

User manual
SOFTENER JUNIOR ECO 04 VC



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Dear User

Thank you for purchasing the Junior ECO water softener with the RX79B-3 control head by Watersystem Sp. z o. o. Sp.K..

Please read this user manual. It will allow you to easily connect the device. By using your water treatment system in accordance with these instructions, you will use all its possibilities and will serve you for a long time.

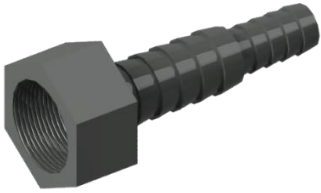
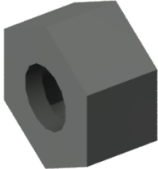


Junior ECO softeners are equipped with the RX79B-3 controller with a built-in microcomputer, which allows you to set the parameters of the water treatment system adapted to your water. Thanks to this, you can use your device in an economical way and regeneration will take place automatically, which will save you time and money.

The operation of RX controllers is based on modern technology of rotating ceramic discs. Two ceramic discs, which are the "heart" of the controller, are made of high-quality ceramics, resistant to abrasion and corrosion. This breakthrough technology in water treatment control heads provides a perfect seal inside the controller for reliable, long-lasting performance. Ceramic elements are also resistant to the deposition of dirt and iron, so they do not accumulate in the controller.

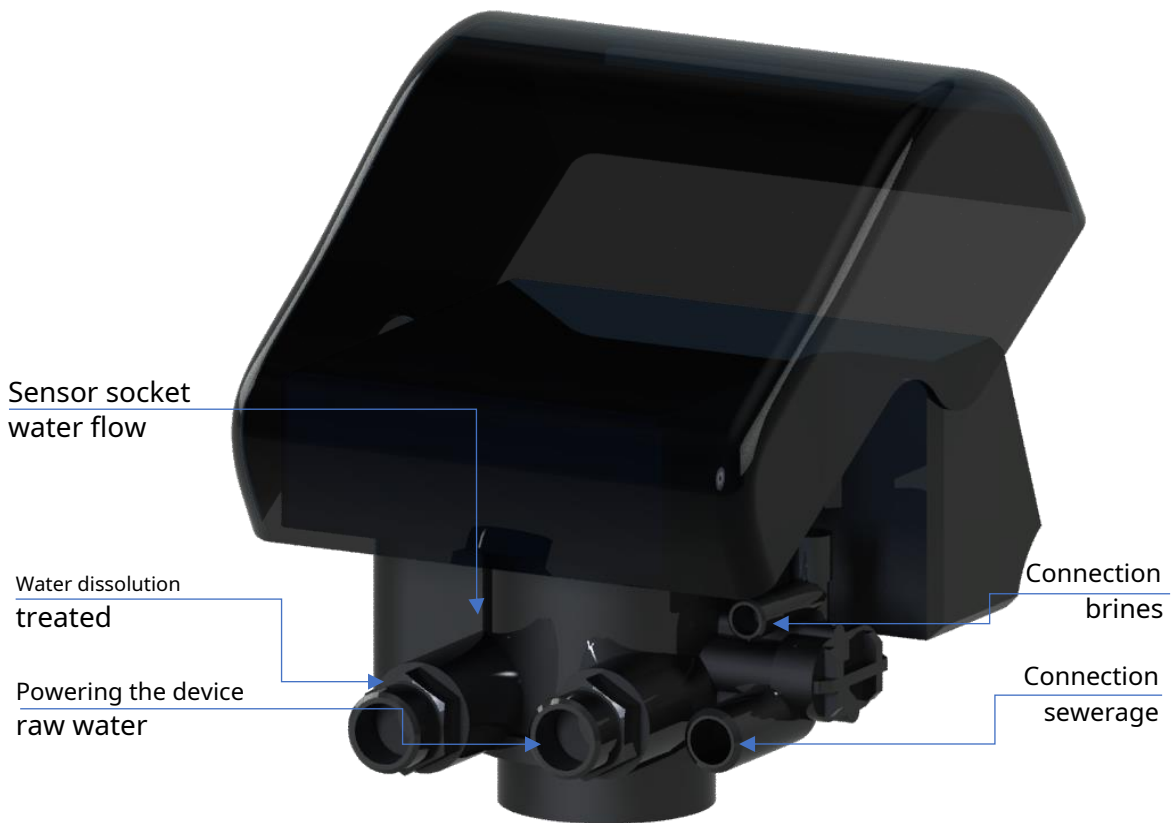
We wish you satisfaction with the use of the Junior ECO softener

3 Kit Contents

Table 1. Standard contents of the RX79B-3 controller kit.

