Time Systems and Clocks – Time Reference

Company

MOBA*TIME* is the leading brand for innovative time display, time distribution and time reference systems. Equipments and components are developed, manufactured and promoted by Moser-Baer Ltd., Switzerland. MOBA*TIME* offers practical experience and extensive technology 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

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 · …
Airports	Zurich · Oslo · Lisbon · Kuala Lumpur · Spain · Belgium · Canada · China · India · Saudi Arabia · Germany · …
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 · …
Universities/Schools	Switzerland · Germany · Turkey · Saudi Arabia · …
Industries/Services	Switzerland · Russia · Finland · Saudi Arabia · Brazil · …

Products

Master Time Center and master clocks for time distribution systems

Movements for indoor and outdoor use

Analog clocks for outdoor use

Analog clocks for indoor use

Indoor and outdoor digital clocks

DCF and GPS receivers

Net Master Clocks and NTP time servers as a time reference for time and computer systems

Facade and flower clocks

LE-800816.01

MOBATIME
Swiss Time Systems

Time Systems and Clocks for Railways and Metros

MOBA*TIME*-Solutions to meet your requirements

Do you want to:

- administrate, control and monitor your time system of a whole country, region or specific line out of the central Operation Control Center (OCC)?
- integrate your time system in the superior management system of your railway and metro infrastructure?
- provide a reliable time reference for computer controlled systems such as CCTV, Ticketing, Access Control, Passenger Information System, etc.?
- service your railway and metro clocks upon incidence in order to reduce related maintenance costs?
- reduce your power consumption of the clocks with a LED illumination?
- protect your slave clocks from vandalism and save repair costs?
- boost your corporate identity with slave clocks in line with your corporate design?

MOBA*TIME*-Solutions:

- Fully integrated time systems with master clocks at OCC, sub-master clocks at substations, analog and digital slave clocks on platforms, in waiting areas, offices, etc.
- Master clocks and time servers are equipped with world-wide established communication technologies such as SNMP and are fully redundant with superior management systems.
- Time reference for computer controlled systems (CCTV, Ticketing, Access Control, Passenger Information System, etc.) with accuracy in the range of micro seconds.
- LED illumination for all clock types to reduce energy and maintenance costs.
- Standard and costumized slave clocks for indoor and outdoor applications in a reliable construction and design.

Main References:

- **Swiss Railways (SBB)**
- **German Railways (DB)**
- **Italian Railways (RFI)**
- **Portuguese Railways (REFER)**
- **Mexico-Monterrey Railway**
- **Singapore**
- **Russian State Railways**
- **Spanish Railway RENFE**
- **Taiwan High Speed Rail**
- **New Delhi Metro Line 3-6, India**
- **Metropolitana Rome, Milano, Genova, Naples, Italy**
- **Metro Almaty, Kazhakstan**
- **Metro Vienna, Austria**
- **Underground Minsk, Belarus**
- **Kazan Metro, Russia**
- **Tramway Firenze-Scandicci, Italy**
- **Mashad Metro, Isfahan, Iran**
- **Metrofor Linha Sul, Fortaleza, Brazil**

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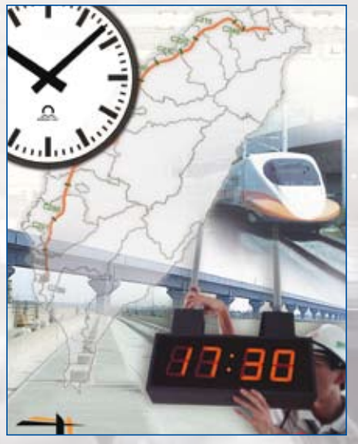
Customer Feedbacks and Best Practice

Taiwan High Speed Railway (THSR)

«Taiwan High Speed Rail strives for efficient and safe transportation at high speed level – our MOBA*TIME* time systems contribute greatly to these requirements!»

Gavin Tsou – Assistant Vice President, Signaling & Communication Department



MOBA*TIME*-Solution for THSR

Synchronization of the Taiwan High Speed Rail over the entire length for 345 km by two RS422 lines over fiber optics. The whole system is redundantly synchronized by two MOBA*TIME* MTCs which distribute the time to 17 MTC equipped railway stations. Analog and digital clocks are installed on Station Concourses, Platforms and in Offices.

Swiss Railways (SBB)

«Our long standing collaboration with MOBA*TIME* is of great advantage for us. Swiss Railways benefits from MOBA*TIME*'s sophisticated products, reliable technology and high service quality.»

Johann Zahno – Technical Director, Low Current Installations

MOBA*TIME*-Solution for SBB

For many years MOBA*TIME* has been in charge of the time systems and clocks of the Swiss Railways. Besides the complete master clock system the special designed Swiss Railway clock is the masterpiece of this cooperation. Since 2010 also available as 9m diameter facade clock at the main station in Aarau (Switzerland).

