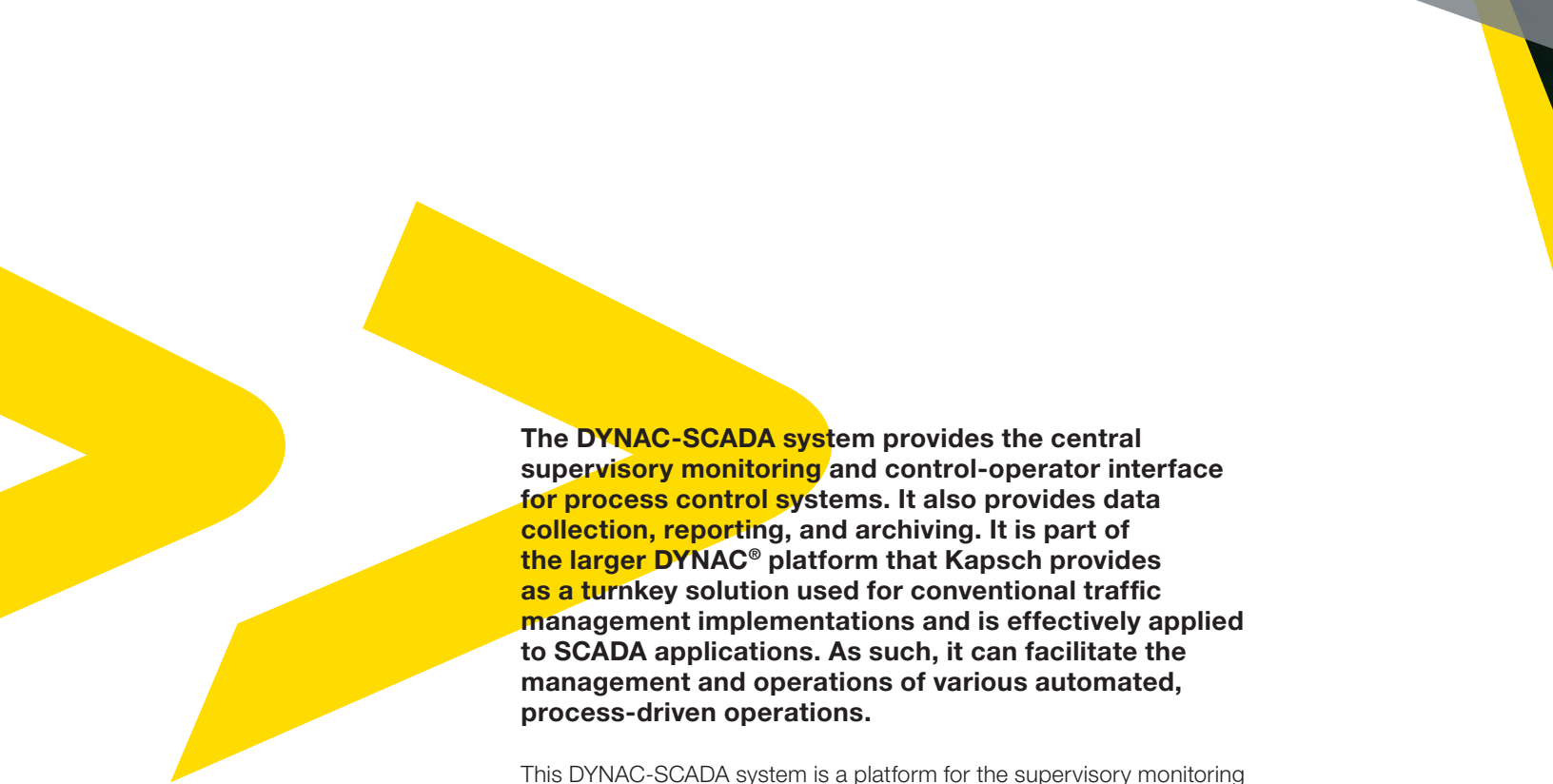




Kapsch TrafficCom

DYNAC-SCADA
*Process Automation
Platform*

A large, abstract yellow graphic on the left side of the page, consisting of several overlapping, angular shapes that resemble stylized arrows or chevrons pointing towards the right.