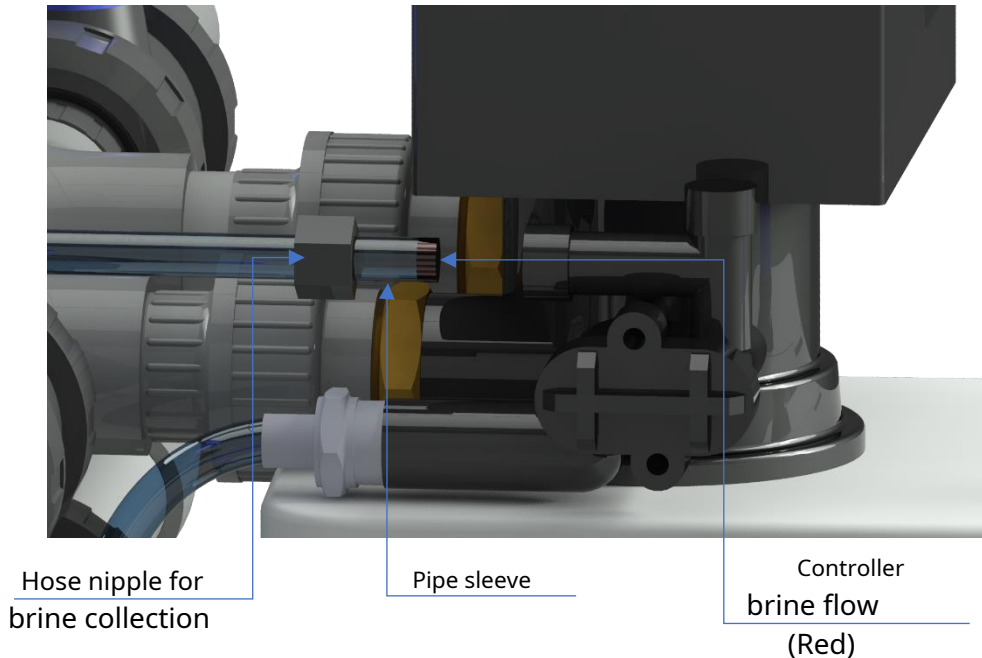
Designation	Drawing	Description	Quantity
		RX79B-3 controller	1 piece
		12V voltage transformer	1 piece
[AND]		"Terminal for connection to the sewage system	1 piece
[B]		3/8 "nut for connecting the brine hose	1 piece
[C]		White insert to the tip of the brine hose	1 piece
[D]		Red, rubber stop brine flow	1 piece
[E]		Transparent, rubber stop flow to the sewage system	1 piece
		2.5 "O-Ring to the base of the head	1 piece
		3/4 "blue gasket for connecting the head	2 pcs

4 Connecting the controller to the water and sewage system



5 Connecting the brine to the control head

Check that the connection is tight.



The brine supply hose should be connected in accordance with figure C and the description in table 1. To do this:

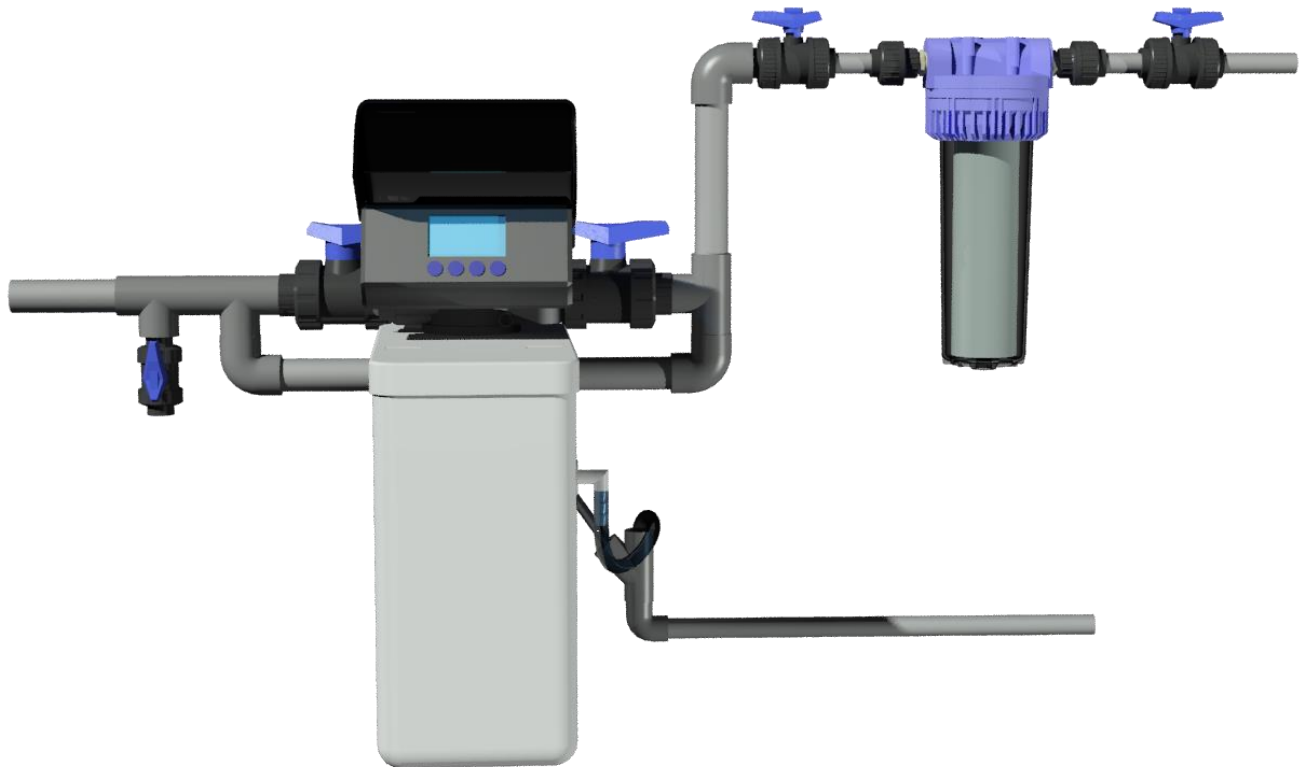
1. Put the hose leading to the brine tank through the nut [B].
2. Place the white plastic insert [C] in the end of the hose on the controller side.
3. Place the red rubber brine stop [D] in the hole leading to the injector brine connection [23]. **NOTE: convex side towards the driver, concave side towards the tubing.**
4. Place the brine hose into the brine connection opening. Press down to the stop.
5. Tighten the nut [B] as far as it will go to ensure tightness of the connection.
6. Installation of the complete device

6 Connecting the Junior ECO device to the installation

It is recommended that the Junior ECO device be preceded by a preliminary filter with a mechanical cartridge with a filtration accuracy of at least 20 microns.

