

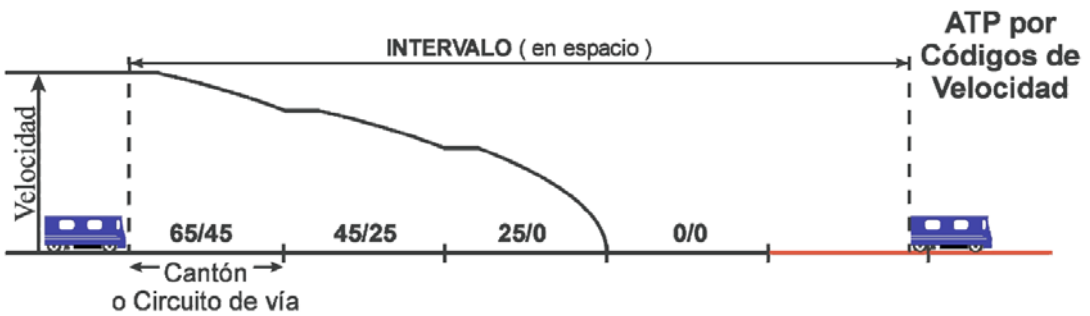


FGV-SSC/01 IMPLEMENTATION OF AN AUTOMATIC TRAIN PROTECTION SYSTEM BY FIXED BLOCK DISTANCE AND AN AUTOMATIC TRAIN OPERATION SYSTEM ON LINES 1, 3 AND 5 OF METROVALENCIA

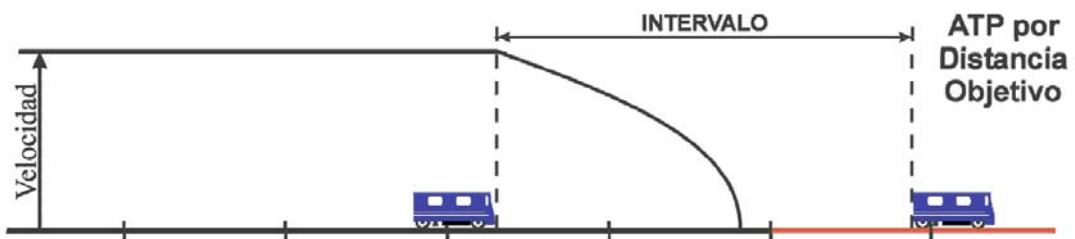


TECHNICAL ASSESSMENT AND ON-SITE SUPERVISION OF THE IMPLEMENTATION OF AN AUTOMATIC PROTECTION SYSTEM FOR FIXED BLOCK DISTANCE (ATP) AND AN AUTOMATIC TRAIN OPERATION SYSTEM (ATO) ON LINES 1, 3 AND 5 OF METROVALENCIA.

CURRENT STATUS



PROJECTED STATUS





PROJECT DESCRIPTION

The objective of the above project is the installation and implementation of railway signal interlocking ATP / ATO systems and Centralised Traffic Control (CTC) on lines 1, 3 and 5 of MetroValencia, and the onboard equipping for these systems of all portable material necessary.

The above assignments will bring about a considerable increase in capacity of the Valencia subway system and, in turn, will help provide the network with an improved safety system. The measures involved include the following:



In cars and on track:

- Supply and installation of 20 "M Red" type signs."
- Adaptation of Jointless Track Circuits (JTC) FS 2500 technology,
- Replacement of 50 Hz track circuits and impulse track circuits on Line 1 with FS2550 technology Jointless Track Circuits
- Reconditioning of tracks on Line 1 affected by renewal of track circuits.
 - Replacement of 7 electronic interlocking relays with new Westrace railway signal interlocking prepared for ATP.
 - Modification or replacement of 17 existing Westrace railway signal interlocking on these stretches.
 - Duplication in "hot standby" of the 11 interlocks considered to be the most important.
 - Installation of a SAM autodiagnosis system on all interlocking signals for their remote maintenance.
 - Supply of new video operating positions and adaptation of existing positions.
 - Supply and installation of 699 track balises for exact location of ATP TBS500 system trains.
 - Supply, installation and connection of ATO track equipment in stations with and without EVCE and EVSE, as well as the corresponding ATO track loops.
 - Installation of ATO equipment in cars, and of and 138 ATO track balises.

In Valencia Sud Centralised Traffic Control:

- Modifications to Centralised Traffic Control applications in Valencia Sud including interlock modifications, track circuits, ATP and ATO.
- Modifications to CTC software applications for ATO variable data transmission systems.
- Development and implementation of a Train Regulation module, connected to CTC.
- Supply of a new **SAM** Central Maintenance Position.
- Inclusion of the signals and commands of auxiliary systems (air conditioning, UPS) **in station** booths at remote permanent facility command posts.

In mobile equipment:

- Replacement of onboard ATP equipment of 18 3900 series train units with new ATP equipment, including ATO modules and assembly of ATO aerials and Doppler radar.
- Modification of onboard ATP TBS equipment on the 40 4300 series train units for adaptation to the new ATP, along with addition of ATO hardware modules and assembly of ATO aerials and Doppler radar.

Given the extent of the works it proved necessary to hire a "Technical Assistance, Works Supervision and Health and Safety Coordination" with highly qualified personnel to create a team that, together with the Works Management, ensured the correct execution of the work in terms of performance, quality, budgets and deadlines. In this sense, CPS Ingenieros formed part of the Joint Venture who successfully bid for the contract by supplying a highly qualified and experienced multidisciplinary team in the field of rail systems.