

SITRAFFIC ITCC

## The modular tunnel control center – universal and individually adaptable

Intelligent Traffic Systems

**SIEMENS**

# Standardization lowers costs while still allowing individual solutions

We have taken a totally new approach with SITRAFFIC® ITCC, the new International Tunnel Control Center: we use highly standardized hardware and software modules to create a flexible platform solution. That reduces costs considerably while allowing us to adapt the system to individual requirements.



Three consecutive tunnels are monitored and controlled in this tunnel control center in Prague

**Optimum traffic flow throughout the tunnel**

All data converges in the control center – whether it is from the equipment used in the tunnel or about traffic conditions. Precise analysis of the traffic conditions and the actuation of variable traffic signs is a central aspect. These solutions are even easier to implement with SITRAFFIC ITCC.

**Highly standardized hardware and software**

SITRAFFIC ITCC comprises centrally developed and maintained software modules for the core functions of all connected tunnel systems, based on tried and trusted industrial middleware, which runs under Windows, Linux, or Solaris, irrespective of the hardware platform. That makes this central platform much more attractively priced than previous individual solutions.

**Ideally equipped for international use**

Even though it is a heavily standardized product, SITRAFFIC ITCC offers great flexibility. Flexibility to adapt to operator preferences or country-specific requirements, making the new center platform a universal solution: in tunnels of all sizes, in all countries, and for all safety standards.

**The only control center for all the technical equipment in a tunnel**

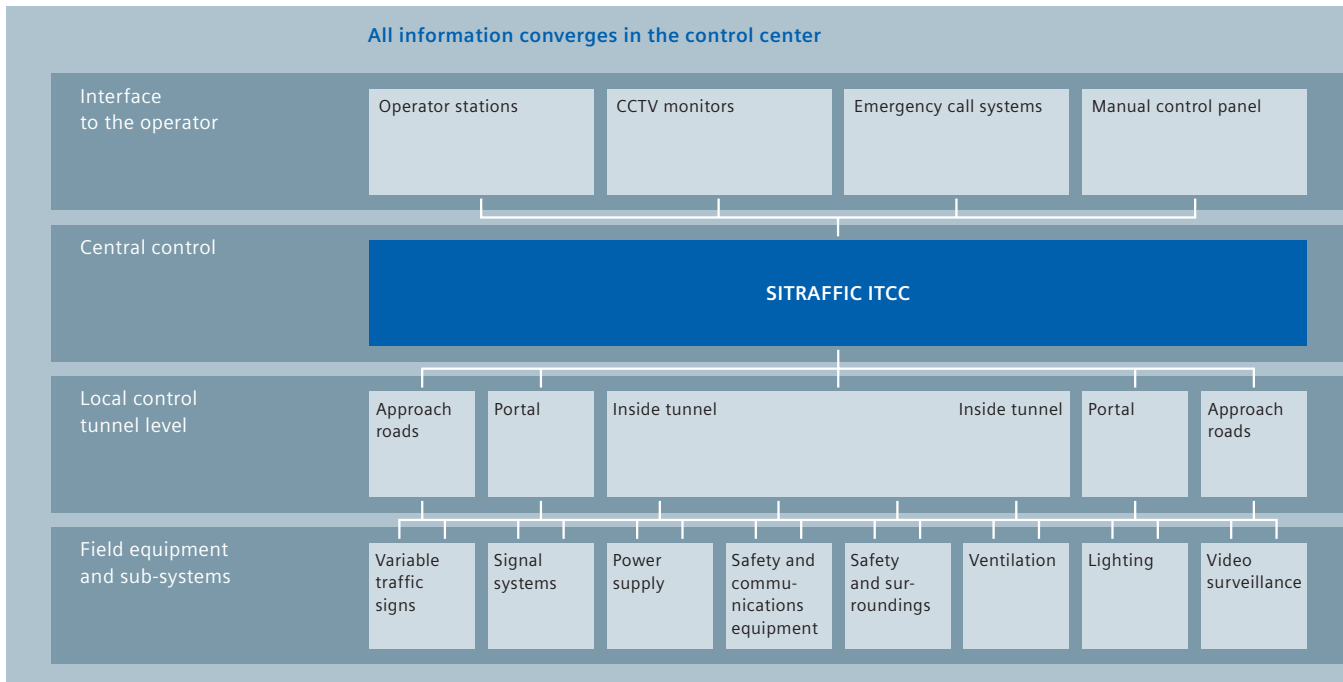
The new tunnel control center is the beating heart of the entire tunnel equipment. Not only the traffic guidance and control equipment, but also the light, air, and power supplies, the fire detection systems, pollution measurement, or emergency call systems. All the information converges in SITRAFFIC ITCC. This makes for safe traffic guidance and a high level of safety.

