



A Metro Train  
Departing a Station



## Customer Success Story

# Kazan Metro Kazan, Tatarstan



Kazan Metro Monitoring Screen

### About Kazan Metro

Kazan is the capital of Tatarstan, a republic in the Russian Federation, located 800 kilometers (497 miles) east of Moscow, with a population of nearly 1.5 million residents. Planners of the Kazan Metro (or “Underground”) intended to have the system operational for Kazan’s Millennium Celebration in 2005 and completed Phase One of their plan by completing five stations with 9 km (over 5.5 miles) of underground and 4 km (nearly 2.5 miles) of above ground rail by that deadline. The presidents of Russia, Kazakhstan and Tatarstan were honored guests and the Kazan Metro’s first passengers during its grand opening.

The design of the Kazan Metro control system originated at the St. Petersburg NII Scientific Research Institute, with special attention paid to safety and me-

chanics, while experimental testing was performed in the city of Neva. When opened, the Kazan Metro was unique in that it boasted the complete absence of now obsolete relays, historically used for motion control and management in metros throughout the country. More contemporary onboard and station computing resources were adopted, each capable of determining conditions throughout the metro infrastructure, ensuring passenger safety.

### ICONICS Software Deployed

The Kazan Metro selected ICONICS’ GENESIS32™ Web-enabled, OPC-based HMI/SCADA suite for its control and visualization system, as well as the DataWorX32™ component for OPC data aggregation, bridging, redundancy and tunneling.

### Project Summary

The new Kazan Metro required a unified control and visualization system for its operation. The objectives for this solution were the management and security of integrated systems including Train Dispatch and Control, Antiterrorist Protection, Power Systems/Uninterrupted Power Supplies, Fire Safety, Groundwater Pumping and Tunnel Monitoring.

Challenges facing Kazan Metro developers included cost-control, adaptability/expandability, and communications/data management reliability.

### Benefits of the System

ICONICS’ GENESIS32 and DataWorX32 solutions proved to meet the Kazan Metro developers’ requirements. Costs were controlled due to ICONICS’ PC and

Microsoft operating system-based systems. Adaptability and expandability were ensured via ICONICS' commercial, off-the-shelf HMI/SCADA software and open database technology (most important to the Kazan Metro was integration with Microsoft SQL Server). Reliable communications/data management is achieved through ICONICS software's hardware agnostic approach – ensuring integration with multiple communication APIs and utilizing OPC technology.

The Kazan Metro's new unified control/visualization system now helps to facilitate the complex management of train traffic, integrated with Advantech IPCs/Windows XP and Fastwell integrated IPCs/Windows 2000.

## Conclusion

Planners for Kazan's Metro wanted their new transportation system to reflect the city heading into its next millennium, by utilizing state-of-the-art technology. ICONICS automation software solutions were able to assist in this goal and help keep the city moving forward.



*Dispatching Desk at Kazan Metro Operations*



*Engineering Specialist Monitoring Station*

The Dispatching Desk can visualize information related to train movement, station equipment conditions, railway track conditions, duplicated optical channels and reservation data. Role-based information is available to dispatchers, engineers and the chief dispatcher at individual workstations.

## Key Features

- OPC Tunneling with DataWorX32 – bridges any OPC server to any OPC client, is firewall and network friendly, and supports OPC DA, AE and HDA tunneling.
- Communication Security – provides robust, secure alternative to Microsoft DCOM; each connection has its own security credentials; GENESIS32 security is integrated with Windows NT security features.