LEM launches TEMA4G – its first plug-and-play solution for on-board train energy metering

Key points:

- **Supports management and metering of energy consumption on-board trains**
- **Combines energy metering and communication in a single solution, offering 4G connectivity and GPS service**
- **Compliant with EN 50463:2017**
- **Operates in temperatures from -40°C to +85°C**
- **Supports AC and DC rail networks**
- **TEMA4G underlines LEM's long-term strengths in rail and traction**

Geneva, Switzerland, September 13th, 2022 – LEM (SIX: LEHN) – Renowned for leading the market in current sensing technology, LEM has now launched TEMA4G, its first plug-and-play solution for on-board train energy metering.

Energy management in railway applications involves an on-board energy measurement system (EMS) and ground-based data collecting system (DCS). These systems allow railway operating companies to manage energy cost for each train based on real, precise and controlled measurement under the regulation (EU) 2018/868 in Europe. By offering the on-board energy metering solution – TEMA4G – LEM supports the evolution of railway networks and meets the demand for management and optimisation of energy costs in railway transports.

Capable of operating in a wide temperature range from -40°C to +85°C, and compliant with EN 50463:2017, TEMA4G enables the measurement and transmission of energy billing data (CEBD) – timestamped and localised – to ground data collection systems.

Meeting every vibration, shock, fire protection, and electromagnetic compatibility railway standard, TEMA4G is a perfect fit for new projects such as large retrofit programmes and supports railway operating companies of all sizes in a transition towards better energy monitoring, management and optimisation.

Specifically designed for such demanding railway applications, TEMA4G combines LEM's EM4TII+ on-board energy meter – already in service and proven in many trains – with an industrial modem offering 4G and GPS connectivity. Through its web interface the system allows users to access detailed load profiles, as well as numerous system parameters.

Suitable for use in multi-system AC or DC vehicles, TEMA4G interfaces and processes measurement signals from current and voltage sensors and generates energy measurement and associated load profiles. Profiles are recorded in datasets with a five-minute interval (different intervals available in the product's settings), containing the date, time, any events, as well as location co-ordinates. The measured energy datasets are stored in the instrument in consumption profiles for 300 days. TEMA4G's state-of-the-art analog-to-digital converters provide ultra-precise energy measurement (class 0.5 R) and guarantee excellent long-term stability, in any in-field conditions.

The TEMA4G has been positioned to take advantage of the switch over to new telecommunications networks. Its communication functionalities make it possible to transition smoothly and efficiently in favour of 4G networks after 2G networks have been phased out.

Ensuring maximum versatility, and adapted to the specificities of railway applications, the additional functionalities of TEMA4G include four input channels offering multiple configurations via the unit's Ethernet port and data exchange security. This versatility makes it possible to adapt the solution to each train, and to the needs of each project.

Says Florent Balboni, LEM Global Product Manager for energy metering solutions: "TEMA4G is the answer to the growing need for better energy management and optimisation in the rail transport sector. Given the importance of improving the efficiency of electrical systems, innovative solutions must be developed. LEM has once again demonstrated its ability to meet the challenges of energy management in the railway sector by developing a turnkey energy metering solution on-board trains."

Florent adds: "The development of the TEMA4G has been made possible due to our broad and long experience in on-board train sensors and complex systems using embedded software.

As the market leader in innovative, high-quality solutions for measuring electrical parameters, LEM continues to invest strongly in the rail and traction sector where historically we have been a major player."

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LEM – Life Energy Motion

A leading company in electrical measurement, LEM engineers the best solutions for energy and mobility, ensuring that its customers' systems are optimized, reliable and safe. With 1,500 people in over 15 countries transforming technology potential into powerful answers, LEM develops and recruits the best global talent, working at the forefront of mega trends such as renewable energy, mobility, automation and digitization. Through its innovative electrical solutions, LEM is helping customers and society accelerate the transition to a sustainable future. Listed on the SIX Swiss Exchange since 1986, the company's ticker symbol is LEHN.

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