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# SIMEX

A Kapsch Group Company >>>

**kapsch** >>>  
challenging limits

## **DYNAC®**

*Advanced Traffic Management.*

DYNAC's modular design allows for full integration of ATMS and SCADA (Supervisory Control and Data Acquisition), making it an ideal solution for collecting traffic and facilities-related data from highways, managed lanes, and bridges and tunnels.

# ***Integrated Traffic and Operations Management Solutions:***

**Open  
Motorways.**

**Toll Roads.**

**Bridges  
& Tunnels.**

**Managed  
Lanes.**

**Reversible  
Roadways.**

## ***Industry Leading ATMS Software.***

DYNAC is a high-performance, integrated software suite deployed at vital transportation facilities around the world. Combining mission critical reliability and security with the latest software technology, the commercial off-the-shelf software solution is used to monitor and control traffic, life safety, and facilities management assets and processes.

The software's fully integrated suite of transportation and facilities management applications and highly configurable design allow it to be deployed in a variety of ITS applications including open motorways, toll roads, tunnels, bridges, managed lanes, and reversible roadways.

### **Core DYNAC Modules:**

- > DynDisplay – maps & graphics
- > System Security Manager with roles and user permissioning
- > Alarm and Alert Management
- > Event Viewer
- > Communications Monitor
- > Scheduler
- > Notification Manager
- > Device Editor
- > Script Editor
- > Aspect Manager
- > DynDraw Graphics Editor

### **DYNAC Traffic Management Modules:**

- > Incident Response Manager
- > Tunnel Incident Management Program
- > Automatic Incident Detection
- > Work Zone Management
- > Sign Manager
- > CCTV Manager
- > Road Weather Information System
- > Audio Manager (HAR & RRB)
- > Travel Time Manager
- > Active Traffic Management
- > Ramp Metering
- > Data Warehousing & Reporting
- > iOS iPad App
- > RSS, NTCIP C2C, APIs





## *Proven Performance for Real-time Traffic & Operations Management.*

DYNAC has a proven track record of reliably managing some of the world's largest transportation facilities with demanding nonstop operational requirements. The software collects real-time traffic data and delivers it to Traffic Management Control (TMC) centers allowing operators to detect and respond to

congestion, incidents, emergency situations, and other conditions. Information such as travel times, incidents, roadway and weather conditions, and other messages relevant to drivers can be quickly disseminated to the public allowing motorists to make informed travel decisions.

## *Incident Response Management.*

Effectiveness of any traffic management system can be measured by the speed and efficiency of emergency response. DYNAC's GIS based Incident Response Manager (IRM) allows operators to provide rapid and appropriate responses with less stress. IRM unifies traffic operations and simplifies system use by combining control of incidents, alarms, and other

situations along with response plans into a single interface. DYNAC's Automatic Incident Response feature provides automated response plans to operators. Responses may also be manually generated from predefined or dynamically created plans, all of which are editable and previewed before they are executed.

### **Features:**

- > Automatic CCTV selection and visual confirmation of incidents by location
- > Comprehensive incident response rules editor and engine for rules based dynamic incident response
- > Queuing of commands with multi-level priority scheme for implementation of multiple, simultaneously active plans
- > Ability to activate multi-step or multiphased responses with operator prompts and guidelines
- > Automatic or manual e-mail and SMS notification integration





## *Integrated Traffic Management and SCADA.*

DYNAC's inherent design allows it to seamlessly function as a fully integrated Advanced Traffic Management and SCADA system making it a strong solution for modern tunnels and bridges requiring an integrated, homogenous interface for monitoring and controlling traffic conditions, incidents, and emergency situations.

- > **Lighting**
- > **Ventilation**
- > **Fire suppression**
- > **Water deluge**
- > **Low point pump stations**
- > **CO monitoring**
- > **Access control**
- > **Power distribution systems**
- > **Emergency phone**
- > **Roadway barriers**
- > **Over-height vehicle detection**

### **Other commonly integrated components:**

- > CCTV system
- > Dynamic message signs
- > Travel times
- > Vehicle and equipment tracking
- > Weather monitoring
- > Highway advisory radio
- > Regional advisory information
- > Motorist emergency telephone
- > Traveler information
- > AMBER alerts

## *Active Traffic Management.*

Prevention of congestion and accidents is a key element in keeping traffic conditions ideal. DYNAC can automatically adjust traffic control devices such as lane use signals, variable speed limit signs, ramp metering, and variable message signs based on current or anticipated conditions.

DYNAC dynamically adjusts the incident management system based on changes in roadway configuration. DYNAC accommodates the use of reversible roadways with movable median barriers or hard shoulder running to help manage congestion during peak travel times.

## *Tunnel Incident Management Program.*

DYNAC provides seamless management of traffic and emergency operations when responding to incidents or emergencies within tunnels. To reduce the impact and duration of incidents, the DYNAC Tunnel Incident Management Program (TIMP) consists of planned and coordinated processes needed to clear incidents rapidly. All aspects of tunnel safety are included in each TIMP including but not limited to:

- > **Environmental monitors**
- > **Traffic data**
- > **Fire detection**
- > **Ventilation fans**
- > **Deluge valves**
- > **PA systems**
- > **Barrier gates**
- > **Dynamic message signs**
- > **Highway advisory radio**
- > **Tunnel radio rebroadcast**
- > **Lane use signals**



The user interface is customized for each project to minimize the number of steps required to respond to emergencies. This application allows operators to implement a complete

response to an event such as a tunnel fire in as few as five mouse clicks in less than 20 seconds.

