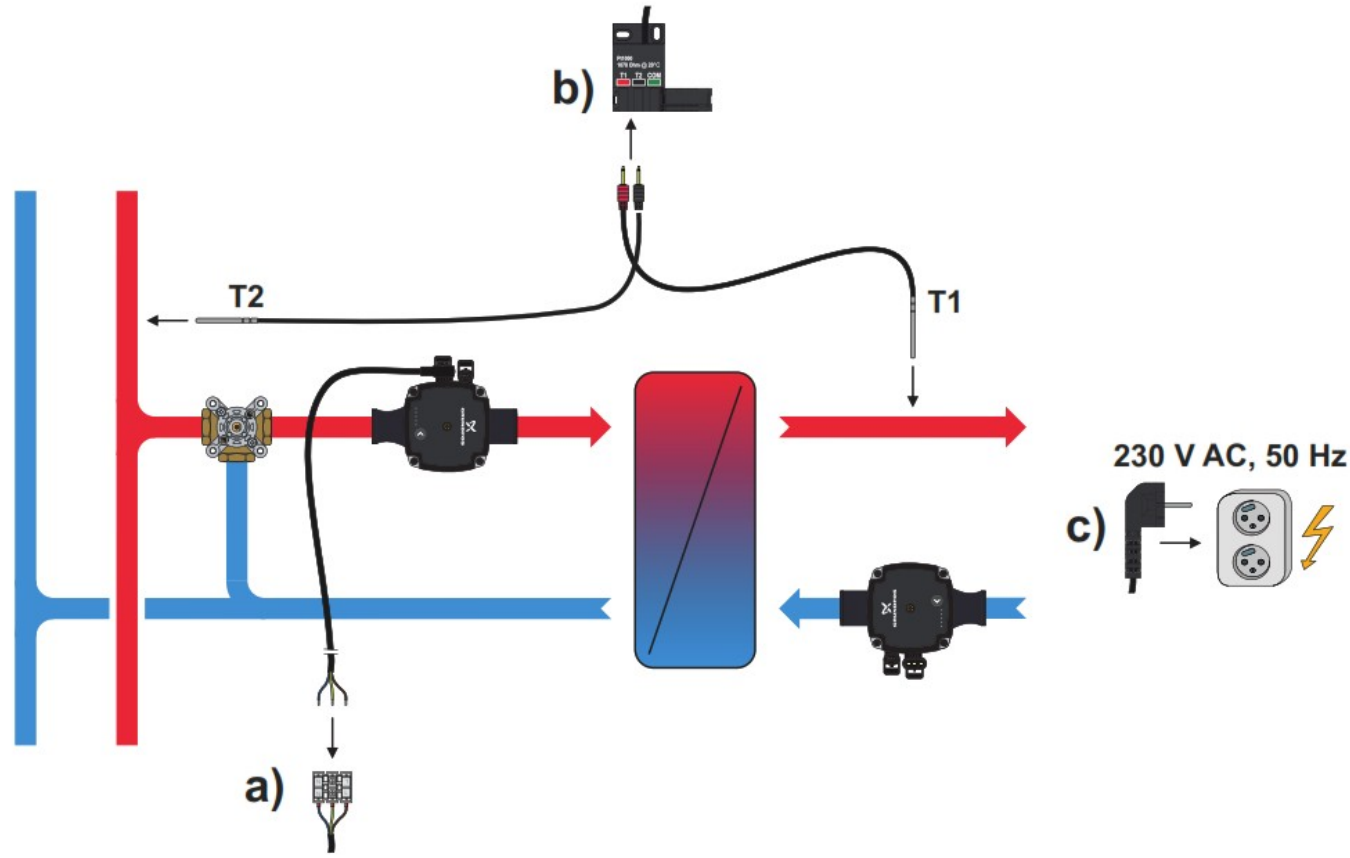


DIAGRAM 03



TECHNICAL DATA

General technical data – actuator

Dimensions (w x h x d) ..... 102 x 84 x 94 mm
Weight ..... ~800 g

Housing ..... PC – thermoplastic
Power supply ..... 230 V ~ , 50 Hz
Consumption ..... 0,5 VA
IP rating ..... IP42 acc. to EN 60529
Safety class ..... I acc. to EN 60730-1
Permissible ambient temperature ..... 5 °C to +40 °C
Permissible relative humidity ..... max. 85 % rH at 25 °C
Storage temperature ..... -20 °C to +65 °C
Accuracy of the installed clock ..... ± 5 min / year
Program class ..... A
Data storage without power supply ..... min. 10 years

Technical characteristics – sensors
Temperature sensor type Pt1000
Sensor resistance ..... 1078 Ohm at 20 °C
Temperature scope of use ..... -25 ÷ 150 °C, IP32
Min. cross-sectional area of sensor cables ..... 0.3 mm
Max. length of sensor cables ..... max. 10 m

IMPORTANT INFORMATION ON DISPOSAL IN COMPLIANCE WITH THE EUROPEAN DIRECTIVE 2002/96/ES

Discarding old electrical and electronic equipment (valid for EU member states and other European countries with organized separate waste collection).

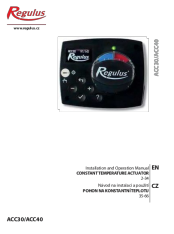

WEEE registration number:
02771/07-ECZ

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Software V1.1r0
v1.0-11/2019

REGULUS spol. s r.o.
E-mail: sales@regulus.eu, obchod@regulus.cz
Web: www.regulus.eu, www.regulus.cz

Documents / Resources

	Regulus ACC30 CONSTANT TEMPERATURE ACTUATOR [pdf] Installation Guide ACC30 CONSTANT TEMPERATURE ACTUATOR, CONSTANT TEMPERATURE ACTUATOR, TEMPERATURE ACTUATOR, ACC40

References

- Regulus - Energy saving solutions