**Long-term security of investment**

The new tunnel control center can be extended in any direction whenever the need arises. Which means your investment is future-proof, and expensive overdimensioning is no longer necessary. The control center grows module by module with new tasks and is simply expanded when new technical equipment is installed in the tunnel.

**Redundant design for utmost safety**

SITRAFFIC ITCC has a second server that runs in “hot standby” mode. If the active server comes up against any problems the system automatically switches to the second server. The PC networks can also be configured redundantly to meet the highest possible safety specifications.



Variable traffic signs that respond to the traffic situation ensure a high level of safety

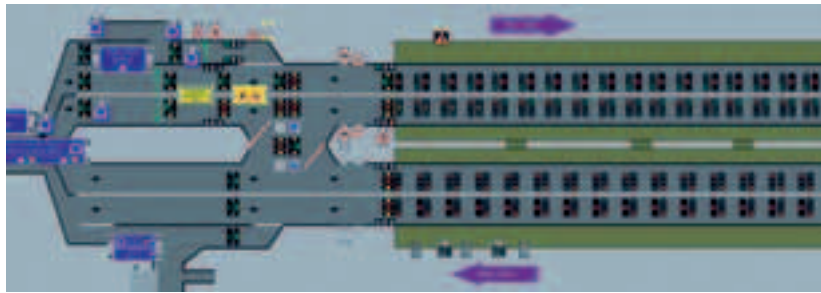
The control room personnel have a full picture of the traffic conditions at all times

Unique and standardized representation gives a clear overview

Aberdeen Tunnel  
in Hong Kong after  
modernization:  
a driver's view ...



... and a control  
room operator's view



The modular "building block system" of the new tunnel control center

Editing of VMS messages	Engineering traffic manager	Customized GUI	PLC engineering	Customized protocols
ASCONA configuration tools	Traffic manager	Traffic control engine	Kerberos	COMO
Simulation	WEB server	OPC server	Object orientation	Local interface standards
Client-server architecture	MS WINDOWS or LINUX or SOLARIS			Multi language
Fire detection	Archive & reports	Alarm handling	Redundancy	AID algorithm
Power	Pumps	Lighting	Traffic	GUI library
Engineering TCE	Kerberos engineering	Setup of com. parameters	Setup of AID algorithm	Configuration with ASCONA

■ Siprocs (PVSS II)/ WinCC Middleware    
 ■ Key functions    
 ■ Region specific functions    
 ■ Project related adaptations

Choices for an individual solution:  
Three different PC architectures, ...

SITRAFFIC ITCC is available in three different versions:

- as a system with one server,
- as a two-server system, in which one server operates redundantly in "hot standby" mode,
- and as a system with several operator stations, two redundant servers, and controllers with fault tolerance.

Particularly advantageous: Any PC with an Internet Explorer (or comparable program) can be used as an operator station. Special workstations are not necessary!

... three different operating systems ...

SITRAFFIC ITCC can be equipped with one of three operating systems: Windows, Linux, or Solaris.

... and four different basic configurations

Depending on the length and type of the tunnel, the amount of operating equipment, and the traffic volume, the new tunnel control center is available in different configurations:

- SITRAFFIC ITCC XS for short tunnels with minimal operating equipment and operating station integrated in the server
- SITRAFFIC ITCC S for small tunnels with one server and one operating station
- SITRAFFIC ITCC M for medium-length tunnels
- SITRAFFIC ITCC L for long tunnels or medium-length tunnels with a lot of operating equipment

Whatever you choose:  
safety has topmost priority ...

When we developed SITRAFFIC ITCC we made sure that every single system function met the topmost requirements for safety.

So it goes without saying that system availability is high. Dangerous circuit states are avoided with strong protection mechanisms. Error messages from the higher-level system appear immediately on the operator's screen. Clear and unambiguous display in the operators' native language avoids misinterpretation.

... as does long-term security of investment!

The type and volume of modules used, and the general design, ensure that SITRAFFIC ITCC can be adapted to the new requirements with next to no effort. Even after several years of use, the center can be equipped and expanded with new functions, for example, as part of refurbishment. An important economic aspect when analyzing lifecycle costs.



## Module by module toward the customized control center solution

SITRAFFIC ITCC is an extremely innovative “control center building block system” with an amazingly simple system architecture. Grouped around the industrial middle-ware is a large range of standardized software modules for basic and region-specific functions which can be supplemented by project-specific modifications at any time. Defined interfaces round off the harmonized solution – a wholly individual yet economical solution.

# The entire tunnel equipment under firm control

The new tunnel control center SITRAFFIC ITCC is not only limited to guidance and control equipment for traffic. The entire operating equipment of a tunnel is connected to this control center from where it is monitored and controlled: everything from the power supply to the emergency telephone. This considerably increases the safety, as dangerous situations can be recognized and eliminated more quickly.



