Success Story

SYMEO
ABSOLUTE POSITIONING

ÖBB INFRA

Symeo is a Power Partner of ÖBB-Infrastruktur AG. The railpower box as well as the railpower box mini are exclusively marketed through ÖBB-Infrastruktur AG.

Reliable Data Management and Precise Train Tracking

The challenge

To ensure interoperability of its expansive rail network, Europe created a series of technical guidelines, including EN 50463, UIC leaflet 930 and TSI Loc&Pas, which must be adhered to when developing and manufacturing energy measurement systems. Against this backdrop, Austrian Federal Railways ÖBB set out to develop a measurement system that takes these standards into account while satisfying the comprehensive requirements of today's rail technology. The system needed to not only perform cross-border energy accounting, but also be capable of reliably tracking the location of the company's trains.

The solution

The „railpower box", especially designed for and co-developed by ÖBB, is one of the first systems to be certified in line with EN 50463. Apart from developing individual hardware and software elements, Symeo GmbH assumed responsibility for certification and production. The heart of the railpower box is Symeo's DATROS, one of the first data handling systems to comply with Europe's rail technology homologation requirements. DATROS also enables highly-precise and reliable GNSS-based train positioning. The measurement data can be stored for up to one year.

The project's success

As of 2014, ÖBB had installed the energy measurement system in 100 of its long distance and regional trains. Until March 2016, more than 1.200 railpower boxes were sold by ÖBB across Europe. With the 2016 newly developed „railpower box mini", a more compact version of the energy measurement system is now available. The railpower box mini is equipped with additional interfaces such as a second LAN port making it even easier to integrate the system into existing rail vehicle infrastructures. Moreover, a USB interface allows the telemetry data to be displayed externally with a USB Bluetooth converter.

High technical demands on energy measurement systems

ÖBB-Infrastruktur AG, which has a workforce of roughly 17,700, is a subsidiary of Austria's national rail operator ÖBB-Holding AG, the country's largest mobility provider. One of the company's primary tasks is the planning and installation of the high quality rail infrastructure that has grown into a nearly 5,000 kilometer network.
To monitor the energy consumption and reliably track the location of regional and long-distance trains operating in Austria, ÖBB-Infrastruktur AG sought out a technology company capable of addressing the comprehensive requirements of today's rail technology and regulatory environment.
„Symeo's proven engineering quality made it our partner of choice. The company's ability to flexibly respond to specific customer demands, not to mention its willingness to assume responsibility for a myriad of tasks ranging from development of individual hardware and software sub-components, to homologation, certification and production of the railpower box, also appealed to our needs," says Harald Jony, head of energy management at ÖBB-Infrastruktur AG.

EN 50463 certified

What emerged is a system that fulfills all European rail traffic interoperability criteria (TSI type approval, EN 50463/EN 45545/ EN 50121/EN 50155 certification), resulting in reliable energy accounting and train positioning across the European railway network. The railpower box, which can be remotely serviced and configured through a simple user interface, is exclusively marketed through ÖBB-Infrastruktur AG.

Reliable GNSS Positioning

One of the main components of the railpower box is DATROS, Symeo's data handling system that not only monitors power consumption, but also reliably and precisely tracks the position of the trains using GNSS (Global Navigation Satellite Systems). Because it is certified in line with EN 50463, DATROS features the required memory capacity and data structure specified in the standard.
DATROS is a custom version of the Symeo Telemetry Unit (STU), a robust control unit that features a wide variety of data and input/output interfaces and diverse communication options including GSM, WiFi and zigbee. The device can be customized according to the specific requirements of the customer.

Smaller version „railpower box mini"

As the Power Partner of ÖBB-Infrastruktur AG, Symeo was also handed responsibility for the development, certification and production of the „railpower box mini". Not only smaller and lighter, the new localization and telemetry system comes with additional interfaces such as a second LAN port, making it easier to integrate the system into rail vehicle infrastructures. A USB interface allows the data to be displayed externally with a USB Bluetooth converter.

Facts & Figures

- Development, certification and production of energy measurement systems
- Customer-specific hardware and software development
- Certified data handling system/telemetry unit according to EN 50463
- Integrated GNSS positioning module for train localization
- High-performance processor, prepared for future requirements
- Data can be saved for up to one year
- Remote updates and maintenance
- Easy startup via HTML-interface

ÖBB-Infrastruktur AG

ÖBB-Infrastruktur AG is a modern company whose responsibility is to ensure that all requirements for safe, environmental-friendly, sustainable and affordable mobility on a state-of-the-art railway network in Austria are met. The core business comprises the provision of a reliable railway infrastructure in line with demand as well as the safe and punctual operation of railway services. ÖBB-Infrastruktur AG stands for an attractive and sustainable railway system. A decisive factor in this respect is an infrastructure suitable for the market in the required quality and at reasonable costs.
The tasks include the provision of non-discriminating customer-oriented network access and assistance to the customers before, during and after their travel by train. The company inspects and maintains ÖBB infrastructure facilities and eliminates respective interferences and provides professional railway-specific construction services on an internal as well as external basis. Another important field of activity is the planning and realisation of rail infrastructure projects.
www.oebb.at/infrastruktur

Symeo GmbH

Symeo GmbH develops and markets systems for precise and contact-free distance measurement, position detection and collision avoidance. Symeo products are suitable for cranes, industrial vehicles as well as for other transport methods. Furthermore, the company develops customer-specific telemetry and smart metering solutions, which fullfill relevant standards (e.g. EN 50463). Symeo products are robustly designed and well-suited for applications in harsh industrial environments indoors and outdoors.

Symeo's patented LPR® offers a wireless and real-time system for precise positioning and distance measurement that is ideally suited for industrial applications. Symeo also provides industrial GNSS receivers that can be combined with LPR® and other motion and inertial sensor systems, enabling highly available and precise positioning even under the most adverse conditions and in areas with limited satellite availability.

The company delivers standardised products and complete solutions to system integrators, original equipment manufacturers (OEMs) and end customers worldwide.

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