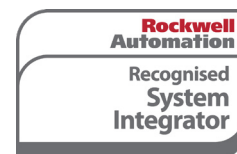


Connected control solution delivers greater process precision, enhanced energy management and data-capture capabilities at Ukrainian Sinter Plant



Major modernisation programme by Azov Controls gives metalworking plants access to multiple data-driven process improvements

Challenge

Ageing control infrastructure at Ukrainian sinter plant unable to leverage modern data-driven process advances

Solution

A Rockwell Automation solution was installed, which included:

- Integrated Process control system
 - Industrial Ethernet switches
 - Multiple EtherNet/IP-based device level rings (DLR)
 - Integrated Safety
 - Connected variable speed AC & DC drives
 - OWS stations
 - EWS Stations with integrated design tools

Results

- Modern connected automation solution for sinter plant
- Brand new central control room
- Greatly enhanced process data capture
- More efficient energy control
- Remote access
- Automated management of automation assets



The new central control room was built "from scratch" in a completely new building, with the layout being determined by the tasks to be undertaken by the operators

Background

Modernisation can deliver multiple technological, operational and legislative benefits, even in industries where automation has not traditionally played a key role.

One example would be in metalworking foundries, which are often highly mechanised and do not deploy automation on a scale similar to other major industries. Through modernisation however, these types of sites can realise significant performance gains, while also more effectively addressing ever-stronger legislation concerning energy use and harmful emissions.

Integrated Iron and Steel Works can actively use modern technologies to increase the efficiency of controlling industrial and business processes. A classic example of production automation is the "Enterprise in plain sight" system of visualisation and monitoring of technological processes, which was implemented at the Zaporizhstal PJSC in 2016.

Zaporizhstal PJSC turned to Ukraine-based Rockwell Automation Recognised System Integrator, Azov Controls LLC, to not only replace and build the control systems for its fifth and sixth sinter strands, but also design and populate a brand new central control room.

LISTEN.
THINK.
SOLVE.

The display system operates 24 hours a day and the processing speed of the received data is a matter of seconds. This provides round-the-clock access to the most up-to-date information on production processes, online monitoring of production, making of informed decisions, and implementation of control actions.

Challenge

The project was huge! Technologically, the shop comprises six continuously operated sinter strands. In order to provide pollutant emissions control for these sinter strands, they are equipped with process-gas cleaning and air-aspiration systems to cater for the intense sources of dust generated by the sintering process.

In the course of this turnkey project, Azov Controls had to gain an in-depth understanding of the customer's precise needs and then develop a system that met these needs; undertaking implementation, installation, commissioning and all other major project activities, including reconstruction and site surveys.

In addition to the scale of the project, time was another major factor. In view of maintaining as continuous production as possible, the works had to be performed under a tight schedule, using a phased approach – requiring incredibly robust management.

Each and every control and electrical component had to be replaced. The power and control circuit supply systems were to be completely reconstructed and new hardware components introduced.

Solution

The brains of the new process control system is the programmable automation controller (PAC) from Rockwell Automation, which communicates with a number of networked devices and cells through multiple EtherNet/IP-based device level rings (DLR).

As an integrated control system, CIP and CIP Safety™ is achieved through the connectivity with an Allen-Bradley SmartGuard™ 600 safety controller. Connected PowerFlex® 753 variable-speed drives are used for the mixing drum rotor and a DC drive controls the sinter belt.

The integrated process control system uses the proven Rockwell Automation process solution with a hardware- and software-redundant server. Integrated engineering tools are being used to configure, develop and test the high-end plant controls and visuals based upon existing graphics.

The new central control room was built “from scratch” in a completely new building, with the layout being determined by the tasks to be undertaken by the operators. Console-type monitors were used for the local management of workstations and a mixture of 27 and 55 in industrial monitors are used in a video wall to display the information served by the FactoryTalk software.

Using this new infrastructure, the operational staff at Zaporizhstal PJSC are able to accurately and clearly monitor key parameters such as temperature, pressure, humidity, machine speed and equipment status, while also being able to obtain real-time information about possible malfunctions and issues.



Using this new infrastructure, the operational staff at Zaporizhstal PJSC are able to accurately and clearly monitor key parameters such as temperature, pressure, humidity, machine speed and equipment status



The work undertaken by Azov Controls has resulted in a truly modern sinter shop control room at Zaporizhstal PJSC.

Azov Controls, as a Rockwell Automation Recognised System Integrator, makes a commitment to deliver the highest technical solutions and customer service, leading with Rockwell Automation technologies. These integrators have a mutually supportive relationship with the Rockwell Automation sales and/or distributors they work with

The deployment of Allen-Bradley PACs in conjunction with FactoryTalk software has delivered remote monitoring, far more accurate production process control, intelligent energy regulation and greater plant productivity

Results

The result of all the work undertaken by Azov Controls has resulted in a truly modern sinter shop control room at Zaporizhstal PJSC.

The new facility allows the operational services of the plant to not only monitor and control the main technological parameters of all workshop equipment, but also to perform automated management of these processes.

The deployment of Allen-Bradley PACs in conjunction with FactoryTalk software has delivered remote monitoring, far more accurate production process control, intelligent energy regulation and greater plant productivity. Indeed, according to Alexey Chernik, Head of the Automation & Drives Department at Azov Controls: "The capabilities of the system we created are actually beyond the scope of the original terms of reference; and at the moment the system is actively still developing and improving. The next stage of the reconstruction will be the modernisation of the control systems for the batch-feeding conveyors and sintering machine No. 4.

Mr. Dronov, Head of Automation at Zaporizhstal adds his thoughts: "We are very satisfied with the solutions delivered and we are currently striving to extract even more capabilities and savings out of the system. We have several other projects in the pipeline related to the sinter and blast-furnace shops and the data we are seeing from this new installation is already being used in the MES track-and-trace module at the plant.

Additional Information www.rockwellautomation.com

The results mentioned above are specific to Zaporizhstal PJSC and Azov Controls LLC's use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.



AZOV CONTROLS
TeraWatt Group



The Rockwell Automation PartnerNetwork™ program offers global manufacturers access to a collaborative network of companies mutually focused on developing, implementing and supporting best-in-breed solutions to achieve plant wide optimization, improve machine performance and meet sustainability objectives. For more information on the Rockwell Automation PartnerNetwork, visit <https://www.rockwellautomation.com/global/sales-partners/>

56, Italiyanskaya str.
Mariupol, DON 87515
Ukraine
Phone: +38 (0629) 41 24 24
Fax: +38 (0629) 41 01 24
E-mail: office@azov-controls.com
<http://azov-controls.com>

LLC AZOV CONTROLS delivers automation equipment, systems design and commissioning of Automatic process control systems, for applications including blast furnaces, basic oxygen furnaces, boiler utilisers, HVAC and dosing lines. As a system designer of APCS and Control Instrumentation, LLC AZOV CONTROLS has all necessary permits and licenses in accordance with the current legislation of Ukraine.

The company performs the work on sub-contracts for the design and commissioning, assembly of control cabinets and making estimates. LLC 'AZOV CONTROLS' also creates APCSs on turnkey basis, including the coordination of subcontractors, to ensure the overall result, providing a fixed date and a guaranteed start-up of the whole system.

Allen-Bradley, FactoryTalk, LISTEN. THINK. SOLVE., PowerFlex, Rockwell Automation and SmartGuard are trademarks of Rockwell Automation, Inc.
EtherNet/IP is a trademark of ODVA Inc.
Trademarks not belonging to Rockwell Automation are property of their respective companies.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846