

# AIRPORT

SAFETY · SECURITY · SERVICE

Bitte beachten Sie:  
Zugang nur mit Boardingpass  
Platzkarte  
Access with boarding pass only

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Zugang nur mit Boardingpass  
Platzkarte  
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**NOTAUSGANG**  
  
Nur bei Gefahr  
Nottaster betätigen

**COVER: Dorma  
Door Management  
for Munich Airport**

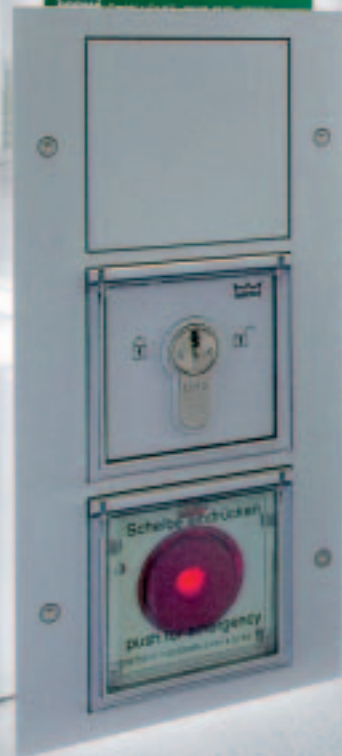
**Parking**

**Airfield Lightning**

**Video Surveillance**

**Biometrics**

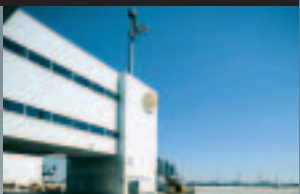
  
**DORMA**



Innovative Door Management System:

# *Safety and Security at Munich Airport*

International aviation has always been regarded as a possible target of terror attacks. Ever since the airplane attack on World Trade Center, at the latest, airport planners and operators worldwide have been alarmed and are searching for the most comprehensive security measures. These are intended, on the one hand, to dependably rule out any unauthorized entry and, on the other hand, in case of danger, to assure freely accessible escape routes and, last but not least, to guarantee the smoothest possible airport operation. To unite these requirements contradicting one another on one common ground seems impossible at first glance. However, with the aid of modern electronics it is possible, as proven by Dorma with its door management system TMS, which was recently installed in Terminal 2 of the Munich Airport.



### Networked door management

The contradictory requirements of "safety" and "security" of escape routes have so far been reconciled by the interaction of special functional elements, such as door terminals, door locks and door actuators, with each individual door requiring an elaborate distributing center and, depending on the individual situation, further additional modules. While this allowed the solution of conflicts between safety and security at individual doors, it did by no means provide a comprehensive solution for the entire building desired by everyone. This problem prompted Dorma to begin the development of the network-enabled door management system TMS, which allows the organization of the security of individual doors or groups of doors as well as the safety of all important doors within an intricate building complex. TMS requires just four cable conductors, two for power supply and two for data transmission, and allows the integration in common building system buses, such as LON. In a universal concept, TMS integrates all door functions, from prevention of misuse with release in case of danger to authorized unlocking by access control systems of various designs, without any problem by means of automatic door actuators or power locks.

### Future-oriented, intelligent software

While in the past special control modules were required for all these different function elements, these functions are now performed by one single uniform, correspondingly programmed module. In this way, a hitherto not realizable flexibility of door equipment and functionality has been achieved without the necessity of replacing or supplementing any hardware in case of functional changes or expansions. The necessary adaptation is implemented by TMS through the software alone. This means highest levels of investment security, efficient and reliable linking of "safety" and "security", while maintaining principal priorities and, not least, providing maximum access comfort without time consuming manipulations. The integration in the respective building management system not only allows bundling of various access points into groups with the same level of authorization (for instance, via an OPC interface), but also a central function and status control as well as, in case of emergency, the quick recognition of conflict and danger situations, allowing swift and selective intervention possibilities.

### Premiere: signal transmission via glass fiber and copper cables combined for the first time

Expansive, intricate objects, such as usually represented by large airports, require a high-performance door management technology. Therefore, the Dorma TMS was installed at Terminal 2 of the Munich Airport to register more than 500 doors and network them via LON-bus. To this end, between 50 and 100 doors each were networked in star-shaped sub-centers, whereby in some cases distances of up to 700 meters had to be covered. For the complex requirements of the door management system concept, Dorma developed a 10-port LON repeater especially for this project, which offers, in comparison to commonly available 4-port repeaters with one input and four outputs, a potential capacity increase by 150 percent. The individual LON repeaters transmit their information into the backbone networking the sub-centers via a LON OWG (optical waveguide) router, which was especially adapted to this project. Owing to the high volume of data and the long distances to be covered in the backbone, the LON bus was designed in OWG technology with glass fiber optical waveguides instead of the usual copper

cables. With this design, Dorma introduced the first genuine OWG router able to switch between the transmission media of OWG and copper cable. The sub-centers are connected to the gateway of the control computer on which the Dorma door management software is installed. In this way, it is possible to monitor, control and parameterize the connected doors from this control computer as well as from other connected computers. An OPC server also connected to the control computer creates a standardized interface to the comprehensive security management system Bosch Rubin.