The DYNAC-SCADA system provides the central supervisory monitoring and control-operator interface for process control systems. It also provides data collection, reporting, and archiving. It is part of the larger DYNAC® platform that Kapsch provides as a turnkey solution used for conventional traffic management implementations and is effectively applied to SCADA applications. As such, it can facilitate the management and operations of various automated, process-driven operations.

This DYNAC-SCADA system is a platform for the supervisory monitoring and control of a SCADA PLC control environment. The system provides a graphical user interface (GUI), status updates of all devices within the system, and all operational data parameters such as flows, levels, and current draw and power usage of the electrical areas. It provides the system operator with complete situational awareness of the control system while monitoring, collecting, and archiving all data in real time to enable report generation for past events.

The system extends the DYNAC® functionality that is conventionally used for advanced traffic management system (ATMS) applications (such as controlling variable highway message signs or traffic signal devices). DYNAC-SCADA can be deployed for any process control applications such as:

Transit

Traction power; bridge, tunnel, and rail heater monitoring control

Environmental Processing

Water treatment, wastewater treatment, sewage collection monitoring

Batch Processing

PLC and GUI for automated manufacturing; production organization for increased efficiency and throughput without end user interaction

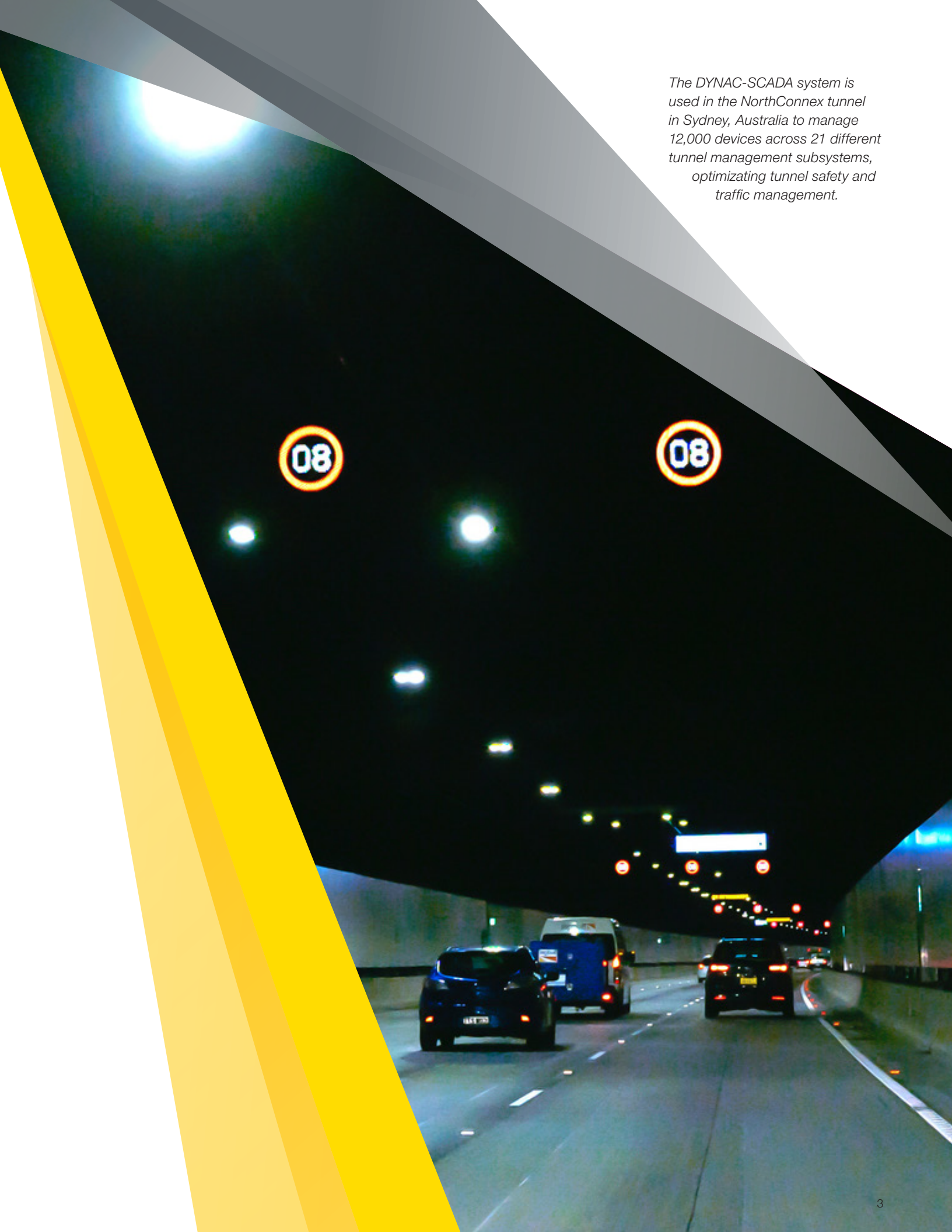
Process Monitoring for Resource Distribution

