

ROC[®]

ROC-2023P

Single Stage Reverse Osmosis Controller

CREATEC[®]

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V1.1

Operation Manual

Hebei Create instrumentation Technologies Co.,Ltd.

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1. Overview

A panel type controller used to directly drive small-scale single-stage reverse osmosis, with five DI state input ports and four DO control output ports, providing technical solutions for civilian and group small-scale reverse osmosis operations.



Together with our company's CCT-3300 conductivity series instruments, we form a couple partnership to provide integrated support for RO operation control and conductivity measurement. Both have the same shell size and panel color tone.



(1) Typical application cases



Figure 1 Typical Application

(2) Product Control Process

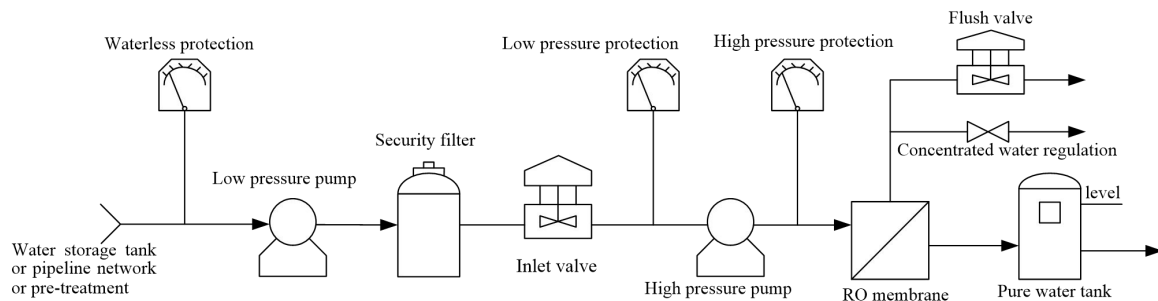


Figure 2 Product Control Process

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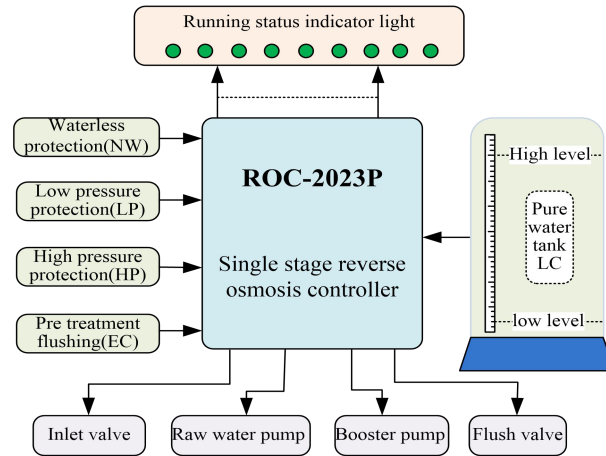


Figure 3 Main Control Function Diagram

2. Main technical parameters

Parameter	Technical Index
Power supply	AC220V±10%; 50/60Hz
Consumption	< 3.5W
Load capacity of output contacts	5A/250V AC(Resistive loads, large loads require intermediate relays to expand load capacity)
Environmental conditions	Environmental temperature: (0~50)°C
	Environmental humidity: ≤85%RH
Protection level	IP20
Weight	250g
Dimension	(48×96×80)mm(H×W×D)
Hole size	(44×92)mm(H×W)

3. Main control functions

Functions	Function Description
Dry-run protection function	It is used to monitor water source. When raw water is cut off (low level of water storage tank and the pressure of pipeline getting too low),the controller will stop the operation of whole RO system to prevent from system idling.Then the “WDT” on the panel will be lightened,the controller will detect dry-run switch uninterruptedly, and if the water supply pressure or water level returns to normal, the controller will restart RO system for operation.
Low-pressure protection function	When front-end pre-treatment system is in flushing or regenerating state, the security filter being dirtied and jammed, and cannot supply normal feeding pressure for RO system (the pressure is insufficient) , the controller will temporally shut down the whole RO system. At this moment, the “LP” will light on. Then, the controller will continuously detect the low-pressure protection switch, one minute later, RO control system will start at first time, and operate RO system. If the system determine the low pressure again, it will stop the operation of RO system. The procedure sets three times of trial running, and when they are not successful, the system will enter deadlock protection state and wait for restart after treatment by manpower.
High-pressure protection function	In a system using high-pressure protection, if the system experiences over pressure, the controller temporarily shuts down the entire RO system to protect the safety of the membrane components.The "OPPS" indicator light is on, which is different from the low voltage protection. The controller will not start for the first time until the high voltage is eliminated for 1 minute. If the outlet pressure still exceeds the limit, the system will enter a protective state again.The high-voltage protection program has three trial starts.When the system cannot resume normal operation after three starts, it enters a deadlock protection state and waits for human intervention before restarting the system. ✧ <i>If the system has no high-pressure protection, short out the terminal (COM+HP)*</i>

