Admission date	Realization date	Signature	REMARKS

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Zakład elektroniczny TATAREK Jerzy Tatarek

USER MANUAL

RT-08K REGULATOR OF HEATING SYSTEM WITH FIREPLACE



The regulator controls heating system based on a water jacket fireplace which is a heat source. The heat receivers are: applicable warm water accumulator (CWU) and central heating system (CO).

1.Basic technical parameters:

Power	230V/50Hz
Power consumption without load	5W
Max connection power	750W
Operation conditions	0÷50°C, humidity 10÷90% (No condensation)
Housing protection class	IP41
Fuse	6,3A/250V
Number of outputs to control pumps	3 * 250W/230V/50Hz
Number of nonvoltage outputs	1
Number of water temperature sensors	3 * KTY81 (0...+100°C)
Temp. measurement precision	2°C
Temp. measurement resolution	0,5°C
Number of time zones	4

2. Principle of operation

The regulator RT-08K controls the pump that supplies the applicable warmwater accumulator (P1). The pump P1 operates if both a fireplace temperature exceeds the *ZAŁ CWU* value and is higher than the temperature of the CWU accumulator (T2) by the *DeltaCWU* value (see PARAMETERS OF LEVEL 1).

The second function is the control of the circulating pump of the central heating system(P3). The pump works if a fireplace temperature exceeds the *ZAŁ CO* value. It's possible to turn on the CWU priority function (see the description of the operation modes of the central heating pump CO.

The regulator is equipped with the clock to control the CWU priority over the selected times of the day.

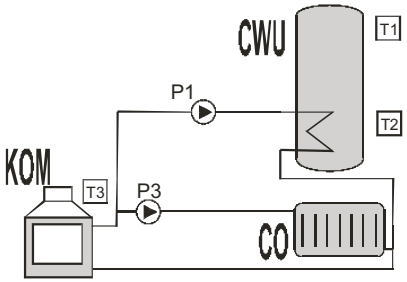


Fig.1a Basic configuration of regulator operation

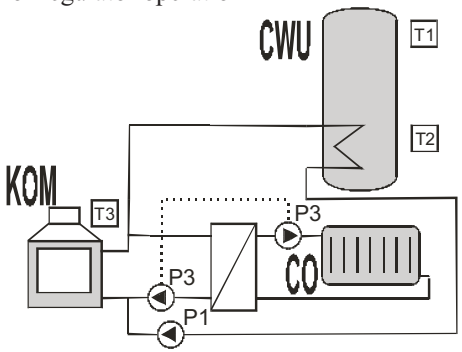


Fig.1b Configuratio of regulator operation with heat exchanger for the CO central heating system (pump of the heat exchanger and CO connected to the output P3)

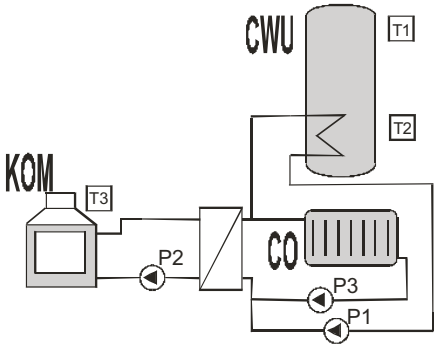


Fig.1c Configuration of regulator operation with heat exchanger for the CO and CWU systems

TATAREK®
PRODUCENT ZASILACZY SIECIOWYCH
ISO 9001: 2000

CE CONFORMITY DECLARATION

Ref. No. 58.RT.01.2007/1/B

We, ZAKŁAD ELEKTRONICZNY TATAREK Jerzy Tatarek
75 Swieradowska St. , 50-559 Wroclaw

declare under our sole responsibility that
the product: Regulator of heating system with solar collector

model: RT-08, RT-08K, RT-08P

is in conformity with the basic requirements included in Directive EMC 2004/108/WE of 15.12.2004 (the electromagnetic compatibility law of 13.04.07) and Directive LVD 2006/95/WE of 21.08.07 (Laws Journal of 2007 No. 155 pos. 1098) regarding the requirements for electric devices.