An example of the recommended assembly scheme is shown in figure D. Water discharge to the sewage system from the head ([18] in figures A and B) can be made using the flexible hose delivered with the device. NOTE: The end of the hose draining the water to the sewage system should have free air access so that the water can drain by gravity. Overflow elbow protruding from the softener housing / brine tank

should be connected to the sewage system in the same way as the outlet from the head (eg with a ½ inch garden hose). Connections to the sewage system should be made below their level in the water treatment system. It is particularly important in the case of an emergency overflow from the brine tank, any excess water from this tank will be drained by gravity.



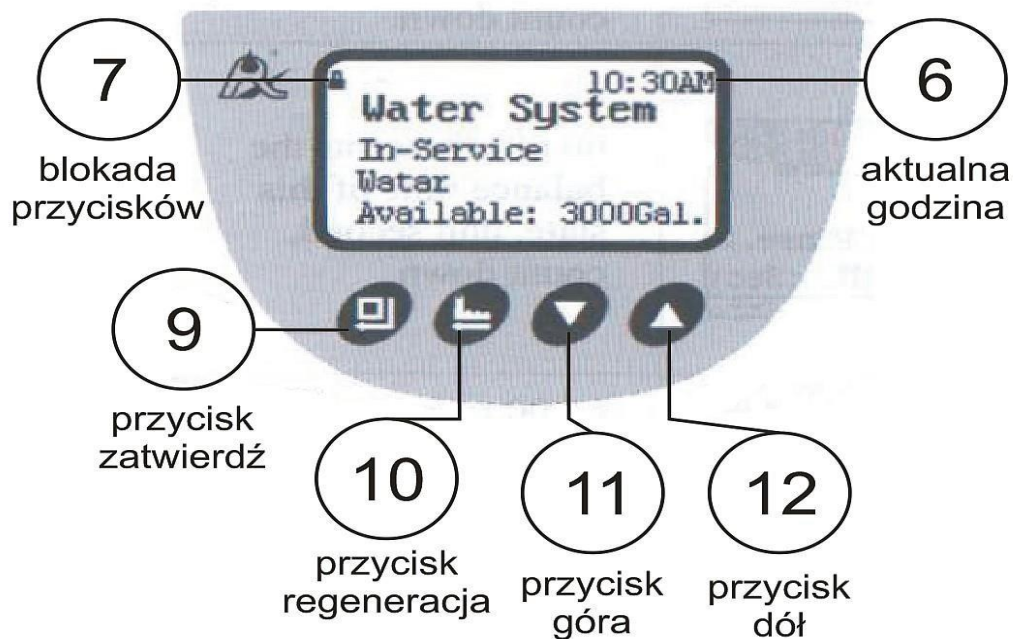
An exemplary connection diagram, Fig. D

When installing and using the device equipped with the RX79B-3 controller:

- have the appropriate knowledge or use the services of a professional
- make sure that the base is even and stable and that it can withstand the load of the water treatment system covered with water and covered with salt tablets (in the case of a water softener)
- make all connections in accordance with the applicable standards and regulations
- connect the controller to the existing water system only with the use of a flexible connection drain to the sewage connection with a flexible hose with a minimum hose cross-section of 1/2 "to a distance not exceeding 6 meters horizontally
- for gasket-free threaded connections, only use Teflon as a seal
- connect the device after completing all works related to the water system

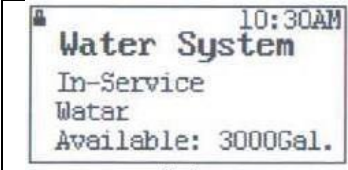
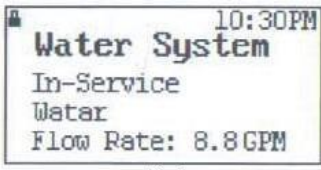
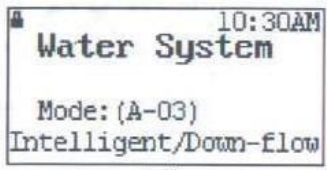
- periodically check the water quality to make sure that the unit is working properly using the Watersystem water hardness testers. The testers are available as additional accessories
- only use salt intended for water softeners with a purity of at least 99.5% (the use of finely ground salt is not allowed)
- use the controller in rooms where there is no high humidity and the air temperature is within the range of 5 - 45 ° C
- install a pressure reducer before the water inlet to the controller, if the water pressure in the network exceeds 6 bar
- do not carry the device by holding hoses, injector, by-pass and other delicate parts of the controller
- only use accessories and parts provided by the dealer
- protect the device against access by children, as they may damage or disrupt the controller.

7 Description of display symbols



- 6 - clock - shows the current time (in the case of setting the 12-hour clock, AM - in the morning, PM - in the afternoon)
- 7 - padlock - informs that all buttons are locked, to unlock the buttons press and hold the up and down buttons simultaneously for 5 seconds. The button lock is activated automatically after 1 minute of inactivity.

