

Success story

Industry: Energy

PLC + HMI ALL IN ONE™

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The water treatment station control systems almost do not require supervision

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How can you achieve reliable, safe automatic control settings?

Summary:

By using Unitronics Vision series of PLC+HMI controls, EKOIDEA, a Polish company provide water treatment stations, achieved precise automated control and responsive alarms, which warned them of problems and shut of the system. These

benefits enable EKOIDEA to provide efficient, easy to use water treatment systems to their customers.



EKOIDEA is a Polish company operating in water industry since 1995; they import and manufacture most modern, ecological and economical filters and water treatment devices compliant with ISO 9000 standards, which have PZH and the admission of UDT. The company carries out comprehensive services in water treatment from detailed development of technology through the design, installation, commissioning and servicing warranty and post-warranty service for



individual customers as well as large cities. With their focus on ecology and energy savings, EKOIDEA needed control systems that could safely and efficiently run a water filtration system. The water treatment process takes place in a two-stage filtration system. Raw and pre-aerated water is supplied to the four parallel-connected filters in the first stage. Then the water is directed to four more filters in the second stage; once the treated water passes through the second set of filters it moves into storage tanks. For this system to run a PLC needs to control submersible pumps, blowers and other equipment, as well as providing a way to set the mode of treatment; EKOIDEA uses the Unitronics Vision1040 and Vision570 PLC+HMI units.

The system's default is to run automatically following preset parameters. The PLC switches submersible pumps on and off to direct the flow of water. A hydrostatic probe transmits an analog

signal with data on the water level, enabling the controller to maintain

a consistent level. The water flows through the filters via pneumatic throttles; the PLC controls throttle regulators and electromagnetic flowmeters to ensure an even distribution of water through each filter. It can also adjust the angle of the throttle opening to achieve the preset flow.

In order to ensure that the automatic mode could run with minimal supervision, EKOIDEA relied on the alarm management system built into Unitronics VisiLogic software. Alarms are triggered whenever the system isn't running correctly, such as in the case of dry running, tank overflow, or pump failure, and, depending on the kind of alarm, the system shuts off automatically as needed. The alarm management system then displays a notification on the PLC's integrated HMI informing the user of the fault so that they can take appropriate action. Alarms are also logged and these records can be viewed on the HMI.

Other safety features have been programmed in to the PLC. The PLC automatically changes the pump every 24 hours to ensure equal wear and an additional pump is kept on standby in case of primary pump failure. The controller also logs data about the water level and other elements of the system which are displayed in charts and graphs using the trend function, enabling the operator to easily monitor the status of the system. The operator can also switch the system into manual mode and customize the control settings to a specific water treatment station.

Marcin Tomaszewski of EKOIDEA explains the success that they've had with Unitronics' Vision series PLCs; he says, "The water treatment station control systems almost do not require supervision. The powerful PLC integrated with a large and beautiful HMI panel meets all our requirements."

