Time Systems, Clocks and Time References for Airports

MOBATIME-Solutions to meet your requirements

Do you want to:

:: administrate, control and monitor your time system of all your terminals out of a central Operation Control Center (OCC)?
:: integrate your time system in the superior management system of your airport infrastructure?
:: provide a reliable and multi-redundant time reference for your Air Traffic Control System (ATC)?
:: service your airport clocks upon incidence in order to reduce related maintenance costs?
:: synchronize computer controlled systems of your airport such as CCTV, Access Control, Passenger Information System, etc.?
:: boost the corporate identity of your airport with slave clocks in line with your corporate design?
:: support the appearance of your marketing partners with customized advertisement clocks?

MOBATIME-Solutions:

:: Fully integrated time systems with master clocks at OCC, sub-master clocks at terminals and service buildings, analog and digital slave clocks at terminals, in waiting areas, offices, etc.
:: Master clocks and time servers are equipped with world-wide established communication technologies such as SNMP and are fully compatible with superior management systems.
:: Time reference for Air Traffic Control as well as computer controlled systems (CCTV, Ticketing, Access Control, Passenger Information System, Air Traffic Control System etc.) with accuracy in the range of micro seconds.
:: Standard and customized slave clocks for indoor and outdoor applications in a reliable construction and design.

Main References:

:: Int. Airport Toronto, Canada
:: Int. Airport Changi, Singapore
:: Int. Airport Dalian, China
:: Int. Airport Faro, Portugal
:: Int. Airport Kuala Lumpur, Malaysia
:: Int. Airport King Fahd Jeddah, Saudi Arabia
:: Int. Airport Domodedovo, Moscow, Russia
:: Int. Airport Congonhas, São Paulo, Brazil
:: Int. Airport Taipei, Taiwan
:: Air Traffic Control Skyguide, Geneva, Zurich & Basel, Switzerland
:: Air Traffic Control, Schiphol & Rotterdam, Holland
:: Air Traffic Control, Oslo, Norway
:: Air Traffic Control, Shenyang, China
:: Air Traffic Control, Riyadh, Saudi Arabia
:: Air Traffic Control Belgocontrol, Brussels, Belgium
:: Int. Airport Frankfurt, Germany
:: Int. Airport Lombok, Nusa Tenggara Barat, Indonesia
:: Int. Airport Soekarno-Hatta, Terminal 3, Cengkareng, Indonesia

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Some best practice examples

MOBATIME-Solution for International Airport Changi, Singapore Terminal 1 & 2

Changi Airport is one of the busiest international airports today and prides itself in providing excellent service. MOBATIME time systems and clocks help in maintaining this high standard.

MOBATIME equipped both terminals (1 & 2) with redundant master clocks. All MOBATIME clocks within those terminals are synchronized by impulse or IRIG-B time code. We also provide time outside the building, e.g. a street clock in the parking lot.

MOBATIME-Solution for Leuchtverkeersleiding Nederland (LVNL), ATC Netherland (Shipol, Rotterdam)

Reliability and security is of top priority in an ATC environment. MOBATIME systems for time synchronization contribute greatly to those requirements.

For Leuchtverkeersleiding Nederland, MOBATIME provided a four time redundant time reference system. The system provides different types of time signals: NTP and serial telegrams. These time codes synchronize ATC facilities such as air traffic, flight schedule and radar management systems as well as clocks and speaking clocks.
Swiss Time Systems

Time Systems and Clocks for Airports – State of the art

Airports are in the need of two separate time distribution systems. One system for displaying the time to passengers and ground staff. Due to security reasons the second time systems, time synchronization for the ATC, is usually separated and of a higher redundancy degree.

With our Distributed Time System in the field of NTP, MOBATIME offers you a modern and sophisticated technology for both, passenger time information as well as ATC synchronization. Join MOBATIME and dozens of satisfied airport customers all over the world!

Slave clock management
Slave clocks (analog and digital) shall be able to retrieve the time information either from the redundant master clock directly, from the local sub-master clock or from a sub-master clock not being located physically at the same station/place as the slave clocks. Therefore, each slave clock can store up to four time server addresses.