During water treatment, the display shows "In-Service" and is displayed cyclically

 <p>[a]</p>	 <p>[b]</p>	 <p>[c]</p>
Amount of water to be treated before the next regeneration	The instantaneous flow rate of water through the device	Device operation mode

information as shown in figures a, b, c.

Description of the control buttons / acc. the markings in figures A and E /

- 9- enter (entering the setting change mode, selecting a setting and confirming the change)
- 10- manual regeneration (immediate regeneration button, in the "In-Service" cycle press to start the regeneration, or go immediately to the next stage of regeneration) and in the settings change mode, undo / exit settings
- 11 - down (move to the next option)
- 12 - up (go to the previous option)

Button functions in programming mode

After entering the programming mode, the buttons will be assigned the following functions:

- Enter [9]: Used to select an option from a menu and to accept a changed value. After confirming the set value with the enter button [9], the changed value is saved in the controller's memory, and the controller confirms the change with a short sound signal.
- Regeneration [10]: exiting the programming mode or changing the value (without saving it - Cancel) and switching to the mode in which the controller was previously
- Down [11] changing the type of parameter to be programmed or reducing the active value.
- Up [12] changing the type of parameter to be programmed or increasing the active value

ATTENTION:

Possible correction of these parameters should be consulted with the supplier of the device.

In the event of a power failure, the controller has the function of maintaining the current time for 3 days.

All other programmed parameters will remain unchanged despite the power failure.

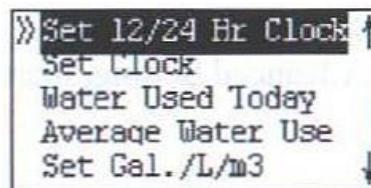
8 Programming the controller

The programming mode is started by pressing the enter [9] button. If the keypad is locked and the padlock symbol is displayed, you need to unlock the keys by pressing the down [11] and up [12] buttons simultaneously for 5 seconds.

The regeneration button [10] exits the programming mode. Programming will automatically close after 1 minute of inactivity. At the same time, the keyboard will be locked.

After starting the programming mode, the display will show a list of available options (as in the figure below). The available options are:

- 12 hr / 24 hr clock setting (Set 12/24 Hr Clock)
- setting the current time (Set Clock)
- amount of water treated on a given day (Water Used Today)
- amount of water used on average daily over the last 7 days (Average Water Use)



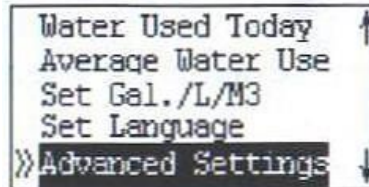
- setting units of measurement - gallons / liters / m (Set Gal./L/m)
- setting the controller's operating language (Set Language) NOTE: the language selection menu can also be entered directly from the welcome screen that appears immediately after switching the controller to the power supply. To do this, hold down the enter [9] and regeneration [10] buttons simultaneously for about 10 seconds.
- Advanced Settings NOTE: advanced settings can be changed only by professionals with appropriate knowledge in the field of RX controllers operation.

The parameter to be changed (or checked) is selected using the down [11] and up buttons [12]. The selected parameter should then be confirmed by pressing enter [9]. You can change the selected parameter using the down [11] and up [12] buttons. The change of the parameter should be confirmed by pressing the enter [9] button. Using the regeneration button [10], you can withdraw from the change without saving the data.

Advanced programming - Advanced Settings

Advanced settings include:

- (Work Mode) - work mode. The device can work in seven modes:



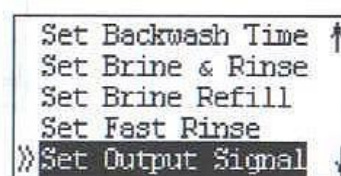
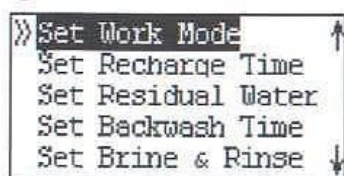
- A-01 - regeneration delayed to the set time. Regenerate will be dosed from the top of the bed, in the direction of water flow through the device during normal operation (down-flow).
- A-02 - immediate regeneration after reaching the preset volume of treated water. Regenerate will be dosed from the top of the bed in the direction of water flow through the device during normal operation (down-flow).
- A-03 - intelligent regeneration. Based on the average daily water consumption in the last 7 days, the controller will calculate whether the amount of water that the device will treat before the next regeneration is sufficient for the next day. If it is not enough, the device will perform the regeneration on the given day at the set time by dosing the regenerant from the top of the bed (down-flow).
- A-11 - regeneration delayed to the set hour. Regenerant will be dosed from the bottom of the bed, against the direction of water flow through the device during normal operation (up-flow).
- A-12 - immediate regeneration after reaching the preset volume of treated water. Regenerant will be dosed from the bottom of the bed (up-flow).
- A-13 - intelligent regeneration. Based on the average daily water consumption in the last 7 days, the controller will calculate whether the amount of water that the device will treat before the next regeneration is sufficient for the next day. If it is not enough, the device will perform the regeneration on the given day at the set time by dosing the regenerant from the bottom of the bed (up-flow).
- A-21 - without regeneration of the bed with a regenerant. Operation in "Filter" (Purify) mode. In this mode of operation, the regeneration and slow rinsing cycles and water filling of the regenerant tank will be skipped.
- (Set Recharge Time) - regeneration start hour (option active in A-02 and A12 immediate regeneration modes)
- (Set Residual Water Capacity) - volume of water treated between regenerations.