To the conformity evaluation the following harmonized standards were used:

PN-EN 60730-2-1: 2002 - Automatic electric regulators for house usage and the like. Part 2-1: Specific requirements regarding electric regulators for electric house devices

PN-EN 60730-1: 2002 - Automatic electric regulators for house usage and the like. Part 1: General requirements.

PN-EN 55022: 2000 - Electromagnetic compatibility (EMC)- IT devices Characteristics of radioelectric noises. Acceptable levels and measurement methods

Complementary information:

Laboratory IASE 51-618 Wroclaw, 1 Wystawowa st.

Test report No. 39/DL/I/07 of 22.06.2007
41/DL/I/07 of 03.07.2007

Electronic Engineering Plant TATAREK
has initiated management system and complies with the following standard :
ISO9001: 2000 CERTIFICATE No. 133/2004 of 01.2004
Polish Foreign Trade Chamber

The last two digits of the year in which the CE marking was affixed: 07

Place of issue:

Wroclaw

Date of issue:

08.2007

Manufacturer representative:

Mirosław Zasępa

Position:

Konstruktor

WARRANTY

1.Warranty is valid [24] months from the date of sale.
2.Producer does not take responsibility for any mechanical damages made by user.
3.MAKING REPAIRS OR MODYFYING THE DEVICE BY USER IS FORBIDDEN AND CAUSES WARRANTY CANCELATION
4.Warranty card is valid only with date of sale, seller's signature and stamp
5.Warranty and after-warranty repairs should be done only by producer, damaged regulators should be sent to producer in order to make all repairs needed.
6.Warranty protection involves the EU
7.Warranty does not exclude, not restrict and not suspend buyer's rights coming from the incompatibility of the article with the agreement (Laws Journal No. 141 Pos. 1176)

WARNING !

ANY MODIFICATION OF THE REGULATOR MADE BY USER CAN BE THE CAUSE OF SAFETY CONDITIONS DETERIORATION AND CAN EXPOSE THE USER TO ELECTRIC SHOCK OR DAMAGE DEVICES SUPPLIED.

Connection cable of regulator may be replaced only by producer or his authorized service locations

WARNING!
1. Producer does not take the responsibility for damage caused by atmospheric discharge
2. and overvoltage in the mains
3. Burnt fuses are not subject to warranty replacement

Date of sale **Seller's signature and stamp**

Register No.. GIOS: E 0002240WZ

Worn out electronic and electric devices must be transfered to the utilization collection place, where will be accepted for free

ARGO-FILM
Recycling Plant No. 6
180 Krakowska st., 52-015 Wroclaw
ph.: 071 794 43 01,
0 515 122 142

Zakład elektroniczny TATAREK Jerzy Tatarek

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ph. (071) 367-21-67, 373-14-88, fax 373-14-58; tax index number 899-020-21-48;
Bank account : BZ WBK S.A. O/WROCŁAW 6910901522-0000-0000-5201-9335
www.tatarek.com.pl.; E-mail: tatarek@tatarek.com.pl

CWU Applicable Warm Water Accumulator (boiler)
KOM Water jacket fireplace
CO Central heating system
T1 Upper temperature sensor of solar collector
T2 Lower temperature sensor of CWU
T3 Temperature sensor of fireplace water jacket
P1 Pump supplying CWU from fireplace
P2 Pump of the primary side of heat exchanger (it operates if P1 and P3 are activated)
P3 Circulating pump CO

2.1 Pump CO operation

If fireplace temperature exceeds a set value of 45°C (”T.zał CO” parameter) the pump CO turns on. The switch-off of the pump below the value causes a faster heating of the water jacket above the dew point and by that a longer life-time of the fireplace.
During supplying the applicable warm water accumulator CWU, the pump can operate cyclically if the CWU priority is set (Limitation of the heat amount flowing into the system CO).
The cyclical operation is based on turning on the pump for 45 secs and then turning off for 4min (”t.stopCO” parameter).
The regulator protects the system from freezing, automatically turning on the circulating pump if the measured temperature is below 4°C.
The regulator realizes the after season rundown of the pump by switching it on for 1 min if it doesn't operate for a week.

