

AUTOMATION OF CLEAN DRINKING WATER SUPPLY PROCESSES IN AGRICULTURE SYSTEMS

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Abstract: Nowadays, the use of modern automatic technical means in providing the population with clean drinking water allows the automation of water supply processes, water facilities, water treatment facilities, water storage and transfer processes, as well as automatic measurement, control and adjustment of their necessary parameters.

Key words: *water treatment facility, drinking water supply, clean water reservoir (reserve), automation of water storage, automation of water transfer processes,*

Water is important in the main processes occurring in nature, as well as in human life becomes important. In industry, water is a raw material and source of energy, cooling or heating, solvent, extractant, as a carrier of raw materials and materials and so on used for needs. The effectiveness of the process depends on the properties of the membranes used. They should have the following advantages: high separation property (selectivity), high relative productivity (conductivity), resistance to the influence of the environment, performance during the process, its properties should not change, it should have mechanical density, and its cost should be low.

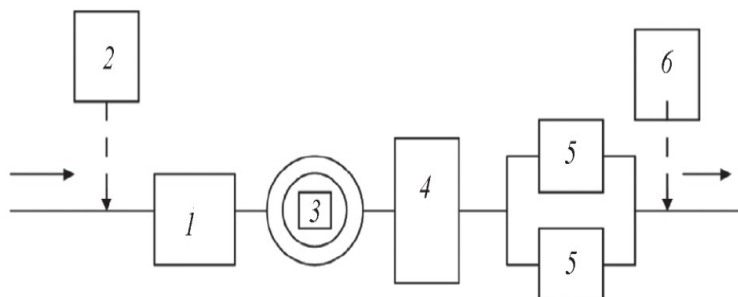
Requirements for the quality of drinking water Uzbekistan State "Drinking water. Hygienic requirements and quality control" template is defined based on the requirements of UzDST 950:2000.

Water treatment facilities include the following processes:

- Water reception facilities;
- Devices of water supply networks;
- Water coagulation process;

- Water softening process;
- Water filtration process;
- Water chlorination process;
- Water ozonation process.

The picture below shows a general view of the water treatment plant.



Here, 1-mixer, 2-reagent farm, 3-vertical clarifier, 4-quick filter, 5-pure water tank (reserve) and 6-chlorinator.

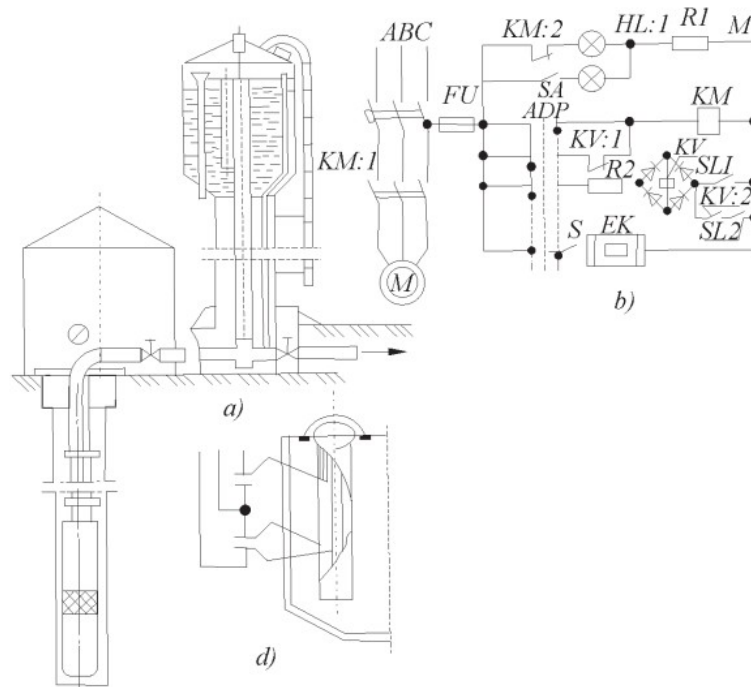
In addition, by automating the processes of water storage and transmission, clean quality drinking water will be provided to the population. A special electric cabinet is used to ensure the automatic operation of the pump device. It is very important to ensure the automatic operation of the motor in the pump in this cabinet. The power of the pump motor is selected depending on the size of the water storage reserve tank. In many cases, a 5.5 kW asynchronous motor is installed due to the small size of the water storage reserve tank [1, 106-107].

