

COMPLETED PROJECTS

Trains

- **Barcelona Tramways, Trambaix and Trambesos** – ATM
- **Madrid Tramways (Parla, MLO, ML)** – Parla City Council, Mintra
- **Tenerife Tramway** – Metropolitano de Tenerife
- **Jaen Tramway** – Jaen City Council
- **Murcia Tramway** – Municipality of Murcia
- **Barcelona Metro Series 9000** – TMB
- **Barcelona Metro Series 2000 and 2100** – TMB
- **Madrid Metro Series 6000 and 8000** – Madrid Metro
- **S213 commuter trains** – FGC
- **CIVIA II, III and IV commuter trains** – RENFE
- **S113 commuter trains** – FCG
- **Alaris high-speed trains (“Intercity 200”)** – RENFE
- **Lanzaderas S104 and S114 high-speed trains** – RENFE
- **S121, S120 and S120.50 traction systems** – RENFE
- **S100 very high-speed trains** – RENFE
- **Adaptation of the fleet of commuter trains to improve accessibility** – RENFE (Place: Valladolid)

Rolling Stock Renovation

- **24 AVE SERIES 100**
Interior renovation, S101 to S100 adaptation. Centre: La Sagra (Toledo)
- **10 AVE SERIES 100 - RENFE**
Adaptation of AVE trains for operation on the high-speed line joining Spain and France. Centre: La Sagra (Toledo)

Tramway Systems

- **Barcelona Tram: TramBaix and TramBesos.**
Customer: ATM - LRV system, 30 km line and maintenance for 25 years
- **Parla Tramway**
Customer: Parla City Council - LRV system, 8.3 km line
- **Jaen Tramway**
Customer: Government of Andalusia - Electrification, signalling and communication – LRV, 4.7 km line
- **Murcia Tramway**
Pilot tramway line system from May 2007

Safety Installations in Tunnels

- **Tunnels on the Orense-Santiago high-speed line**
Customer: Adif – Civil protection and safety installations of the 32 tunnels associated with the Orense-Santiago line

Catenaries Lines and Electrification

- **Calaf-Manresa Overhead Line**
Customer: ADIF - Repair and adaptation of 30 km of CR-160 catenary between Calaf and Manresa
- **Barcelona Metro Line 9 Tunnel**
Customer: TMB - Electrification between Bon Pastor and Cam Zam. Detailed engineering, supply, installation and commissioning of 10 km of rigid overhead line for reduced clearance

Alstom in Spain

References and projects

- **Conventional electrification at Montcada station**
Customer: SEITT - Renovation of 20 km of CR-160 catenary at Montcada-Bifurcacion station.
- **Palma-Inca-Sa Pobla-Manacor commuter line on Majorca**
Customer: SFM - Installation of 70 km of CR 160 - CR 220 hybrid catenary on the Son Rullan – Enllaç section
- **Barcelona commuter line urban tunnels**
Customer: ADIF - Supply, installation, commissioning and guarantee of 50 km of rigid catenary in urban tunnels
- **Xativa train stabling facility – Madrid-Levante high-speed rail line**
Customer: ADIF. Stabling yard electrification
- **Madrid-Segovia and Valdeillas-Valladolid high-speed line**
Customer: ADIF - Supply and installation of 2 x 100 km 2x25 kV catenary – 350 km/h
- **Chinchilla-Almansa high-speed line**
Customer: ADIF. Supply and execution of 30 km of AE 350 catenary
- **Medina del Campo-Salamanca high-speed line**
Customer: ADIF – AE 350 catenary – 35 km
- **Conventional overhead line at Barcelona**
Customer: ADIF. Installation of SCADA remote control for overhead line at Barcelona

Substations

- **Madrid-Levante high-speed line**
Customer: ADIF - Supply, installation and maintenance of 11 2x25 kV substations with 55 associated autotransformer centres and SCADA for the Torrejón de Velasco-Motilla del Palancar, Motilla del Palancar-Valencia, Motilla del Palancar-Albacete and Albacete-Alicante-Valencia lines
- **San Sadurn de Noya**
Customer: ADIF - Rehabilitation and power increase of the 3000 Vcc traction electrical substation
- **Barcelona Metro Line 5 (TMB)**
Customer: GISA - Renovation and power increase (from 1200 Vcc to 1500 Vcc) of 8 traction substations and the construction of a 1500 Vcc substation
- **Cordoba-Malaga high-speed line**
Customer: ADIF - Supply, installation and maintenance of 3 2x25 kV traction electrical substations and 12 associated autotransformer centres for the Cordoba-Bobadilla and Bobadilla-Estacion de Malaga sections
- **Madrid-Zaragoza-Barcelona-French Border high-speed line – Madrid-Lerida / Lerida-Barcelona sections**
Customer: ADIF - Supply, installation and maintenance of 8 2x25 kV traction electrical substations and 38 associated autotransformer centres (supply of electrical equipment for 5 substations and 16 autotransformer centres)