Water distribution

Unmanned Automated Systems

Airport transit and monorail systems

The DYNAC-SCADA system is used in the NorthConnex tunnel in Sydney, Australia to manage 12,000 devices across 21 different tunnel management subsystems, optimizing tunnel safety and traffic management.



System Architecture.

The DYNAC-SCADA system comprises three layers:

1

Supervisory Layer (Top)

Supervisory data layer – a network (eg Ethernet network) that connects the [level two] controllers to the servers on which the DYNAC-SCADA system operates. Can be Kapsch or a third-party network.

2

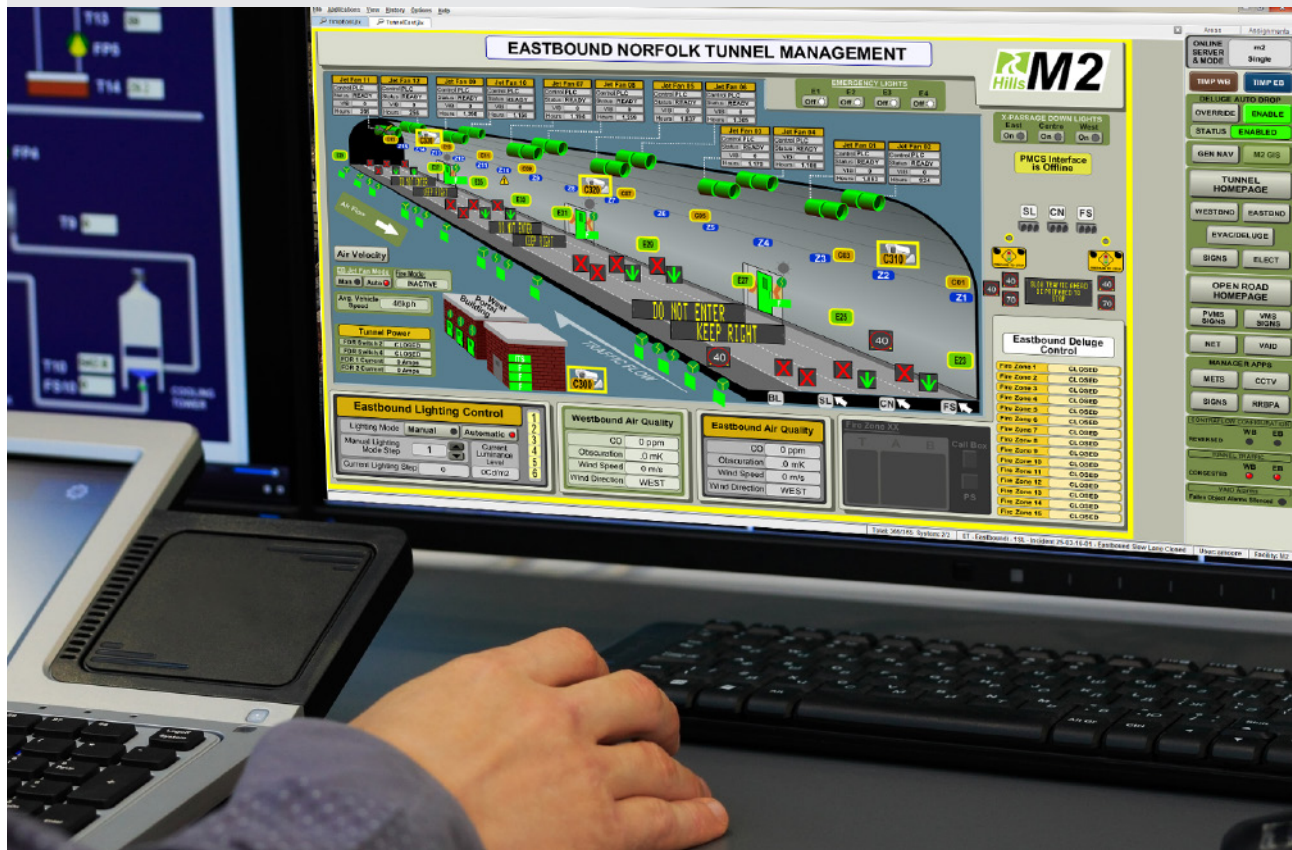
Control Layer (Middle)