### Flexible programming as needed

To integrate individual doors of a security area in the network, one LON module is required for each door and one LON gateway for each network. The TMS software allows the password-protected parameterization of the installed door components, with the possibility of verifying and controlling the procedure and the results on the computer screen. The system can be expanded as needed and its functions can easily be modified in order to, for instance, realize a power door concept suitable for handicapped persons (or solutions for psychiatric applications) or to meet new re-



◀ All 500 doors are electronically networked and are centrally controlled and monitored. This photo shows a view into one of the switch cabinets with signal conversion from long-distance optical waveguides to conventional copper cables (right) and the control modules of the individual doors.

▶ During the installation phase, the networking system of doors can be visualized and controlled on a computer monitor. In normal operation, this is done at any time by monitors in the security center, which immediately indicate any unauthorized door opening.



quirement profiles. The intelligent concept even allows, in case of disturbances, remote diagnosis and influencing control of the system via Internet access and approval of modification authorization through a user on site. A history memory allows the recreation of events of a particular door. The high level of flexibility of the system allows retrofitting as well as new outfitting of closures, for instance, fire doors. For this purpose, for example, the door locking systems Dorma TV 100 or TV 200 can be used, which, thanks to Dorma DCW (Dorma connect and work), is ready and functional immediately after connection. The system functions according to the closed circuit principle and thus is able to open locked fire doors in case of a power failure, which often coincides with a fire. Compelled feedback of the respective operational status provides real-time information about the current status of doors at any time. A sabotage line serves to monitor equipment housings and wiring, so that manipulation attempts do not remain undetected.

#### Parameterization and function analysis by computer

The desired functions can be defined as well as controlled door by door, after selecting the respective access, with the aid of the complex

TMS software. In case of alarm, illuminating error indicators inform the operator about the current situation. With TMS, planners have at their disposal a comprehensive door management system, which keeps all options open with regard to individual door equipment and later modifications as well as the definition of personal or group related access authorizations. The integration in bus systems not only allows the realization in total building security concepts, but also permits, in case of emergency, a real-time analysis at any time as well as target-oriented measures to defend against dangers, for example, in case of attempted manipulation, which are indicated on the control screen, including their location, by type and extent. With the possibility of integrating more than 1000 doors in the system, the technical prerequisites for the tailor-made security of even large and intricate buildings, such as airports, is available, which in the final analysis, aside from reliability and easy and safe handling, tipped the scales in favor of the use of TMS in the new Terminal 2 of the Munich Airport, in which more than 500 escape and rescue routes as well as automatic revolving doors have been networked by TMS.

#### Other Dorma products in the new Terminal 2

Aside from the high-tech door management system Dorma TMS, various other Dorma products can be found in the new Terminal 2.

They are, in particular:

- 32 revolving door actuators Dorma ED 200 at the passenger bridges,
- 12 automatic sliding door systems Dorma ST-Twin CS at the bus terminal north,
- 4 escape route telescopic sliding doors FTST/ES as well as 12 sliding door systems Dorma ST-G/ES, at north and south gates, respectively,
- 6 escape route sliding door systems Dorma FST-R/ES in the PTS exterior facade,
- 2 insulation glazed folding wing door systems Dorma FFT/Iso as well as
- 5 escape route sliding door systems Dorma FST/CS in the special control sector.

#### Installed systems from the range of Dorma door systems

- 100 upper slide rail door closers TS 93 GSR at exterior doors as well as further
- six TS 93 GSR with magnetic equipment in the PTS façade, and
- a total of 15 floor door closers of the type BTS 80 at the bus terminal north as well as type BSR in the special control sector.

#### Dorma-Glas supplied

- 2,500 Manet spot holders for exterior use in the area of the north bus terminal,
- 62 glass doors in combination with wall elements in the passport control area, as well as
- 72 all-glass doors in special door frames.

Contact: Dorma

Tel. +49 (0) 2333 793-0

Fax +49 (0) 2333 793-495

info@dorma.com

www.dorma.com

Single-leaf sliding door with escape route equipment.



Photos: Dorma