ABB's MicroSCADA Pro control upgrades improve public rail network in Catalonia.

In addition to increased reliability, the upgraded system provides greater clarity, security and reduced runtime tasks.

The railway company Ferrocarrils de la Generalitat de Catalunya, Catalan Government Railways or FGC, operates rail lines in the region of Catalonia. Their track run in northeastern Spain, including metro and commuter lines in and around the city of Barcelona; mountain tourist railways and rural rail lines. In all, FGC operates about 300 km of rail lines that include conventional and rack railways and four funicular lines, comprising four different gauges.

Customer need
FGC needed to upgrade its existing dispatch center to a 24-hour system operation to improve its public transport service. The company selected an ABB supervisory control and data acquisition (SCADA) network control and monitoring solution, MicroSCADA Pro, which includes Historian information management function as well as network topology coloring in order to provide updated overviews of network status. The project is being delivered by the Spanish substation automation and network control specialist, GEDLux, an ABB Authorized Value Provider since 2008. From October 2015 to the expected commissioning date of February 2018 a total of 23 Substations, 69 MV stations and 15 Catenary Stations will be migrated to the new system.

ABB response
For this project ABB is supplying a variety of components to facilitate the migration of FGC's remote control system from existing MicroSCADA to the latest software version. The existing HMI was based on the old Microlibray 3.1 (dated 1996). The smooth upgrade includes network topology coloring of the rail lines and a redesign of the interface and Monitor Pro graphics to enable easier and more immediate interpretation of system information.

The delivery comprises a compact, modular and scalable SYS600 automation system, which delivers MicroSCADA Pro functionality for real-time monitoring and control of primary and secondary equipment; Historian information management, and System Data Manager SDM600 software to manage service and cyber security relevant data; DMS600 network management that provides versatile SCADA and Distribution Management System (DMS) functionality in the same system; routers and network infrastructure.

In addition to improving public transport service, FGC's system can also be modernised without interrupting its metro and commuter lines, tourist railways or rural rail lines.

Customer Benefits

The upgrade immediately increases system reliability as a result of ABB SYS600C servers, which are designed with redundant power sources and are permanently monitored. The upgraded system also provides greater clarity, security and reduced runtime tasks thanks to new features like topology coloring of the 25-kilovolt (kV) network and a 1.500Vdc catenary network. It also improves various display functions, such as zooming, panning and decluttering, and strengthens the system's cyber security features. The equipment is to be housed in two new electrical cabinets and GEDLux will provide the FGC employees with customized training of the newly installed applications. The entire system migration will be performed in stages whilst maintaining the existing system operable.

MicroSCADA Pro host Image functionality will allow information to be received by both the old and new dispatch centers simultaneously during the three year transition phase.

Adding local value

GEDLux has worked closely with FGC since 2008, demonstrating the value of ABB's strong cooperation with local third-party sales, support, engineering and service channels.

As ABB control and protection system specialists, GEDLux brokered an agreement with FGC and ABB that has become a successful, ongoing relationship, yielding about 30 projects so far. Deliveries include MicroSCADA Pro systems and RTUs (RTU560) to modernize substations, starting with the Hospitalet substation in 2010; the migration of the MicroSCADA Pro control system for FGC's network power, and its adaptation to the Ethernet network; and the engineering and commissioning of 6-kV transformer stations along the train network in Barcelona and the surrounding area.

Ongoing relationship

Most FGC projects now require the integration of new devices and modifications into the MicroSCADA Pro system of the central Dispatch Control Center. The relationship with FGC is close enough that Madrid-based GEDLux set up a branch office in Barcelona specifically to tend to FGC business. ABB's intense customer focus extends to communications, which are in the Catalan language.

Wherever possible, applications are translated into Catalan. Outstanding ABB products combined with strong customer focus and local engineering capability are delivering tremendous long-term customer value. FGC receives an exceptionally customized and integrated control system and service that is specifically designed to meet its needs.