Programmable logic controllers (“field smarts” or PLCs) that monitor and gather all the electrical signals from the [level one] field devices into a database.

3

Field Layer (Base)

Motorized valves or intelligent electronic devices. These are electrically interfaced in the field.



System Maintenance.



Kapsch offers different service packages based on client needs and contract conditions. Kapsch can remotely support an existing system deployment with basic updates and fixes, and can also provide on-site maintenance to ensure the software is running efficiently. More comprehensively, Kapsch can also provide regular on-site preventative maintenance for field devices, or on an as-need basis when issues arise. Kapsch can also devote full-time on-site engineering resources with the customer agency to manage all maintenance and support activities - from receiving initial alerts and triage, all the way to complete resolution of the issue. The components and service levels are customizable by the client.

Project Deployments.

Proven Approaches.

Effective project delivery practices have been essential to Kapsch's success as a leading systems integrator of SCADA systems, resulting in a long history of successfully delivered systems. These practices focus on systematic and thorough project planning, risk management, requirements management, internal and external coordination, task management, supplier management, quality control and assurance, and monitoring and control of work performance. Proper implementation planning is crucial to ensure the correct infrastructure and resources are available to support the transition and testing of the new SCADA system. Our objective is to successfully deliver the client's new system at the earliest possible date without taking shortcuts that would expose the project to unnecessary risks during the transition period.

A complete System Integration and Transition Plan tailored to meet the client's requirements is developed for review and approval prior to deployment. This plan describes how our team will verify that the system meets all specified technical and performance parameters while taking steps to safeguard the continuity of operations during the transition period.

Preparation of the plan shall include advance consultation with the client's project and operations management to establish the operational parameters and limitations governing installation. The plan will detail the sequence of the deployment according to the approach that is followed by the client. Specific attention will be given to how field devices and software interfaces will be transitioned to the SCADA software.

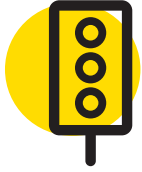
In addition to many other "brownfield" customer sites* Kapsch has successfully design, developed, deployed, tested, and transitioned "greenfield" systems as well. Kapsch applies all experience and lessons learned from our 40-year SCADA history to guarantee success for all client system transitions.

* Brownfield customer sites include:

- New York City Transit Traction Power SCADA Modernization Program (New York, NY - USA)
- MARTA Substation Automation SCADA System (Atlanta, GA - USA)
- BART Power Distribution and Facilities Management SCADA System (San Francisco, CA - USA)
- Toronto Transit Commission SCADA System (Toronto, ON - Canada)



Integrations.