## *Integrated Electronic Toll Collection and Traffic Management.*

The Kapsch integrated Electronic Toll Collection (ETC) and traffic management solution enables both revenue maximization and alleviation of congestion. DYNAC provides incident management and vehicle volume data to the central system where a toll setting module uses a dynamic pricing algorithm to calculate tolls. Pricing information is pushed from the central system to DYNAC for display on dynamic message signs,

allowing drivers to make informed decisions whether to continue in the general purpose lanes or to accelerate their trip by paying a designated toll. This flexibility helps to consistently maintain optimal traffic flow. Integration with the tolling system allows the traffic management system to process traffic data from the ETC for use in incident response, travel time management and display, and traffic management by TMC operators.

## *Reversible Roadway Control.*

DYNAC manages movable barriers, gates, signs, and other traffic control devices used to create reversible roadway lanes to maximize capacity during peak periods. The DynGate application ensures safe use of reversible lanes and automatically guides system operators during each step of the multi-

staged process to ensure proper procedures are complete before reversal. DYNAC also contains an autosweep feature that uses CCTV and vehicle detection to automatically scan the roadway for motorist before reversing the roadway.

## *Architecture.*

DYNAC's modern architecture provides the flexibility needed to manage any size system from small single server applications to very large national systems being controlled from multiple control centers, each with diverse operational requirements.

The 3-tier, open system architecture ensures market acceptance and continued product viability. Extensive use of open-

source software utilizing the latest industry standards lowers product development and support costs and ensures sustainability.

DYNAC can be deployed in a virtual server environment to provide enhanced disaster recovery and cloud based services.

- > **Java web based applications**
- > **Incorporated standards-based technologies such as NTCIP, TMDD**
- > **High availability with seamless automatic transition to standby server**
- > **Proven 3-tier architecture: client, business, and enterprise information system**
- > **DYNAC client applications run on any Java enabled computer no special workstation software or hardware required**
- > **No per client license fees**
- > **Compatible with RDBMS products such as PostgreSQL, Oracle, Sybase and MS SQL Server**
- > **Relational database allows for unlimited expansion as system grows**

## *Configurability.*

DYNAC's highly configurable design using a common code base allows it to be applied in multiple mission-critical appli-

cations and markets providing a broad foundation for future investment.

## *Distributed Management.*

DYNAC supports distributed management of field assets from multiple control centers, making it a great choice for national,

state-wide, and regional level solutions that require management from a combination of command centers.

## *Regional Advisory Information.*

By adhering to NTCIP, TMDD, and C2C standards, multijurisdictional coordination with other regional agencies is supported by DYNAC. Traffic information can be shared across multiple Traffic Management Systems (TMS) which enables agencies to disseminate important information to motorist travelling in other areas.

NTCIP C2C as well as the DYNAC Multi-Traffic Management Center interface allow multiple regions and TMCs to share traffic data and interoperability based on user and center based roles and permissions. This functionality can be used for normal operations or for emergency control of a remote TMC.

## *User Interface.*

DYNAC is unique in supporting both customized schematic graphics and detailed open-source GIS based world road maps combined into single information screen. This streamlined interface features fully scalable vector graphics linked to real-time data. Operators can easily identify congestion, incidents, and other issues via dynamically changing color coded graphics.

DYNAC facilitates management of all system assets based on geographic location and automatically places devices on a map. Other icons can easily be added to maps by the operator. The graphics package includes DynDraw, a drawing application for customized rendering of the client's facilities or other custom screens.

## *External Interfaces.*

Kapsch TrafficCom has extensive experience in developing custom interfaces to legacy and other non-standard systems using web services and other modern interfacing standards. DYNAC supports many open and proprietary protocols for traffic management devices and other interfaces such as:

- > **Public Address (PA)**
- > **Radio rebroadcast**
- > **Telephone PBX**
- > **National weather service**
- > **Industrial PLCs/RTUs**
- > **Center-to-center**
- > **AVL**
- > **Tolling systems**

## *Reporting and Data Trending.*

DYNAC features reporting tools that allow operators to easily create system reports from either DYNAC or Microsoft Excel. All events like incident records, configuration settings, traffic

data, activity logs, and other real-time and historical data are time-stamped and stored in a relational database for filtering, querying, and reporting needs.

## *DYNAC iPad App for Incident Response.*

The DYNAC iPad app aids on-road emergency response personnel in responding to and clearing incidents along roadways managed by Kapsch's DYNAC traffic management software. The app allows for two-way incident and event management between response units on-site and operations staff located at the traffic management center. Incidents are cleared more efficiently, and free-flowing driving conditions are restored faster with response plans based on the synchronization of incident data from both the on-site and remote responders team.



### **Kapsch TrafficCom**

**Kapsch TrafficCom** is a provider of intelligent transportation systems (ITS) in the segments of toll collection, city access control and parking space management, traffic management, traffic monitoring, utility vehicle monitoring, electronic vehicle registration and V2X cooperative systems. The end-to-end solutions of Kapsch TrafficCom cover the entire value creation chain of its customers, from components and design to the installation and operation of systems, all from a single source. The core business comprises the development, installation and operation of electronic toll collection and traffic management systems. Reference projects in more than 50 countries on all continents have made Kapsch TrafficCom a globally recognized ITS provider. As part of the Kapsch Group, an Austrian family-owned technology group founded in 1892, Kapsch TrafficCom is headquartered in Vienna, Austria, and has subsidiaries and branches in 33 countries. It has also been listed since 2007 on the Vienna Stock Exchange (KTCG) and earned revenues of EUR 526 million in the 2015/16 fiscal year. The company employs over 4,600 employees worldwide.

**>>> [www.kapsch.net](http://www.kapsch.net)**

