

ELM1

Converter for infrared communication with electricity meters



- **Magnetic ring for quick installation of the converter**
- **Reliable optical communication with the electricity meter**
- **RS485 output signal under standard MODBUS RTU protocol**
- **Low current consumption and wide supply voltage range from 5 to 28 VDC**
- **Possibility of connecting several converters to one data network and to one telemetry station**
- **Compatible with inputs of dataloggers and telemetry stations FIEDLER AMS**
- **Extensive support in data processing on the manufacturer's server**

Basic description

The ELM1 converter is designed for remote reading of electricity consumption. It can be used with electricity meters commonly used by energy distribution companies. Using the supplied cable, the converter is connected to FIEDLER data loggers via the RS485 bus under the MODBUS RTU protocol.

The ELM1 converter enables infrared data communication with electricity meters according to the ČSN EN 62056-21 standard in the C protocol mode, which defines bidirectional data exchange with communication speed switching.

Readings from status registers

The large number of user-accessible quantities that can be read from the electricity meter using the ELM1 converter and subsequently archived on the individual channels of the connected telemetry unit include, for example:

- Electricity meter serial number (OBIS C.1.0)
- Total active consumption [kWh] (OBIS 1.8.0)
- Active consumption in the top tariff [kWh] (OBIS1.8.1)
- Active consumption in high tariff [kWh] (OBIS1.8.2)
- Active consumption in low tariff [kWh] (OBIS 1.8.3)
- Total active supply [kWh] (OBIS 2.8.0)
- Four-hour maximum active consumption in the high tariff [kW] (OBIS 1.6.2)
- Quarter-hour maximum of active consumption in total (OBIS 1.6.0)

Remote meter readings

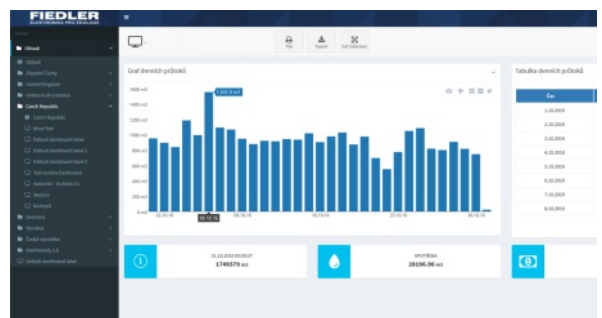
A typical example of the use of the ELM1 converter are remote digital readings of consumed electrical energy in households, industrial plants or apartment buildings. The advantage of digital reading over the usual pulse counting is the transmission of absolute consumption.

Small and simple Smart Meters type H11 are designed for remote readings of one sampling point. They can work in a 2G or NB-IoT network.

A multi-channel telemetry station of the H3, H7 or C8 type can be used to read up to several dozen electricity meters via one RS485 data network. The communication module of these units transmits the measured data to the server via the internal GSM/GPRS modem.

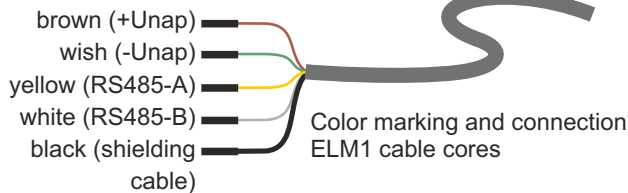
Data hosting

The rich software of the server provides the authorized user with graphical and tabular visualization of measured data from individual sampling points, statistical calculations and generates overview reports for further processing of measured data.



Electrical connection

The ELM1 converter is connected to the superior datalogger by means of a shielded 4-core cable, where the brown and green cores are used to connect the supply voltage (usually 12 VDC). The yellow and white wires are intended for communication connection to the RS485 network for communication with the data logger under the MODBUS RTU protocol in slave mode. The black wire is intended for connecting the shield of the connecting cable.



Smart Meter
H11-G/485
(2 channels)

Direct reading of the ELM1 converter



Supported electricity meters

The ELM1 converter is compatible with many electricity meters, such as:

ZPAZE114.D0.A1B111-081

ZPAZE314.D0.A1B021-081

ZPAZE112.D0.A1B075-445

ZPAZE312.D0.B1B102-046

LOGAREX LK11BL810002

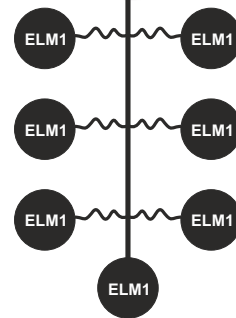
LOGAREX LK13BO607007

ITRON EM211 Type 710

ITRON EM214 Type 720



Multichannel
telemetry
station H7
(96 channels)



Collection
network
RS485.

Network connection of ELM1 converters

Technical parameters

Type of connectable electricity meters: electricity meters with integrated infrared data interface according to the ČSN EN 62056-21 standard

Communication interface: RS485

Communication protocol: MODBUS RTU slave

Preset com. address: 1 (adjustable address range = 1 to 247)

Supply voltage: 5 ... 28 V DC, current consumption max. 0.05 A (for 12V)

Dimensions: diameter 32 mm, height 20 mm

Weight: 140 g

Case material: PETG (3D printing)

Protection: IP40