Before starting this motor, it switches to delta mode, then automatically to star mode, because the starting current is larger than the rotating current. This work is performed by several electrical equipment. Electrical equipment is installed in the cabinet that automatically starts the water pump.

The main 40 A circuit breaker installed on the side of the cabinet and a 25 A 3-phase automatic power switch protect the motor from short circuit and overload. And 3 pieces of magnetic half-cattles ensure a delta, then a star connection of the motor. A time relay is a relay that can control from 1 second to 30 seconds. A timing relay is an automatic electrical device that helps to

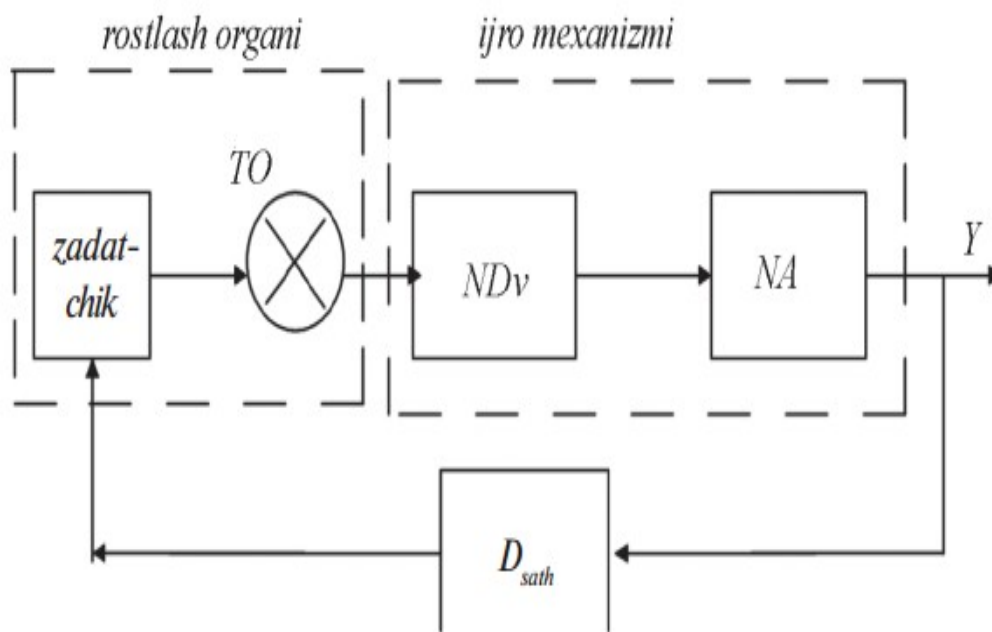
switch the solenoids from delta to star. The starting magnet automatically switches to the star method after 6 seconds of starting with the delta method, which provides the engine with no load, no stress, and long-term operation. [1,107].

The functional-technological and principle-electric schemes of the automatic control system for water level measurement at the water pump are shown in the figure below.



Functional-technological (a) and principle-electric schemes (b, d) of automatic control and transmission of water level in a water storage tank using an electric pump.

The following scheme presents a functional scheme of automatic measurement, control and management of water levels in water pumps:[2,107-108-109].



here, *TO*-comparison body, *+TO-* adjustment body, *NDv*-pump motor (control and receiving element), *NDv+NA* - executive mechanism, *D_{sath}* - level sensor (primary switch).

Conclusion

At the present time, the development of science and technology is leading in such a way that it requires the use of modern automation systems in the production of existing techniques and technologies. Therefore, the automation of water treatment processes in providing the population with clean drinking water leads to the improvement of water quality and the increase of labor productivity and the reduction of heavy manual labor.

Today, the world's industrial development, the increase in the world's population, the climate global problems arising due to changes and industrialization in the world and water taking into account the fact that the reserves are not evenly distributed, and the amount of water reserves has been reduced Deep processing of not only industrial, but also other types of wastewater is very important is counted. Also, the transfer of irrigation systems to the drip mechanism is different and in production processes to a closed, intensive cycle of water circulation as much as possible should be transferred.

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