Line 5, San Paolo, Brazil

MRT Station, Changi Airport, Singapore

Railway Station, Porto, Portugal

Railway Station Berlin, Germany

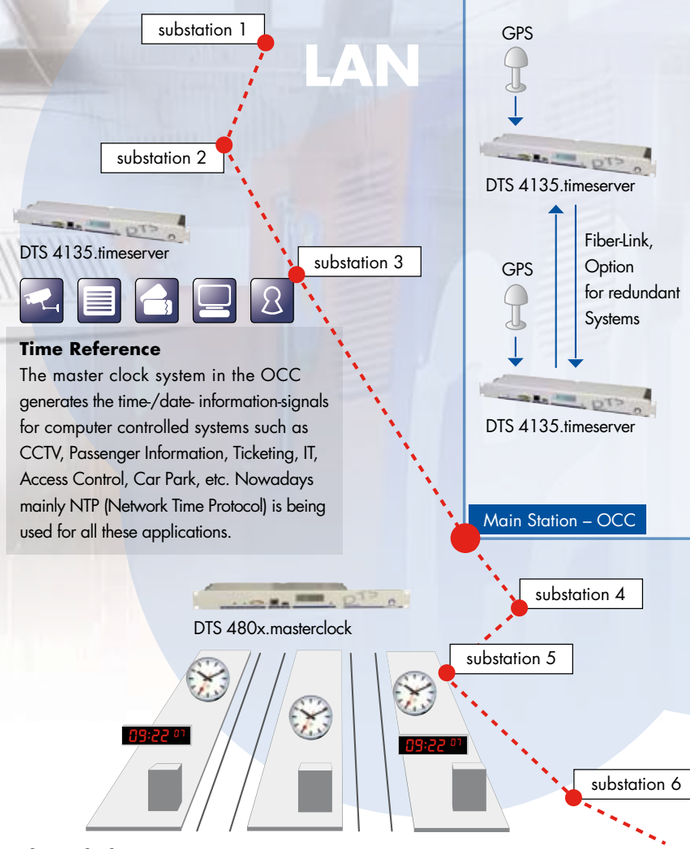
MOBATIME
Swiss Time Systems

Time Systems and Clocks for Railways and Metros – State of the art

Railway and metro clocks are an essential part of passenger information systems on stations as well as an integrative medium to communicate corporate identity of railways and metros to their customers. In addition to that, time systems become more and more important with regard to precise time synchronization of various IT equipment. With our Distributed Time System in the field of NTP, MOBA*TIME* offers you modern and sophisticated technology. Join MOBA*TIME* and dozens of satisfied railway and metro customers all over the world!

LAN
Modern time systems for railways and metro are mainly realized over the LAN. Master and slave clocks as well as sub systems (CCTV, ticketing, PIS, 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.

Main Master Clock
At the OCC, two redundant DTS 4135.timeservers provide reliable and accurate time to sub-master clocks, sub-systems and slave clocks.
Key features: Synchronization by GPS, DCF77, IRIG-B, NTP; Accuracy: GPS-input to NTP-server typ. < +/- 0.1ms, GPS-input to DCF77-output typ. < +/- 0.01ms; Outputs: NTP (Unicast/Multicast), IRIG/AFNOR, two serial RS 232/RS 485 interfaces, DCF or high accurate pulse/frequency outputs.



MOBA-NMS
MOBA*TIME* time systems are managed by MOBA Network management software (MOBA-NMS). With this application you have full control over all MOBA*TIME* devices – sub-master clocks and slave clocks – in your network! **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.

Time Reference
The master clock system in the OCC generates the time-/date- information-signals for computer controlled systems such as CCTV, Passenger Information, Ticketing, IT, Access Control, Car Park, etc. Nowadays mainly NTP (Network Time Protocol) is being used for all these applications.

Active Alarm Management
Alarms from slave and sub-master clocks are signalized from the substations to the OCC by SNMP alarm traps, SNMP alive messages and e-mail. This allows a fully centralized management of the time system from the OCC and an incident motivated maintenance activity.

Slave Clocks
On the platforms, in waiting rooms, in public areas, etc., analog and digital clocks display the time for convenient passenger information: analog outdoor (diameter 60 to 80 cm) and analog indoor clocks (30 to 40 cm), digital indoor and outdoor clocks (character size: 55 to 320 mm), facade clocks up to 9 meters diameter. Key features: NTP-sychronization (unicast / multicast) or other time codes (MOBA*Line*, IRIG-B / AFNOR, Impulse), active alarm- and alive-traps sending to MOBA-NMS, world time zone function, LED illumination, etc.