Infrastructure Maintenance

- **RENFE INTEGRIA Workshops**
Customer: RENFE - Track and Overhead Line Maintenance of RENFE INTEGRIA Workshops (5 Lots)

Interlockings

- **Smartlock 200**
Customer: Ministry of Civil Works and Transport - 90 units in operation/execution, including Alicante–Murcia, Medina–Salamanca–Fuentes de Oñoro, Avila–Salamanca, Lerida–Manresa, Reus–Mora, Palencia–Leon, Zaragoza– Customer: ADIF - Huesca, Brazatortas-Veredas, Santander-Oviedo
- **Smartlock 200**
Customer: FEVE – Interlockings for the Muros-Cudilleno section
- **Smartlock 300**
Customer: Adif - Monforte de Lemos, Soto de Rey, Cartagena–Los Nietos, Chamartin station
- **Smartlock 300**
Customer: FEVE – Interlockings for the Orgo-Carranza section

Urban Signalling

- **Barcelona Tramways – TramBaix/TramBesos.** Customer: ATM - 1 Smartlock at station (interlockings on line – points motor), track circuit, signals, OAS + radio, PCC integration
- **Madrid Tramway.** Customer: Mintra and Madrid Metro - 7 Smartlocks, 3 lines (Colonia Jardin-Boadilla, Colonia Jardin-Pozuelo, Pinar de Chamartin-Sanchinarro-Las Tablas)
- **Malaga Metro.** Customer: Government of Andalusia - URBALIS EVOLUTION™ system in ATP/ATO with distance-to-go free-propagation radio transmission, Smartlock 400 interlocking with Smart I/O objects controller, integrated control centre using ICONIS TM with traffic regulation.
- **Chiclana-San Fernando train-tram.** Customer: Telvent - Signalling and communications

ERTMS

- **Trains with onboard equipment S100, TAV S104, S114, AVRIL G3, TALGO MECA-MEDINA, CIVIAS**
Customer: RENFE - 239 onboard equipment systems in service
- **Level 1 ERTMS Zaragoza-Huesca – third rail**
Customer: Ministry of Public Works and Transport - Number of LEUs: 30, fixed/variable Eurobalises: 274, interlockings: 10
- **Level 1 ERTMS Girona-Figueres - third rail**
Customer: Adif - Interlocking (IXL), installation of a third rail for operation with Iberian gauge and UIC, ATLAS solution for ERTMS
- **Level 1 ERTMS Castellbisbal-Can Tunis – third rail**
Customer: Adif - Interlocking (IXL), adjustment of the signalling on the Castellbisbal-Can Tunis-Puerto de Barcelona section for the operation of two track gauges and level 1 ERTMS
- **Level 1 ERTMS Castellbisbal/Papiol-Mollet San Fost – third rail**
Customer: Adif – Adaptation of the line for international gauge and Iberian gauge traffic
- **ERTMS for the Albacete-Alicante high-speed line**
Customer: Adif – Level 2 ERTMS granted through a Public and Private Association programme (PPP)
- **Madrid-Levante high-speed line (Alpera bypass)**
Execution of the work to adapt the infrastructure for the laying and connecting of the cables of the interlocking installations. Train protection, fixed telecommunications and centralised traffic control systems

ON GOING PROJECTS

Train Maintenance and Renovation

- **S450, S451, S447 and CIVIA suburban trains**
Customer: RENFE - in a consortium with RENFE- Location: Barcelona, Madrid
- **"AVE" S100 very high-speed trains**
Customer: RENFE – 24 trains- Location: La Sagra (Toledo) and Cerro Negro (Madrid)
- **S104 and S114 high-speed trains**
Customer: RENFE – 15 +13 trains- Location: La Sagra (Toledo)
- **S252 high-speed locomotives**
Customer: RENFE - 14 locomotives - Location: La Sagra (Toledo) and Cerro Negro (Madrid)
- **Barcelona Tramway**
Customer: ATM: 18 TRAMBESOS units at Sant Adria del Besos / 23 TRAMBAX units at Sant Joan Despi
- **Citadis trams at Madrid and Parla**
Customers: Mintra, Parla Tramway – 27 + 8 + 9 units - Location: sites of the customer
- **Barcelona Metro S9000, S200 and S2100**
Customer: TMB – 40 + 17 units - Location: sites of the customer
- **S121, S120 and S120.050 traction systems**
Customer: CAF – 29 + 12 + 16 units - Location: Madrid + Barcelona
- **Citadis trams at Jaen**
Customer: Jaen City Council – 5 units - Location: sites of the customer
- **Murcia Tramway**
11 units – Location: La Ladera Workshop
- **RENFE S-447 commuter railway coaches**
Adaptation for accessibility of people with reduced mobility. 165 coaches