Other key features:
- 15 selectable time zones
- Operation in unicast and multicast mode
- Double-sided clocks are connected by one LAN-cable only
- DHCP server connection
- SNMP V2c notifications (alarm- and alive-traps)

Sub-master clocks
At specific locations, sub-master clocks are being installed where utmost reliability and availability of time information is requested, e.g. in control rooms, ATC areas, fire service rooms, etc. The sub-master clocks are synchronized from the master clock by NTP and are operating as local NTP time servers for internal autonomous clocks to provide correct time information in case the link to the master clock is interrupted.

LAN
Modern time systems for airports are mainly realized over the LAN. Master and slave clocks as well as sub-systems (CCTV, ATC, Access control etc.) are connected to a LAN and are synchronized by NTP. Therefore, the devices can be located where needed, respectively the master clock system can be “distributed” at will.

Slave clocks
Indoor clocks at departure, arrival, baggage hall, commercial areas, offices, etc.
- Analog indoor clocks with diameter 30 to 40 cm.
- Digital indoor clocks with character size 57 or 100 mm.
- Outdoor clocks at Car Parks, Entrances, Train Stations, etc.
- Analog outdoor clocks, LED-illuminated, diameter 60 cm.
- Digital outdoor clocks, character size 180 to 500 mm.
- Facade clocks with up to 3.5 meter diameter.

MOBA-NMS
Integrated software solution for management and supervision consisting of:
- Network Management System (Software for Windows PCs) for the centralized configuration and administration of all components of the master clock system - master clocks, sub-master clocks, digital and analog clocks.
- Device Supervision Service to monitor the entire master clock system automatically.

Key features:
- Handle more than 1000 devices at the same time
- Device auto detection possibility for multicast and unicast communication
- Initial configuration and central alarm management
- Java-based (Eclipse RCP) and operating system independent (Windows/Linux)
- Plug-in architecture for easy expansion with new devices and features
- Intuitive GUI design with well known features like “drag and drop” etc.
- Available for download with integrated online self update feature.
Swiss Time Systems

Time Systems and Clocks – Time Reference

Company
MOBATIME is the leading brand for innovative time display, time distribution and time reference systems. Equipment and components are developed, manufactured and promoted by Moser-Baer Ltd., Switzerland. MOBATIME offers practical experience and extensive technological know-how in time systems for a wide range of application fields. This includes outdoor and indoor clocks, clock movements, master clocks and time servers.

Application Fields
- **Airports**
- **Railway Stations**
- **Underground Stations**
- **Hospitals**
- **Universities/Schools**
- **Public Buildings**
- **Industries**
- **Power Plants**
- **Radio/TV Studios**

References
- **Airports**
  - Zurich · Oslo · Lisbon · Kuala Lumpur · Spain · Belgium · Canada · China · India · Saudi Arabia · Germany · …
- **Railways/Metros**
  - Switzerland · Germany · Iran · Portugal · Holland · Italy · Singapore · Hong Kong · Taiwan · India · Turkey · Brazil · …
- **Power Plants**
  - Switzerland · California · Pakistan · Portugal · Ghana · Sweden · Kuwait · Norway · Australia · Russia · U.A.E · USA · …
- **Hospitals**
  - Bern · Zurich · Geneva · Vienna · Hanover · Abu Dhabi · Libya · Russia · Saudi Arabia · …
- **Radio/TV**
  - Zurich · Bern · Geneva · Brussels · Kuwait · Jordan · Prague · U.A.E · …
- **Public Buildings**
  - Switzerland · Germany · England · Italy · …
- **Schools/Universities**
  - Switzerland · Germany · Turkey · Saudi Arabia · …
- **Industries/Services**
  - Switzerland · Russia · Finland · Saudi Arabia · Brazil · …

Products
- **Master Time Center and master clocks for time distribution systems**
- **DCF and GPS receivers**
- **Net Master Clocks and NTP time servers as a time reference for time and computer systems**
- **Indoor and outdoor digital clocks**
- **Facade and flower clocks**
- **Movements for indoor and outdoor use**
- **Analog clocks for indoor use**
- **Analog clocks for outdoor use**