### This is where all information converges

Tunnel control center SITRAFFIC ITCC permits the central control and monitoring of all technical equipment of a tunnel:

- Power supply
- Ventilation
- Lighting
- Emergency call system
- Video monitoring
- Traffic analysis
- Traffic control
- Fire detection
- Fire fighting

It really does not matter what systems are in use. The new tunnel control center uses internationally standardized open interfaces such as OPC, protocol 104 etc. and can exchange data with subsystems of a whole range of different manufacturers without any problem.

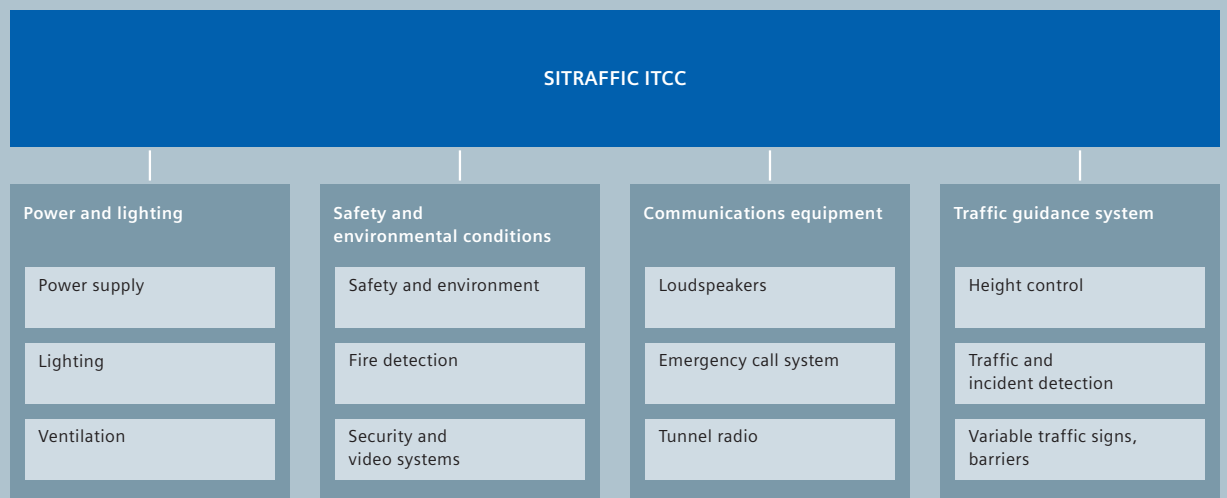
### Country-specific user interface for utmost safety

SITRAFFIC ITCC can be precisely adapted to a full range of individual requirements. For example, it is possible to change language or switch all screenforms over from English to German, French, Chinese, etc. online. If the system is used in countries where other languages are used, we can implement any additional language versions you request. Wherever people are required to operate highly complex equipment, a country-specific user interface is an important contribution to operating reliability.

### Standardized representation of states across all connected systems

The new tunnel control center features thoroughly standardized representation of alarms of different priorities, operating equipment states, and generally all information. That means, for example, that the colored icons for different emergencies and states are identical everywhere. This is particularly helpful to monitoring personnel in large control rooms with several screens, and provides support with assessing dangerous situations faster and with more accuracy.

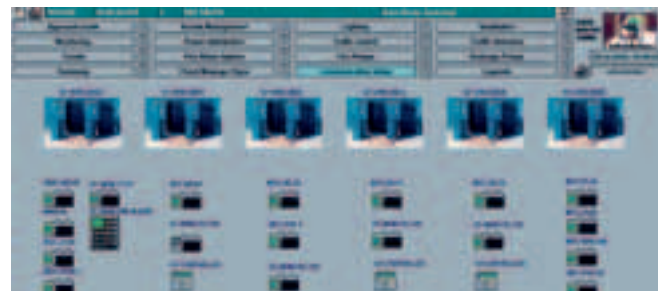
#### A single control center for the entire tunnel equipment



Three screenform examples from the new Dubai Airport tunnel: the current traffic sign status at the tunnel entrance, ...



... the water level in the fire-fighting water tanks and pumps ...



... and the status of the six fault-tolerant SIMATIC S7-400

## SITRAFFIC ITCC: The new modular tunnel control system for international use

### Operating systems

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- Windows, Linux, or Solaris

### Middleware

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- Siprocs, WinCC or other

### PC architecture

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- Single-server system with one or more operator terminals. SIMATIC® S7-300 or S7-400
- Redundant two-server system. Two servers one of which is redundant and in permanent hot-standby mode, SIMATIC S7-400H (fault-tolerant)
- Multi-user system with two redundant systems. SIMATIC S7-400 H (fault-tolerant)

### Basic configurations

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The information provided in this brochure contains merely general descriptions or performance characteristics, which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

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