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Pure water tank level Control function	When pure water tank level is at preset low level, the controller will start RO system immediately to generate water till the level of pure water tank up to the preset high level, and the system will enter to standby state after finishing 10 seconds membrane flushing.
Membrane flushing function	After the first start,system will finish 30 seconds membrane flushing.The system will flush for 10 seconds after each water production or “tank full”. After continuous operation or “tank full standby” for 3 hours, the controller will automatically intervene in rinsing for 10 seconds.
Pre-treatment flushing function	When the system is in a non alarm state, close the pre-treatment flushing function switch and proactively shut down the entire RO system, only maintaining the continuous operation of the raw water pump, and supporting the completion of pre-treatment flushing procedures.

4. Panel description

The display panel is equipped with 10 indicator lights, which correspond to the working status of each point, as shown in the following figure.

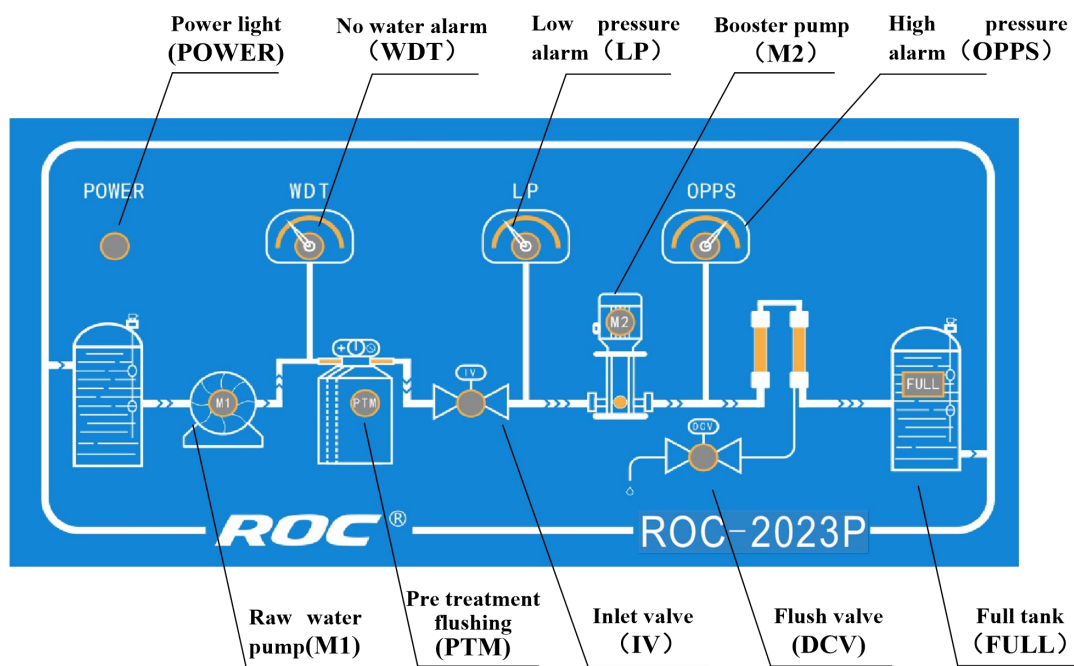
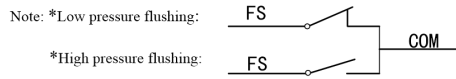
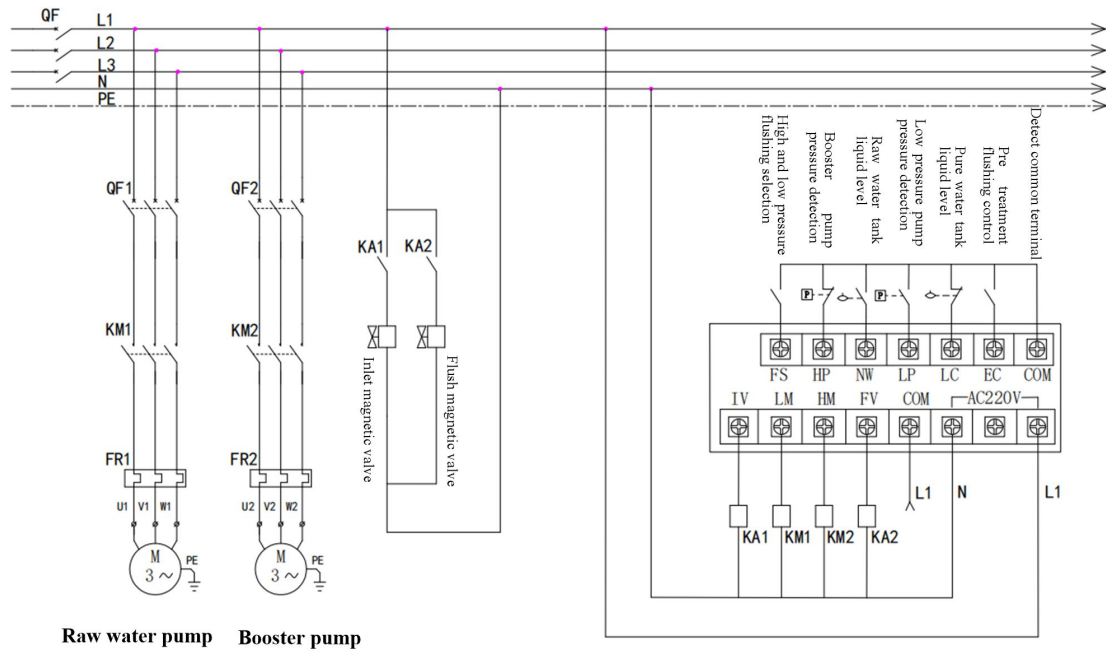