Substations and Electrification

- **Leon-Asturias high-speed line. Pajares bypass. Madrid-Asturias high-speed line**
Customer: ADIF – Electricity substations, power supply systems and installation of overhead line for the Pajares bypass of the Leon-Asturias high-speed line. This 44 km section links the towns of La Robla (Leon) and Pola de Lena (Asturias)
- **Palencia-Santander line. Marcilla de Campos-Alar del Rey section**
Customer: ADIF - Renovation of 43.3 km of CA-160 overhead line on the Marcilla de Campos-Alar del Rey section

Safety Installations in Tunnels

- **Maintenance of security installations of tunnels between Valladolid, Burgos and Leon**
Customer: ADIF – Installations maintenance project of civil protection and tunnels' safety of the high-speed line registered in the corridor North-Northwest
- **Installation of security systems in the tunnels of the high-speed line Antequera-Granada**
Customer: ADIF – Construction and maintenance project of civil protection and security of the six tunnels in the high-speed line Antequera-Granada
- **High-speed line Madrid-Valladolid**
Customer: ADIF – Preventive and corrective maintenance of civil protection and security installations of the tunnels from the Madrid-Valladolid high-speed line, including Guadarrama tunnel, the longest in Spain

Infrastructure Maintenance

- **Madrid-Levante high-speed line**
Customer: ADIF - Preventive and Corrective Maintenance of 11 2x25 kV substations with 55 associated autotransformer centres and SCADA for the Torrejon de Velasco-Motilla del Palancar, Motilla del Palancar-Valencia, Motilla del Palancar-Albacete and Albacete-Alicante-Valencia lines

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References and projects

- **Maintenance of electrical installations of the Spanish high-speed (consortium)**
Customer: ADIF - Maintenance of overhead line, electrical substations and associated. High-speed lines Madrid-Sevilla, Cordoba-Malaga, La Sagra-Toledo, Madrid-Zaragoza-Barcelona-French border, Zaragoza-Tardienta and Vandellos-Tarragona, Madrid-Valencia and Albacete-Alicante bypass, Madrid-Valladolid and Olmedo-Medina section
- **Orense-Santiago route**
ADIF - Preventive and Corrective Maintenance of the Civil Protection and Safety Installations of the Orense-Santiago tunnels
- **Madrid-Valladolid and Olmedo-Medina high-speed line**
Customer: ADIF - Maintenance for 4 years + optional 2-year extension of electrification installations (overhead line + electrical energy supply systems)

Signalling

- **ERTMS for the Valladolid-Leon-Venta de Baños-Burgos high-speed line**
Customer: Adif – level 2 ERTMS
- **ERTMS for the Plasencia-Caceres-Badajoz high-speed line**
Customer: Adif – Electronic interlocking Smarlock 300
- **ERTMS signalling system in the Atlantic Corridor**
Customer: Adif – level 1 ERTMS in the section between Redondela and Villagarcia de Arousa (35 km of double track)
- **ERTMS for the Barcelona commuter network**
Customer: Adif – level 2 ERTMS for the 56 km commuter line between L'Hospitalet de Llobregat and Mataro

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References and projects

INTERNATIONAL AND EXPORTATION REFERENCES

Trains

- **Rabat Tramway (Morocco)**
- **Argelia Tramways (Annaba, Argel, Constantine, Ouargla, Mostaganem, Oran, Setif and Sidi Bel Abbes)**
- **Buenos Aires Tramway**
- **Brazil Commuter Trains**
- **Israel Commuter Trains**
- **Guadalajara Metro (Mexico)**
- **Shanghai Metro (China)**
- **Warsaw Metro (Poland)**
- **Tramways for Russia**
- **Adelaide Tramway (Australia)**
- **Washington Metro (United States)**
- **London Underground (United Kingdom)**
- **Santo Domingo Metro (Dominican Republic) – Lines 1 and 2**
- **Panama City Metro (Panama) – Lines 1 and 2**
- **Lima Metro (Peru)**
- **Nottingham Tramway (United Kingdom)**
- **Commuter Lines in Chile**
- **Lusail Tramway (Qatar)**
- **Sydney Tramway (Australia)**

Renovation

- **Full modernisation of the 35 NS-74 trains of Santiago de Chile metro**

Signalling Systems

- **ERTMS signalling for Eskisehir-Kutahya-Balikesir line**
- **Jerusalem tramway signalling**
- **Tramway signalling for various projects in Algeria (Annaba, Argel, Constantine, Ouargla, Mostaganem, Oran, Setif and Sidi Bel Abbes)**

Infrastructures

- **Electrification – Ayacucho Tramway**
- **Kenitra Electrification (Tangier)**
- **Electrification of the Annaba, Argel, Constantine, Ouargla, Mostaganem, Oran, Setif and Sidi Bel Abbes tram systems (Algeria)**
- **Workshop Equipment. Lima Metro**
- **Workshop Equipment. Santo Domingo Metro**