2.2 Pump CWU operation

The regulator controls as well the pump supplying the applicable warm water accumulator CWU.
The pump CWU is to turn on if water temperature in fireplace is higher than the threshold of 45°C (”T.załCWU” parameter) and higher than in the accumulator CWU by 5°C (”DeltaCWU” parameter). If CWU temperature exceeds 65°C (”T.maxCWU” parameter) the pump CWU turns off.
There are 2 ways of supplying the accumulator CWU:

- Keeping the accumulator CWU at maximal readiness (Parameter ”SterCWU”=1).

The supply starts if the lower temperature sensor of CWU (T2) shows temperature below 65°C („TmaxCWU” parameter)

- Optimal supply (Parameter ”SterCWU”=2) - from partial discharge to max supply. The supply turns on if the upper temperature sensor of CWU (T1) shows temperature lower than 50°C (”TminCWU” parameter) and turns off if the lower temperature sensor of CWU (T2) shows temperature higher than 65°C (”TmaxCWU” parameter)

The regulator realizes the after season rundown of the pump by switching it on for 1 min if it doesn't operate for a week.

2.3 CWU priority and summer mode

In the regulator one can set “TrybCWU” parameter achieving different strategies of operation. Possible modes are:
WYŁ - The pump CWU turned off
LATO- Turning off the heating system in summer time (the pump CO doesn't operate). Fireplace only works in the preparation function CWU.
ZAŁ - Standard operation (parallel operation of pumps) without favouring the CWU circuit

PRIO-Faster reaching the readiness of CWU accumulator by limiting heat obtain by heating system. The pump CO works cyclically. Turning off the pump CWU after supplying the accumulator causes the comeback of normal operation of the pump CO
ZEGAR-beyond time zones the pump operates like in the ZAŁ mode and in time zone like PRIO

2.4 Output „CONTROL"

The regulator is equipped with the relay CONTROL whose contacts can be used e.g. to switch off another heat source when a fireplace works. The "PrzekSTR" parameter defines the function of the relay more precisely

3 Service of the regulator

There are elements on the control panel (fig. 2).
The state is presented on the text display (1). The screens inform about the operation of devices, temperature of sensors; they make it possible to change the parameters etc..The change of screen is done by pressing the WYBIERZ button (3). If this is the screen that is able to change a parameter, press the USTAW button, which causes blinking of the parameter field to be changed. By pressing "+" (2) or "-" (4) one can alter its value.
If there are more parameter fields on the screen (e.g. setting the clock) then one will go among them by pressing the WYBIERZ button (3).

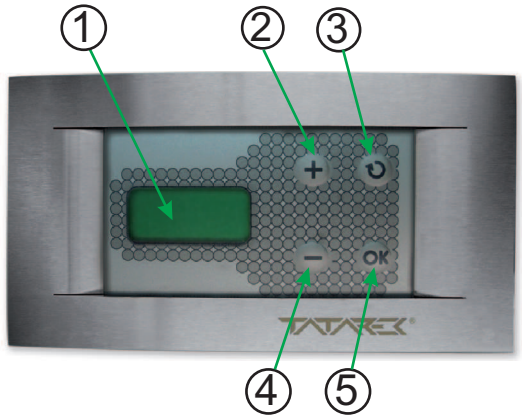


Fig.2 Control panel view

1. Text display
2. Increase button
3. Choice button of parameter
4. Decrease button
5. Confirm button

By clicking the USTAW button (5) one confirms the changes - the parameter field stops blinking. The changed parameter not confirmed for 10 secs is not accepted by the regulator and it recalls a previous value of the parameter.