(NOTE: this is a key parameter for the smooth operation of the device. It should be determined by professionals based on the provided water test)

- (Set Repeat-Washing) - the number of additional rinsing cycles. Additional backwash and co-current rinsing
- (the option is active only in the A-21 "filter" mode).
- (Set Interval / Wash) - the number of bypassed backwash rinses. Backwashing may be performed once in several regeneration cycles (it is skipped during the remaining cycles). This parameter allows you to set the number of regeneration cycles to perform the backwash (only available in upflow A-11, A-12, A-13 regeneration modes). (Set Backwash Time) - backwash time with an accuracy of 1 second. (Set Brine & Rinse) - time of regeneration and slow rinsing of the bed with an accuracy of 1 second (option inactive in A-21 "filter" mode). (Set Brine Refill) - time to fill the regenerant water tank with an accuracy of 1 second (option inactive in the A-21 "filter" mode).

NOTE: Too long refilling of the brine tank may cause the water to overflow into the sewage system or out of the unit. The device supplier is not responsible for damages resulting from wrong setting of this parameter.

- (Set Fast Rinse) - time of fast bed rinsing with an accuracy of 1 second.
- (Set Max Days / Rchg) - the maximum time interval in days between regenerations. After this time, the device will perform a regeneration even if less water flows through than the set water volume between regenerations.
- (Set Output Signal - type of external electrical signal sent. Available options: b-01 - signal during regeneration, no signal during normal operation of the device, b-02 - signal is sent when changing the regeneration cycle (only when the head motor is working).




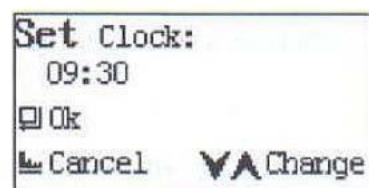
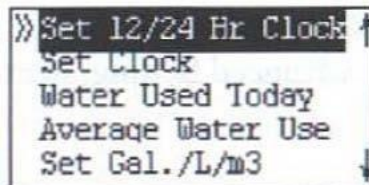
9 Example of controller programming

If the display shows the button lock symbol - padlock [7], fig. E, unlock it by holding down the down [11] and up [12] buttons simultaneously until the padlock symbol disappears.


1. To activate the settings change mode, press the enter [9] button
2. A list of available options appears on the display. To set the current hour, use the down button


 [11], go to the "Set Clock" option and confirm your selection by pressing enter [9]. 

Then, using the down [11] and up [12] buttons, set the current hour and confirm with the enter [9] button. 

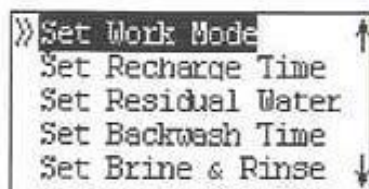



3. To set the advanced parameters, press the down button [11], go to the Settings option and confirm your selection by pressing the enter [9]

4. To set the operating mode (the operating modes are described on pages 11 and 12), select ("Set Work Mode ") and press enter .

For a softener with delayed regeneration and with brine regeneration from the top of the bed, it is necessary select the A-01 operating mode and confirm the selection by pressing the enter button .

The controller will confirm the change of settings with a short beep and will return to the list of available advanced settings.



5. To set the regeneration start time, select from the list of available options "Set Recharge Time" and confirm the selection by pressing the enter [9]. Then, using the down [11] and up [12] buttons, set the time to start the regeneration and confirm with enter [9]. 

The controller will confirm the change of settings with a short beep and will return to the list of advanced settings. To go to the next option, press the down button [11] and proceed in a similar manner.


To exit the settings change mode, press the back button [10] .

Table 4. Scope of parameter programming.

Parameter	Range	Unit of change
The current time	00:00 - 23:59	1 min
Type of regeneration	A-01, A-02, A-03, A-11, A-12, A-13, A-21	-
Time when regeneration starts	00:00 - 23:59	1 min
Volume treated water between regenerations	0 - 99.99	0.01 m ³
Backwash time	0 - 99:59	1 sec
Number of additional rinse cycles	0-20	1
Quantity omitted rinses backlinks	0-20	1
Time of brine draw and slow rinse	0 - 99:59	1 sec
Water make-up time In brine tank	0 - 99:59	1 sec
Rapid rinse time	0 - 99:59	1 sec
Maximum spacing in days between regenerations	0 - 40	1 Day
Type of external signal	b-01, b-02	-

Junior Eco 04 VC softener is programmed according to the following output data:

Parameter	Unit of change
The current time	24 hour clock
Type of regeneration	A011
Time when regeneration starts	2:00 am
Volume of treated water between regenerations	1,200 liters *
Backwash time	4 min
Time of brine draw and slow rinse	25 min
Time of refilling water in the brine tank	1 min *
Rapid rinse time	3 min
Maximum interval in days between regenerations	14 days

- water volume between raw water hardness regenerations 10_{about}N
- the brine filling time should be corrected after installation and commissioning of the water softener. After regeneration, the softener should fill about 2-4 l of water, depending on the pressure in the network
- the amount of water between regenerations should be corrected only by a specialized service

ATTENTION

Before using the system for the first time, it is necessary to perform a full system regeneration. Fill the brine tank with salt up to half of the tank, fill the salt with warm water, program the controller according to the above information and carry out the first regeneration.

