

Mexico City (Mexico) Lines A, B and 8

SACEM high performance Automatic Train Control for driver-based operation

In the early nineties, the STC (Sistema de Transporte Colectivo), the Mass Transit Authority operating the metro of Mexico City, launched the construction of three new lines to open up the suburbs of the Mexican capital :

- ◇ Line A, which came into revenue service in 1991, serves the South East of the city.
- ◇ Three years later, in 1994, line 8 further extended by 20km the metro network in the South East of Mexico City.
- ◇ Since 2000, line B has become the regional transversal backbone of the metro by providing relief to the saturated road network located in the North East.

To equip its three new lines with Automatic Train Control solution, STC chose SACEM from Siemens. This system provides full ATP and ATO functions. SACEM was indeed the answer to the concerns of STC which were :

- ◇ Meeting a heavy transport demand.
- ◇ Ensuring safe train movements.
- ◇ Installing a proven Automatic Train Control System on the trains already in operation on other metro lines and reassigned to the new lines.

This meant that the ATC had to be adaptable to existing rolling stock characteristics.

Increasing throughput

In the vicinity of stations, track circuits are shortened by physical subdivision to support short headways. SACEM allows a design headway of 90 seconds on the three new lines.

Increasing safety and performance

The intelligence of SACEM is on-board, in contrast to the ATC systems operating at that time. The train computes its own speed curve on the basis of :

- ◇ Information on fixed block occupancy transmitted to the on-board ATC equipment by a continuous wayside-to- train communication.
- ◇ Information describing the operation of the line.
- ◇ Individual characteristics of the train.

Thanks to its on-board intelligence, SACEM :

- ◇ Ensures a continuous speed control.
- ◇ Minimises the interval between two trains, which also contributes to improve the headway.

Key features of line B

- ◇ Length : 24 km
- ◇ Number of stations : 21
- ◇ Number of trains : 38
- ◇ Operational headway : 110 s
- ◇ Commissioning : July 2000
- ◇ Passengers per day : 600 000



Key features of line A

- ◇ Length : 17 km
- ◇ Number of stations : 10
- ◇ Number of trains : 20
- ◇ Operational headway : 120 s
- ◇ Commissioning : August 1991
- ◇ Passengers per day : 280 000

Key features of line 8

- ◇ Length : 20 km
- ◇ Number of stations : 19
- ◇ Number of trains : 25
- ◇ Operational headway : 110 s
- ◇ Commissioning : July 1994
- ◇ Passengers per day : 400 000

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