The DYNAC-SCADA platform is ideal for smart city applications. It can integrate myriad automated products and systems (RSUs, cameras, movable bridge substations, building power, lighting, traffic devices, traffic applications, etc.) into a single system and GUI for comprehensive oversight and control.



The DYNAC-SCADA system (and the DYNAC software itself) provides a general communications framework that allows easy integration with legacy and new devices, and with other systems. Its industry-standard communication methodologies offer a high degree of interface integration capability and flexibility. Interfaces can be integrated via various standards including, but not limited to, MODBUS, MODUS TCP, Ethernet IP, DF 1, OPC, DNP 3, REST/JSON, Web Services, FTP, etc.

In addition to these standards, DYNAC's communication framework facilitates the integration of additional interface protocols as necessary to accommodate specific client and project needs to maintain legacy devices.

Add-On Feature

Connected Mobility Platform

The Kapsch connected mobility platform provides a data lake repository for storage for the large volumes of data collected by most SCADA system applications. These large data sets require analytic interpretation and reporting for both process improvements and regulatory agency oversight. In conjunction with the platform, Kapsch's Performance Analytics Insights tool provides dashboards for visualization, analysis, comparison and correlation of our clients' automated processes.

General integration with other Kapsch platforms including the Connected Mobility Control Center (CMCC), Data Analytics, and Predictive Analytics Module (PAM) is possible on a per-case basis.

References.

Cross-industry implementations around the world.

**Kapsch DYNAC-SCADA
is currently used globally
in bridge, tunnel, and ATMS
applications**

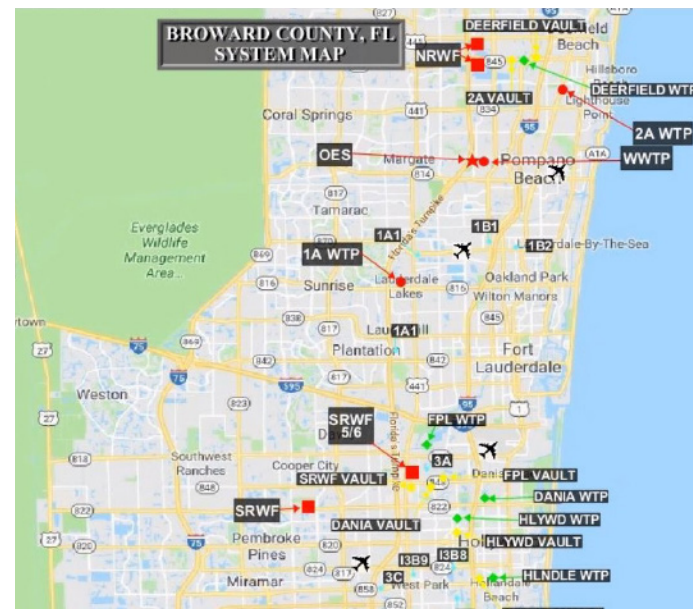
Automation

New York, New York & Cleveland, Ohio (USA)

New York City Transit and Greater Cleveland Regional Transit Authority reduced its electrical energy consumption by using Kapsch's fully automated redundant DYNAC-SCADA rail heating system. Rather than run the heaters continuously from late fall to early spring, the wireless automated PLC system allows the operators to remotely monitor and control individual heating elements on demand from various remote locations. This has improved worker safety, train reliability, reduced maintenance costs and has extended the life of the overall heating elements. CCTV has also been added to the system design as an additional enhancement.

Broward County, Florida (USA)

The Broward County Office of Environmental Services (OES) uses DYNAC-SCADA to supply potable water and treat wastewater for the residents of Pompano Beach, Florida. The system provides the OES with an automated distributed control system (DCS) for over 250 remote water distribution and collection facilities, and allows operators to optimize the management of overall plant performance.