10 Device operation cycles

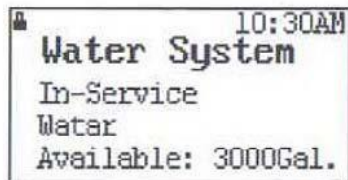
During the machine's current work cycle, the display will show the name of that work cycle. During the regeneration, the time remaining for the given cycle will be shown.

Raw water can be collected during the regeneration of the deposit. The device does not cut off the water supply during regeneration.

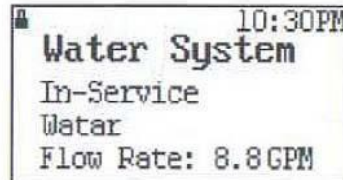
IN SERVICE(the display will show "Water System In Service") the unit is in the water treatment position. Raw water flows through the controller into the reservoir with the bed, flows through the bed and is directed up through the tube

central to the controller and further to the installation. The controller shows alternately every 15 seconds the following indications: volume of water remaining until regeneration (fig. 11.1.1) instantaneous water flow rate (fig. 11.1.2)

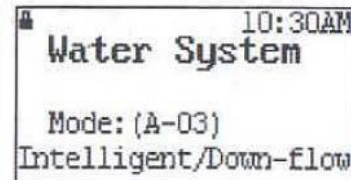
3. bieżący tryb pracy urządzenia (rys. 11.1.3)



