

ENERGY METER ELM-201

- ✓ **Certified according** to EN 50463-2:2012
- ✓ Four Quadrant Energy Measurement
- ✓ Suitable for DC and AC Traction Systems
- ✓ Applicable for Multi-System Locomotives
- ✓ Accuracy Class 0,5R (EN 50463) Class C (EN 50470)
- ✓ Recording road profiles at 1 minute intervals
- ✓ Wireless Data Transmission 3G/4GRailway GSM-R and WIFI Networks
- ✓ Supply 16,8V to 137,5V DC
- ✓ Operation Temperature Range -40°C to +70°C



The ELM-201 energy meter is designed especially for energy metering on board electric traction vehicles. It can measure both the DC and AC signals of any existing traction supply system (1.5kV DC, 3kV DC, 15kV/16.7 Hz, 25kV/50Hz). Moreover, it is also suitable for multi-system locomotives using more than one electrification system.

ELM-201 measures active and reactive energy both consumed and generated, active and reactive power and instantaneous values of voltages and currents. It records load profiles at 1 minute intervals, and monitors the minimums and maximums of values measured.

ELM-201 energy meter can wirelessly transmit the measured data over the GSM/GSM-R/UMTS and WiFi networks. An integrated GPS receiver adds position information to the load profiles and is used for time synchronization.

The ELM-201 is a certified energy meter in accordance with the latest EN 50463-2:2012 standard. It meets the requirements for accuracy class 0.5R. The energy meter can be supplied with a calibration certificate enabling its use for billing purposes.

MEASUREMENT and CALCULATIONS

- Accuracy Class 0,5 (EN 50463), Class C (EN 50470)
- Harmonics up to 25th
- Active Energy consumed and regenerated (MWh)
- Active Energy consumed and regenerated in DC network only (MWh)
- Reactive Energy consumed and regenerated both capacitive and inductive (MVarh)
- Active Power (MW), Reactive power (MVar)
- Instantaneous / Effective value of Voltages and Currents

LOAD PROFILES

- Recording in 1 minute intervals
- Recording Capacity 72 days at the sampling rate of 1 minute
- Format: Date, Time, active and reactive energy consumed and regenerated, maximum values of Power, Voltage and Current and the type of electrification System.

STORAGE

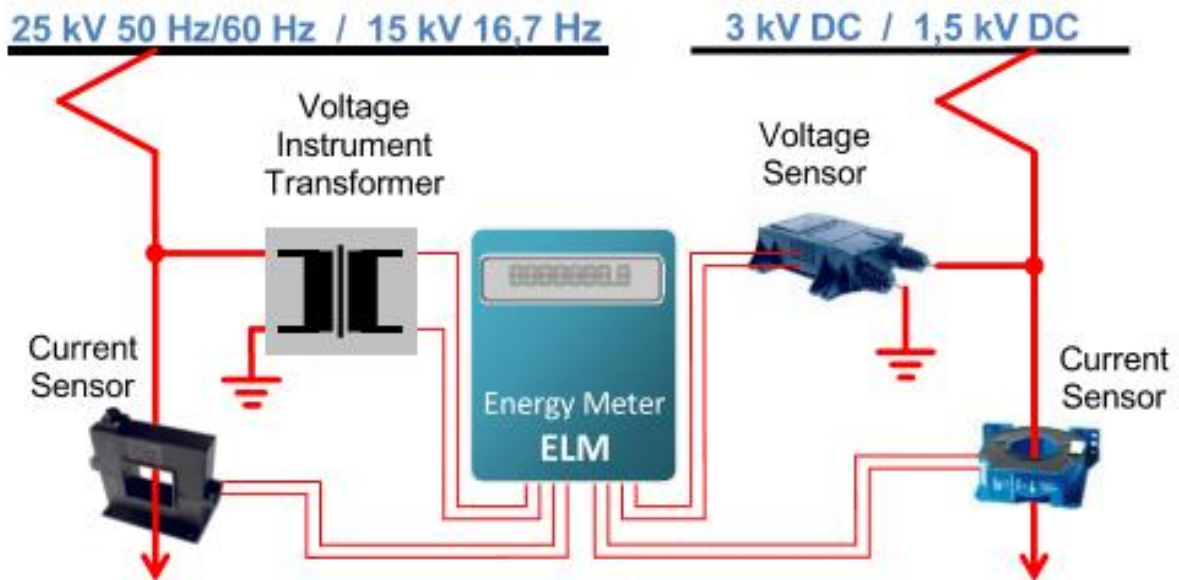
- 1GB CF card

WIRELESS

- LTE/HSPA/EDGE/GPRS Railway GMS-R
- WIFI 802.11 b/g

CONNECTIVITY

- 3X 10/100Mbps Ethernet (2 x M12, 1x RJ45)
- 2x RS232
- 1x RS422/485
- 1x USB 1.1 Host



TYPE other ranges upon request	
ELM-201/B	AC: 25kV/100V, 200A/1A, DC: 4.2kV/50mA, 2kA/400mA, GSM, GSM-R, WiFi
ELM-201/D	AC: 25kV/100V, 200A/1A, DC: 4.2kV/50mA, 2kA/400mA, GSM-R
ELM-201/F	AC: 15kV/100V, 800A/1A, DC: 4.2kV/50mA, 4kA/1.6A, GSM, GSM-R, WiFi
ELM-201/G	AC: 15kV/100V, 100A/1A, DC: 4.2kV/50mA, 4kA/1.6A, GSM
ELM-201/H	AC: 15kV/100V, 650A/1A, DC: 4.2kV/50mA, 4kA/1.6A, GSM
ELM-201/I	AC: 25kV/100V, 200A/5A, DC: 3kV/50mA, 2kA/400mA, GSM, GSM-R, WiFi
ELM-201/J	AC: 25kV/100V, 200A/1A, DC: 4.2kV/50mA, 2kA/400mA, GSM-R, WiFi
ELM-201/x*	AC: Voltage input: 50V–300V, 25mA, 50mA. Current input: 40mA–5A, DC: Voltage input: 10mA–175mA, 5V–50V, Current input: 20mA–1,6A

SPECIFICATIONS

Supply:	16,8V DC - 154V DC, 35W
Temperature:	Working: - 40 °C to +70 °C Storing: - 40 °C to +85 °C
RH:	max. 75% non-condensing annual average, max. 95% non-condensing for a period of 30 days
Max. Altitude:	2000 meters
Protection:	IP20
Dimensions:	165 x105 x 310mm (w x h x d), weight 3 kg

STANDARDS

EN 50121-3-2 Electromagnetic compatibility	EN 50463:2012	IEEE 802.3
EN 50124-1 Isolation	EN 50470-1	IEEE 802.11
EN 50155 Electronic equipment on rail vehicles	EN 62056-21	
EN 61373 Vibration and shock tests	EN 62056-61	