Tunnels

NorthConnex (Australia)

NorthConnex is a nine-kilometer (5.6 miles) twin tunnel that links the M1 Pacific Motorway at Wahroonga to the Hills M2 Motorway at West Pennant Hills near Sydney, Australia. Kapsch provided the roadside tolling infrastructure, the truck regulatory monitoring infrastructure and the Advanced Traffic Management System (DYNAC®). The DYNAC-SCADA system allows management of approximately 12,000 devices across 21 different tunnel management subsystems including environmental emissions sensors, fire detection and suppression, ventilation, intrusion, evacuation and drainage, among several others. The integration of these devices and subsystems into the DYNAC-SCADA system facilitates the optimization tunnel safety and traffic management.

South Jersey Transportation Authority (USA)

DYNAC® serves as the backbone for integrating the various tunnel monitoring and control systems currently used by SJTA into one system. Integrating these Supervisory Control and Data Acquisition (SCADA) based systems allow road operators to control ventilation (jet fans and dust collectors) and monitor air quality measurements, alerts, fire detection and alarms. Additionally, staff can monitor and detect traffic density, accidents and emergency communications such as emergency telephones, all critical elements in preventing an emergency from becoming a crisis situation.

Bridges

Goethals & Bayonne bridges (USA)

Kapsch TrafficCom was selected to build the new Intelligent Transportation System (ITS) and Supervisory Control and Data Acquisition (SCADA) Systems for two bridges in the New York metropolitan area. The project includes new computer systems, communication systems, CCTV, sensors and electronic signs. The ITS will monitor and control traffic on the bridge and approach-roads allowing the Port Authority improved accident detection, clearance times and maximized throughput of the bridge.

The Supervisory Control and Data Acquisition (SCADA) sub-system software will integrate with all Program Logic Controllers (PLC) via a fiber communication network. The SCADA system will interface with the power distribution system, emergency generator, UPS, bridge fire pumps and standpipe, bridge lighting system, fire alarm system, building management system and sump pumps.

Joliet, Illinois (USA)

The Illinois Department of Transportation (IDOT) uses DYNAC® for the operations control system of six moveable bridge structures over the Des Plaines River in Joliet, Illinois. IDOT officials can operate the bridge structures remotely from a centralized location while collecting comprehensive information about their conditions using CCTV monitoring. The new systems communicate over a fiber optic communications network and wireless backup system, and are scalable to accommodate future integrations such as drawbridge or rotating bridge management, and water and vehicle traffic.

The Kapsch Advantage

Unique features and trusted expertise.

Kapsch is an industry leader in the traffic management, automation, and intelligent transportation systems industries and has implemented DYNAC® systems around the world.

