

Success story

Industry: Oil and gas

**PLC
+HMI**
ALL IN ONE™

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The big, colorful sensor display allows the operator to interact with the system effectively and allocate a lot of information on one display

Andrey Romanov

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How can you keep power stations running in the Russian wilderness? PLC control with reliable remote monitoring.

Summary:

NPP Tehnoavtomat installs power stations in Russia's many remote regions; they need excellent remote access and monitoring and responsive alarms as well as impeccable control. They implemented a Vision350 PLC+HMI from Unitronics to

control and monitor on such remote electric power station. This PLC ensured the station could run smoothly and autonomously without issue.

NPP Tehnoavtomat is a Russian company that builds and designs solutions for the oil and gas industry. One of their challenges is the installation of systems in Russia's many remote regions. NPP Tehnoavtomat has unique requirements for system in these regions; they need excellent remote access and monitoring and responsive alarms as well as impeccable control.

NPP Tehnoavtomat designed a the control system for an autonomous electric power station situated in one of these hard-to-reach regions using a Unitronics Vision350 PLC with integrated HMI. This PLC controls the power stations microturbines and gas reduction lines. The PLC also maintains the microclimate in the station to ensure that the system remains in the optimal operating conditions.

The Vision350 also handles the monitoring and communication functions that enable NPP Tehnoavtomat to run the electric power station remotely. The PLC communicates with microturbines using Modbus RTU and monitors their status. NPP Tehnoavtomat added on an Ethernet port to enable a wider variety of communication options. This enabled them to monitor and make adjustments as needed to the system both locally and remotely. The Vision350 transmits status updates about the power station to NPP's central office via an OPC server, allowing them to respond to any problems as they arise.

The Vision350's alarm management system helps ensure that the electric power station can run safely with minimal operator interaction. The PLC manages a series of anti-damage protections. If an alarm is triggered, the system switches into a standby mode to protect against further failures or damages. It also generates emergency remotes so that remote operators can take the appropriate corrective steps.

For NPP Tehnoavtomat the biggest advantage of Unitronics was the reliability. Trying to get to a remote system to do repairs can be slow and costly, so it's important to have a system that won't break in the first place. Not only did the Vision350 meet this requirement for reliability, it was also easy to program and the all-in-one design sped up the programming process as the HMI, communications and ladder were all programmed in one software environment. Moreover the PLC's integrated color-touch HMI panel allowed NPP Tehnoavtomat to easily display useful information; Andrey Romanov explains “the big, colorful sensor display allows the operator to interact with the system effectively and allocate a lot of information on one display.”



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