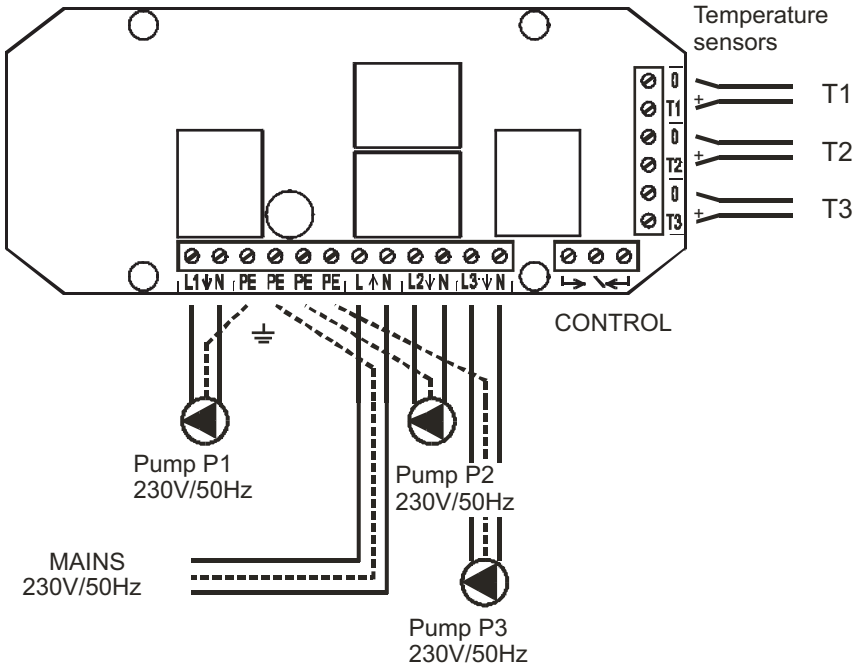


Fig.3 Electrical scheme

T1	Upper temperature sensor of solar collector (option)
T2	Lower temperature sensor of CWU accumulator
T3	Temperature sensor of fireplace water jacket
P1	Pump supplying CWU accumulator from a fireplace
P2	Pump of the primary side of heat exchanger (it operates if P1 or P3 is activated)
P3	Circulating pump CO

PARAMETERS OF LEVEL 3				
NAME	RANGE	FACTORY SETTING	FUNCTION	
t StopCO	1...30mins	4mins	Pause time of CO pump in cyclical mode. After the time the pump turns on for 45 secs.	
Ster CWU	1...2	1	Kind of supply for the CWU accumulator	
			1	Temperature sensor T2 (down) controls the supply of CWU
			2	Temperature sensors T1 (up) and T2 (down) control the supply of CWU accumulator
T ALARMU	75...89 °C	85 °C	Fireplace temperature at which alarm turns on.	
PrzekSTR	1...6	1	Switch-on of the relay CONTROL if	
			1	fireplace temperature is higher than „T.zał CO”
			2	fireplace temperature is higher than„T.zał CWU”
			3	CWU temperature measured by T2 sensor is higher than “TminCWU”
			4	CWU temperature measured by T1 sensor is higher than
			5	CWU temperature measured by T2 sensor is higher than
			6	fireplace temperature is higher than

4 Installing the regulator

! THE REGULATOR IS SUPPLIED BY 230V/50HZ .
ANY MOVES REGARDING INSTALLATION SHOULD BE MADE AT THE DISCONNECTED MAINS.

! THE REGULATOR HAS TO BE CONNECTED TO THE MAINS WITH THE ZERO-PIN.

! THE REGULATOR SHOULD NOT BE EXPOSED TO WATER AFFECTING. ITS ENVIRONS OUGHT TO BE CLEAN.

! THE PRODUCER DOESN'T TAKE ANY RESPONSIBILITY FOR DAMAGES CAUSED BY WRONG USAGE OF THE REGULATOR.

Connection diagram of the elements of the regulator is presented on fig. 3

3.1 Time zones

The regulator is equipped with the clock, which enables the automatic change of the regulator operation at different times of day. 24 hrs are divided into 3 time zones (**$1, $2, $3**) and the single time when no zone is active that is ZONE 0 or BAZA (BASE). Each zone has a start time (OD)/FROM and an end time (DO)/TILL.