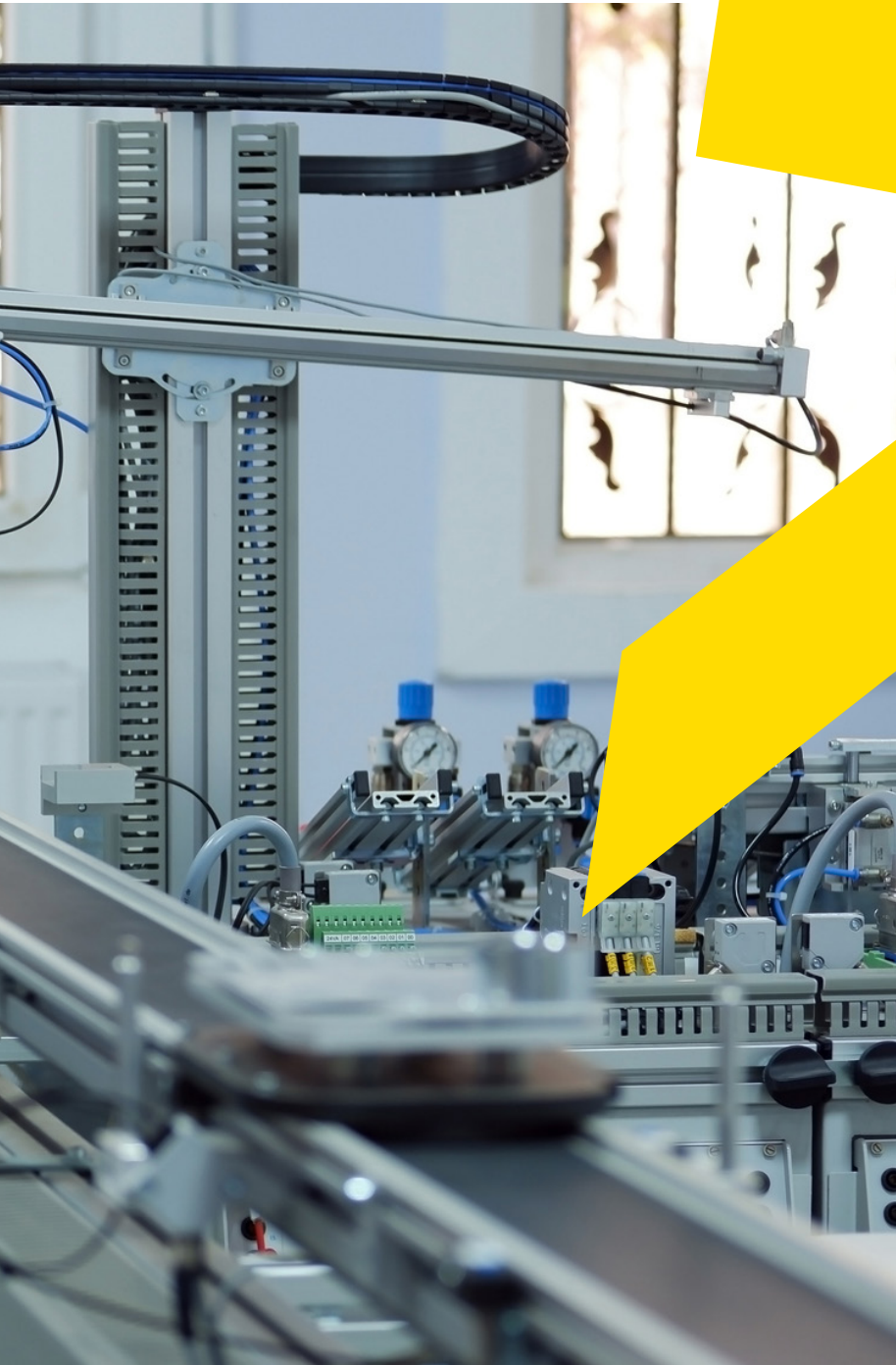
It can design, build, and/or operate all or any part of the three-level SCADA system, from deployment of field devices, development of controllers, and system network configuration and installation.





In addition, DYNAC® is unique in that it implements CCTV and video monitoring – benefits that extend to the SCADA application and provide built-in system oversight.

As a global leader in the ITS industry, Kapsch extends its technical expertise to the comprehensive development and management of a SCADA system. The company's implementation of DYNAC systems for ATMS applications around the world bring decades of technical experience, domain knowledge, and streamlined capabilities to all customer projects while offering the unique ability to draw upon the entire Kapsch product portfolio for additional benefits.



Kapsch TrafficCom

Kapsch TrafficCom is a globally renowned provider of transportation solutions for sustainable mobility. Our innovative solutions in the application fields of Tolling, Traffic Management, Demand Management and Mobility Services contribute to a healthy world without traffic congestion.

We have brought projects to fruition in more than 50 countries around the globe. With our one-stop solutions, we cover the entire value chain of our customers, from components to design and implementation to operation of systems.

As part of the Kapsch Group and headquartered in Vienna, Kapsch TrafficCom has subsidiaries and branches in more than 30 countries. It has been listed in the Prime Market segment of the Vienna Stock Exchange since 2007 (ticker symbol: KTCG). Kapsch TrafficCom's about 5,100 employees generated revenues of EUR 731.2 million in financial year 2019/20.

>>> www.kapsch.net

Visit us on:

