



Success Story

Hyderabad Metro Rail - Thales Axle Counter System Az LM in the first CBTC project in India

India has launched numerous metro projects in its fastest growing cities in order to cope with the ever increasing demand for transportation. Hyderabad is the fastest growing fourth largest city in India. The Hyderabad population has grown from 6.8 million in 2011 to 9.5 million in 2015. Therefore, the Hyderabad Metro Rail project, beginning in 2012, is ambitious in scope and swift in execution. Following a construction period of just five years, the first phase, comprising three lines totalling 71 km with 66 stations, will be completed in 2017.

The elevated metro is being built in six phases under a design, build, finance, operate and transfer PPP concession. Larsen & Toubro Metro Rail (Hyderabad) Ltd is the concessionaire and has outsourced complete operation and maintenance to one of the major operators who will operate services under a contract running for eight years with an optional three year extension. Ultra modern rolling stock of 57 three-car trainsets designed for a top speed of 80 km/h is being developed on this project.

Hyderabad Metro Rail is the first Indian metro, which is implementing a Communication-based Train Control (CBTC) System.

The SelTrac® CBTC technology being deployed for Hyderabad Metro Signalling Systems has evolved over time and various operators continue to benefit from the low operating, energy and maintenance costs, optimal life-cycle costs and proven driverless technology.

The SelTrac® CBTC System has been proven worldwide on over 56 projects to date and operates on over 1,300 km of track in major urban centres around the world, carrying an estimated 3 billion passengers annually.

The main operation control centre located in Uppal depot is the nerve centre for remote controlling and operation of the entire Hyderabad Metro Rail System. The total Hyderabad Metro Rail System is divided into six zones, each controlled by a zone controller (ZC).

The SelTrac® CBTC System is a radio communication-based moving-block automatic train control system, which controls the movement of trains through continuous two-way digital communication. Each train transmits its identity, location, direction and speed to the respective zone controller. The ZC calculates the safe distance between two trains, breaking distance and authorised train speed with the automatic application of brakes in case of overspeeding. Trains will initially run in automatic train operation mode with minimum headways of 90 seconds and the system will support eventual migration to unattended train operation.

The location of each train is supervised by Thales Multiple Section Axle Counter Systems (Az LM). Each Az LM Axle Counter Evaluator (ACE) transmits the track occupancy information and the axle count simultaneously to the zone controller as well as to the vehicle control centre via an IP interface.

Hyderabad Metro Rail is using standard-gauge, UIC60 head hardened rails with ballastless track throughout and is electrified at 25 kV AC 50 Hz. More than 500 slimline Sk30K wheel sensors will be mounted on the 71 km of track. The Az LM Axle Counter System provides Hyderabad Metro Rail with reliable train detection and axle counting. The Sk30K sensor can be mounted in less time as no mechanical adjustment is required.

The Hyderabad Metro Rail Project will transform Hyderabad into one of India's most modern integrated urban transport systems. This landmark project introduces the latest CBTC and axle counting technology for the first time in India.

About



Larsen & Toubro Metro Rail (Hyderabad) Limited is a subsidiary of Larsen & Toubro Infrastructure Development Projects Limited. The Larsen & Toubro Group is an Indian multinational conglomerate engaged in technology, engineering, construction, manufacturing and financial services with over USD 15 billion in revenue. It operates in over 30 countries worldwide. A strong, customer – focused approach and the constant quest for top-class quality have enabled Larsen & Toubro to attain and sustain leadership in its major lines of business over seven decades.