For the regulator factory settings are as it follows:

ZONE 1	FROM 6.00 TILL 8.00
ZONE 2	FROM 14.00 TILL 17.30
ZONE 3	FROM 20.00 TILL 22.30

3.2 Screens

Alarm screens is not seen till the following emergency situation takes place:

1. Damage of sensor T1 (upper one of CWU). “T1” shows up. The alarm doesn’t work if the sensor is not installed.
2. Damage of sensor T2 (lower one of CWU). “T2” shows up.
3. Damage of sensor T3 (of fireplace). “T3” shows up.
4. The exceeding of the acceptable temperature of fireplace /”TEMP KOM”/ defined by the “T.ALARMU” parameter





Emergency situation is accompanied by a broken sound alarm that can be turned off by pressing the USTAW button.
In emergency of temperature exceeding the pump CO turns on to cool off fireplace.

Screen of fireplace water jacket temperature measurement shows the actual temperature of fireplace



It’s a stable state that is in order to change it one needs to press the WYBIERZ button

Screen of CWU temperature shows the actual temperature in the upper and lower part of the CWU accumulator.



Upper temperature sensor T1 (if available)

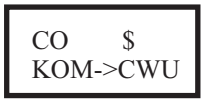
Lower temperature sensor T2

It's a stable state that is in order to change it one needs to press the WYBIERZ button

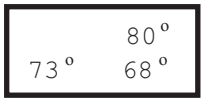
Screen of whole system operation

On the screen are the symbols of devices:
KOM- fireplace
CO - central heating system
CWU - applicable warm water accumulator
$ - if the relay CONTROL is switched on

The symbols (every few seconds or after pressing USTAW button) are replaced with numbers presenting the temperatures of those devices.
The blinking arrows mean the actual heat flow as an effect of pumps operation:
KOM->CWU the pump P1 supplying the CWU accumulator is turned on.
KOM->CO the pump P3 is turned on.



CONTROL relay is turned on.



upper sensor of CWU

lower sensor of CWU

fireplace sensor

If the summer mode is active (only CWU), LATO replaces CO.
It's a stable screen that is in order to change it one needs to press the WYBIERZ button

Screen of CWU operation mode



In the regulator one can set "TrybCWU" parameter achieving different strategies of operation. Possible modes are:
WYŁ - The pump CWU turned off
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ZEGAR-beyond time zones the pump operates like in the ZAŁ mode and in the time zone like PRIO

Screen of clock



The screen shows the actual time and the number of active time zone.
Time correction is possible after pressing the USTAW button (5) and the minutes field begins blinking. The blinking value can be altered with the buttons "+" or "-". Pressing the WYBIERZ button (3) one comes to the hours field that can be set with the buttons "+" or "-".
Pressing the USTAW button confirms the changes (the clock field will stop blinking).

Screen of setting the parameters



Normally the parameters setting level equals to "0" namely the parameters aren't available.
After changing the level to "1", "2" or "3" successive screens show the values of parameters.
The last screen contains "****" after which it comes back to the above mentioned screens.

PARAMETERS OF LEVEL 1			
NAME	**RANGE**	**FACTORY SETTING**	**FUNCTION**
T zał CO	30...60 °C	50 °C	Minimal temperature of fireplace at which the pump P3(CO) is activated.
TzaŁ CWU	20...85 °C	50 °C	Minimal temperature of fireplace at which the pump P1(CWU) turns on.
Tmax CWU	30...100 °C	65 °C	Maximal temperature of CWU accumulator. The exceeding turns off the supply pump
Tmin CWU	30...100 °C	50 °C	Minimal temperature of CWU accumulator. The exceeding turns on the supply pump
DeltaCWU	1...10 °C	2 °C	Minimal difference between fireplace and CWU accumulator temperature needed for the pump operation P1 (CWU)

PARAMETERS OF LEVEL 2			
NAME	**RANGE**	**FACTORY SETTING**	**FUNCTION**
STRF1 from	0:00...23:45	6:00	Start of 1st time zone
STRF1 till	0:00...23:45	8:00	End of 1st time zone
STRF2 from	0:00...23:45	14:00	Start of 2nd time zone
STRF2 till	0:00...23:45	17:30	End of 2nd time zone
STRF3 from	0:00...23:45	20:00	Start of 3rd time zone
STRF3 till	0:00...23:45	22:30	End of 3rd time zone