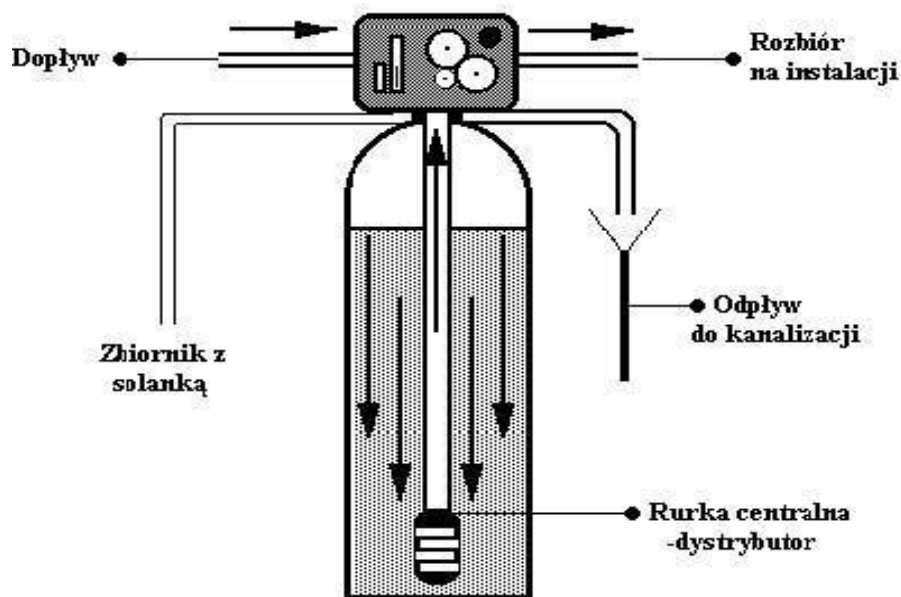
Rys. 11.1.1



Rys. 11.1.2



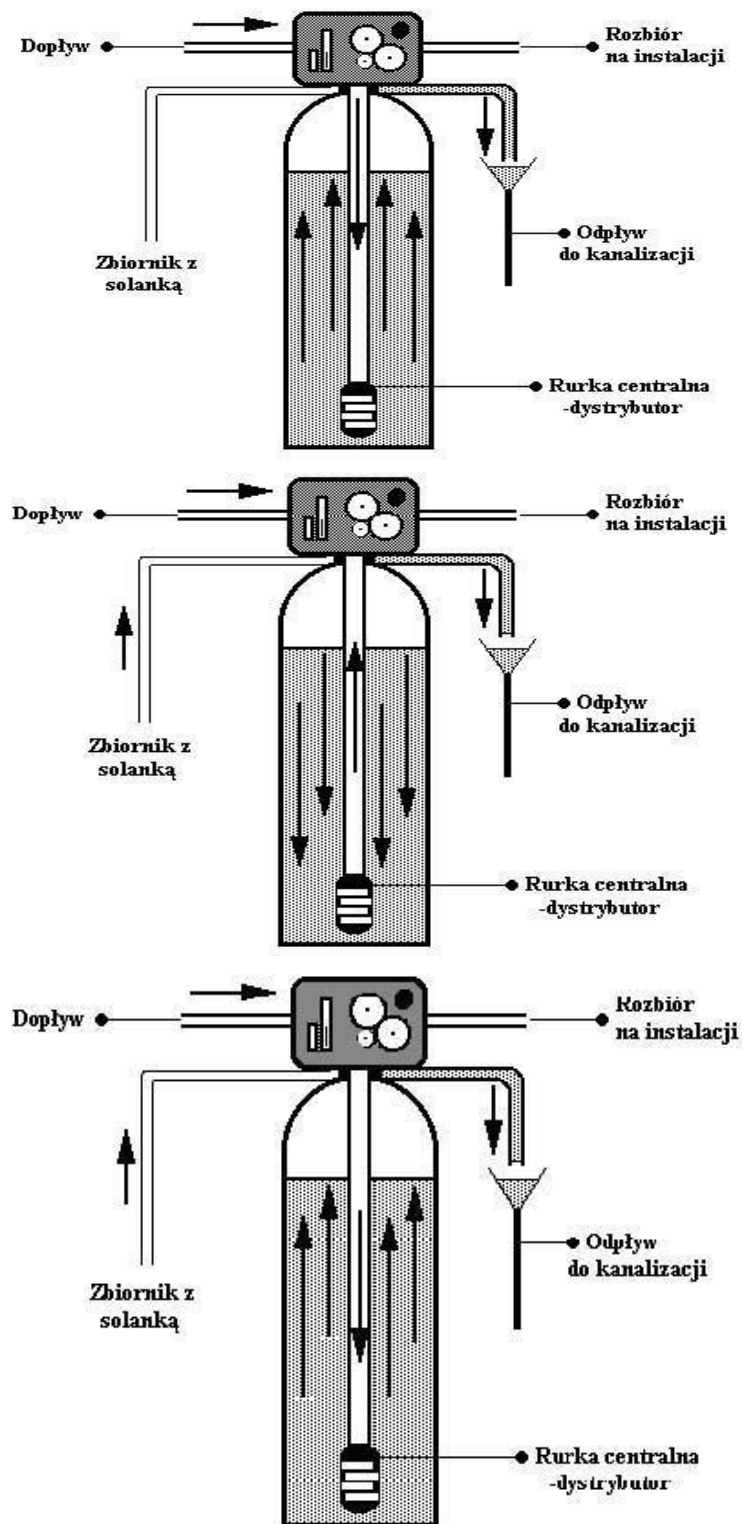
Rys. 11.1.3



BACKWASH("Backwashing" flashes on the display) unit in rinsing position countercurrent (reverse). Raw water flows through the controller into the tank the filter bed and is directed downwards through the central pipe. The water rinses and loosens bed, and then directed to the sewage system.

BRINE AND SLOW RINSE("Brine & Slow Rinse" flashes on the display) Regeneration - brining and slow rinsing of the bed. The flow of water through the control head causes suction of brine, which regenerates the exchangeable capacity of the bed. Water undergoing regeneration is discharged into the sewage system. After all the brine has been sucked in, the ion exchange resin is rinsed

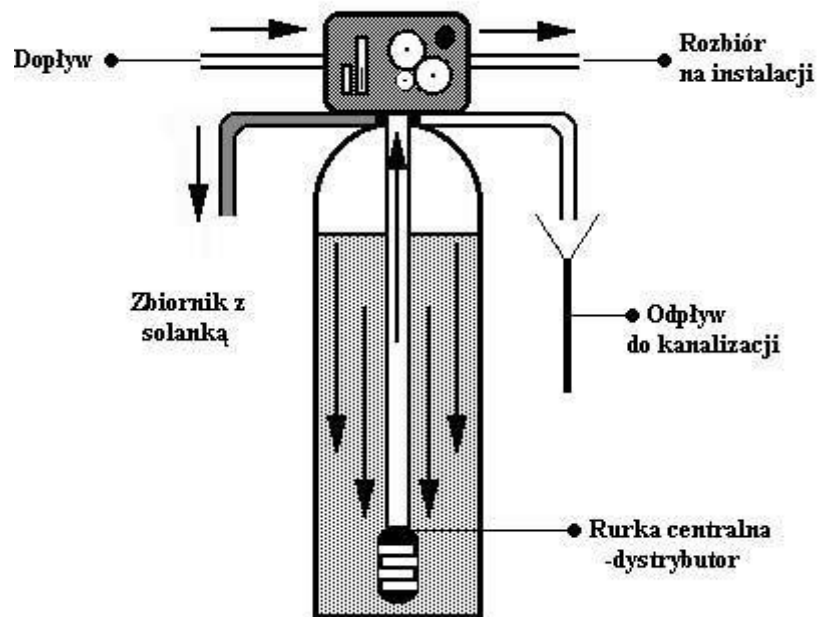
slowly with water. In the A-01 mode, the brine is directed down-flow from the top of the bed, and in the mode A-11 brine is directed up-flow from the bottom of the bed.



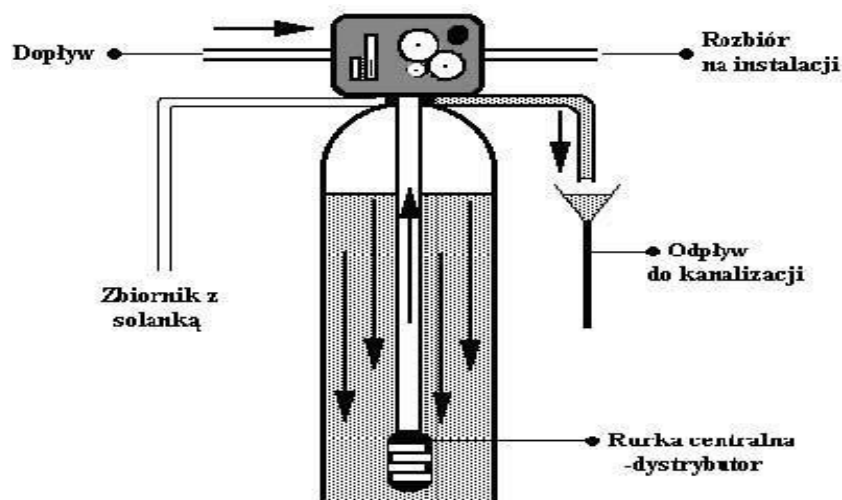
Down-flow regeneration Up-flow regeneration

REFILLING ("Refilling" flashes in the display). Pouring water into the salt tank to prepare the brine solution for the next regeneration. The volume of water in the brine tank is controlled by the Set Brine Refill time. The longer the pouring time, the more water will flow into the salt tank.