Figure 4 Display Panel

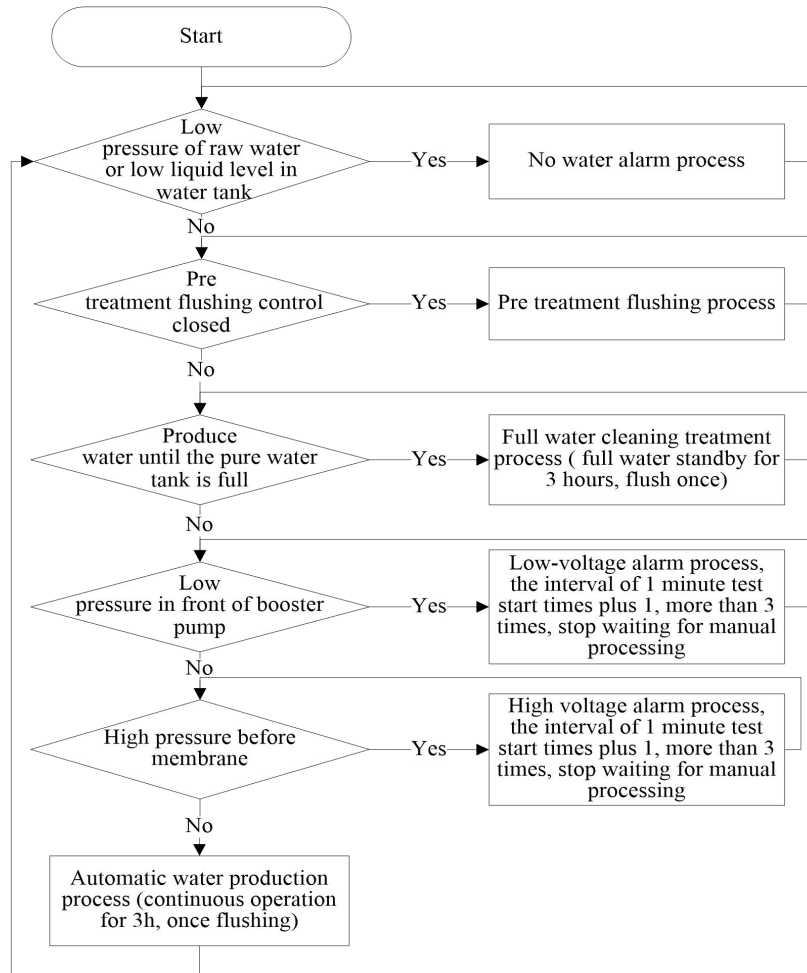
5. Electrical wiring



This controller has been upgraded to a pre-treatment flushing control function (to maintain the continuous operation of the raw water pump when receiving trigger flushing mode). The controller can be restarted by switching on and off the power supply to achieve the original external control function.

Figure 5 Electrical wiring diagram (schematic)

6. Control flow



Note: When the controller is in the shutdown protection state, it can be automatically removed after being powered on again.

Figure 6 Control Process

7. Trouble shooting

phenomenon	Possible factors	Troubleshooting
The solenoid valve does not work	A . Valve front filter screen failure B. Quality issues with solenoid valves	A. Clean the filter screen B. Replace the solenoid valve
Low pressure alarm	A. The security filter is dirty and blocked B.Insufficient water pressure	A. Cleaned Filter B. Check water pressure to restore water supply pressure

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8. Complete set

Name	Model	Number	Unit
Controller	ROC-2023P	1	set
Clips	9678	2	set
Certificate of conformity	ROC-2023P	1	set
Manual	ROC-2023P	1	set