Fig. I. Water flow through the device in the brine tank filling cycle.



FAST RINSE ("Fast Rinsing" flashes in the display). Rapid rinsing of the bed from brine residues and laying the bed. During rinsing, the water is directed upwards through the central pipe and then to the sewage system.



After completion of the entire regeneration cycle, the device automatically goes into water treatment mode (In Service). When changing the individual operating cycles of the device, the message "Motor Running Adjust Valve" appears on the display.

11 FIRST USE - CAUTION

- Before using the system for the first time, it is necessary to fully regenerate the system and check the quality of water after the softener.
- Fill the brine tank with salt to a maximum of half of the tank, pour the salt with warm water, wait about 30 minutes to generate the appropriate brine concentration
- Program the controller - set the appropriate volume of water between system regenerations
- Initiate the softener regeneration process
- Test the hardness of the treated water. In case the water hardness is unsatisfactory, wait 3 hours to build up the full brine concentration and repeat the regeneration process.

12 Troubleshooting..

Problem	Cause	Solution
The device itself does not regenerate	No power	Check the electrical connections, fuses, plug, switch, power supply.
	Badly set driver	Set the driver or contact a professional to correctly set the driver
Device delivers hard water	Open bypass	Close the bypass
	No salt in the brine tank	Refill salt and regenerate the deposit with the immediate regeneration button [10]
	Dirty injector	Contact a professional or clean the injector
	Insufficient filling brine tank water	Check the setting of the brine tank filling time and regenerate the bed immediate regeneration button [10]
		Check the plumbing connection, whether the water supply and water reception are properly connected

Problem	Cause	Solution
	Water mixer open too much	Change the setting of the water mixer in the head (water hardness adjustment knob [13])
	The head is undergoing regeneration	Wait for the regeneration to end
Excessive salt consumption	Too much water in the brine tank	Reduce the time it takes to fill the brine tank with water
Decrease pressure	Iron sediment in the softener	Clean the controller and the bed. Increase the frequency of regeneration and / or duration of rinsing reverse
	Blocked water system	Check for water deposits blocked the water system in front of the device
	Entry down driver contaminated leftovers remaining from installation works	Remove the debris and clean the driver
	Dirty pre-filter element	Clean or replace the cartridge
	Presence of air in the system	Brine valve malfunction. Make sure there is brine in the tank
Too much water In tank brines	Water replenishment time too long in brine tank	Reduce the filling time of the brine tank
	Blocked injector	Clean the injector
	Foreign matter in the brine valve	Replace the brine valve
	Power failure during filling the brine tank	Check electrical power
The device does not sucks in brine	Network pressure too low	Increase the water pressure at the entrance to the water treatment system to minimum 1.8 bar.
	Blocked tubing leading brine to the controller	Check the brine supply hose and remove any blockages that may obstruct the flow
	Leakage from the tubing supplying brine to the controller	Replace the brine supply hose to the controller

	Damaged injector	Replace the injector
Continuous leak to the sewage system	Foreign bodies in the head	Check interior head, <small>remove</small> contamination and check the operation of the head in various regeneration positions
	Power outage during regeneration	Check electrical power

13 Certificates

The Junior ECO 04 VC softener has the following certificate

1. Państwowy Zakład Higieny (PZH) No. BK / W / 0339/02/2019, which proves that the Junior ECO 04 VC devices meet the hygienic requirements in the treatment of drinking water.
2. CE issued by CE Lab, which proves compliance with the requirements and compliance with the directives: 89/336 / EEC, 92/31 / EC, 93/68 / EEC, 2004/108 / EC, 97/23 / EC (head) .
3. RoHS issued by CE Lab, which proves the product's compliance with Directive 2002/95 / EC and informs that the product does not contain any hazardous substances (head).
4. ISO 9001: 2000, which proves that the production of RX controllers is carried out in accordance with the ISO 9001: 2000 quality management system.

14 accessories



Total hardness tester - for periodic control of the operation of each softener, it is necessary to test treated water. We perform this operation using a total hardness tester.



Salt is necessary for the correct course of the softener regeneration process. Without salt, the system will not produce the correct brine concentration, which will lead to hard water production and ultimately the formation of calcium deposits on the equipment.

15 The remaining offer - www.watercare.com.pl



ONE MG +

ONE MG + is an innovative solution with the Mg + water mineralization technology. The filter replenishes the water with the minerals necessary to improve the quality of raw water, making the prepared drinks taste better and are more friendly to the body. It is perfect for preparing tea, coffee, hot and cold drinks. By balancing the pH of the water, it supports the creation of the perfect foam for espresso coffee.



ONE SOFT

ONE SOFT filters are used to optimize water in gastronomy (HoReCa). The perfect solution for reducing the hardness of raw water, reducing the chlorine content. They reduce the hardness in the hydrogen cycle. They improve the taste and smell of water. Highly effective protection against limescale for all types of catering equipment requiring water treatment.