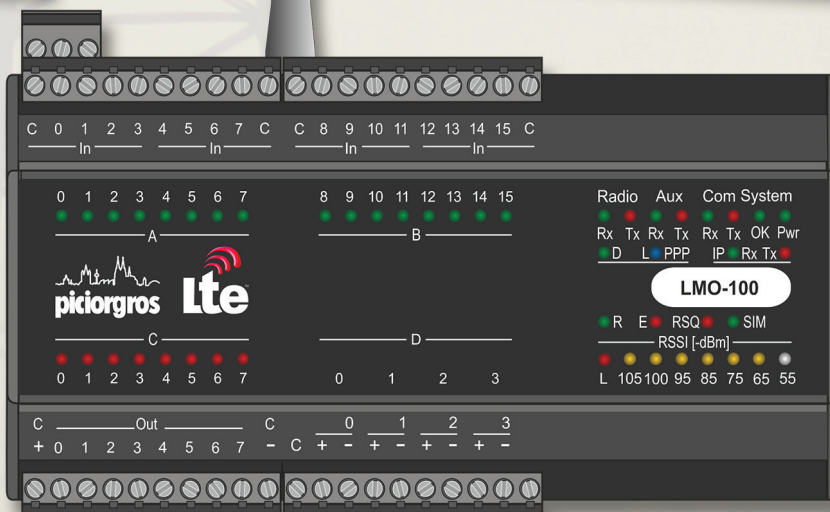
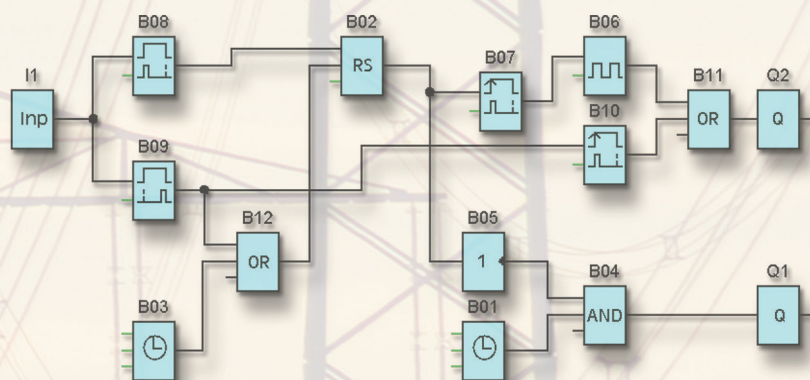




SCADA and Data Communication

LTE RTU & Modem



Professional LTE Solutions



LMO-100 LTE RTU

The LMO-100 is a modem and SCADA-RTU for the LTE Cat M1 and NB2 applications that supports the LTE-450 MHz networks like Connect 450 (Germany) or Utility Connect (Netherlands).

The LTE bands 1, 3, 8, 20, 28 and 72 are supported in addition to the 450MHz band (Band 31).

The all-in-one SCADA telemetry device LMO-100 offers a router functionality to connect IP-based devices like PLCs, smart meters or data loggers but it also offers direct

transmission of serial SCADA protocols like MODBUS/RTU, IEC60870-5-101, DNP3, SINAUT and many more.

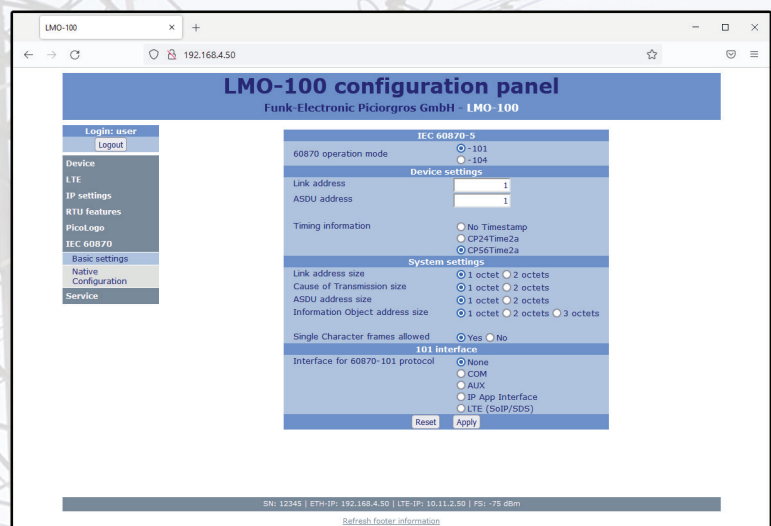
Two individual serial RS-232 (optional RS-422/485) interfaces are available for this transmission method.

The LMO-100 is configured via an integrated web server using a common web browser. Numerous LEDs on the front side of the device provide information about operating condition, status of the inputs and outputs as well as interfaces and live receiving field strength of the LTE network.

The ruggedized enclosure of the LMO-100 can be DIN rail mounted and operates with the common voltage of 12-24 V DC (+/- 20%).

PicoLogo Applikationsplattform

The optional application platform PicoLogo provides a graphic editor to compile control applications. This application can be loaded in as many LMO-100 as needed and enables local operation and alarm applications. Point-to-point applications between two LMO-100s can be realized using MODBUS blocks to control e.g. a water tower to a pump.



LMO-100 Web Server

Embedded RTU Functionality

The LMO-100/DA versions are equipped with embedded binary and analog inputs and outputs. These can be extended by up to 16 additional expansion modules. All inputs and outputs are electrically isolated.

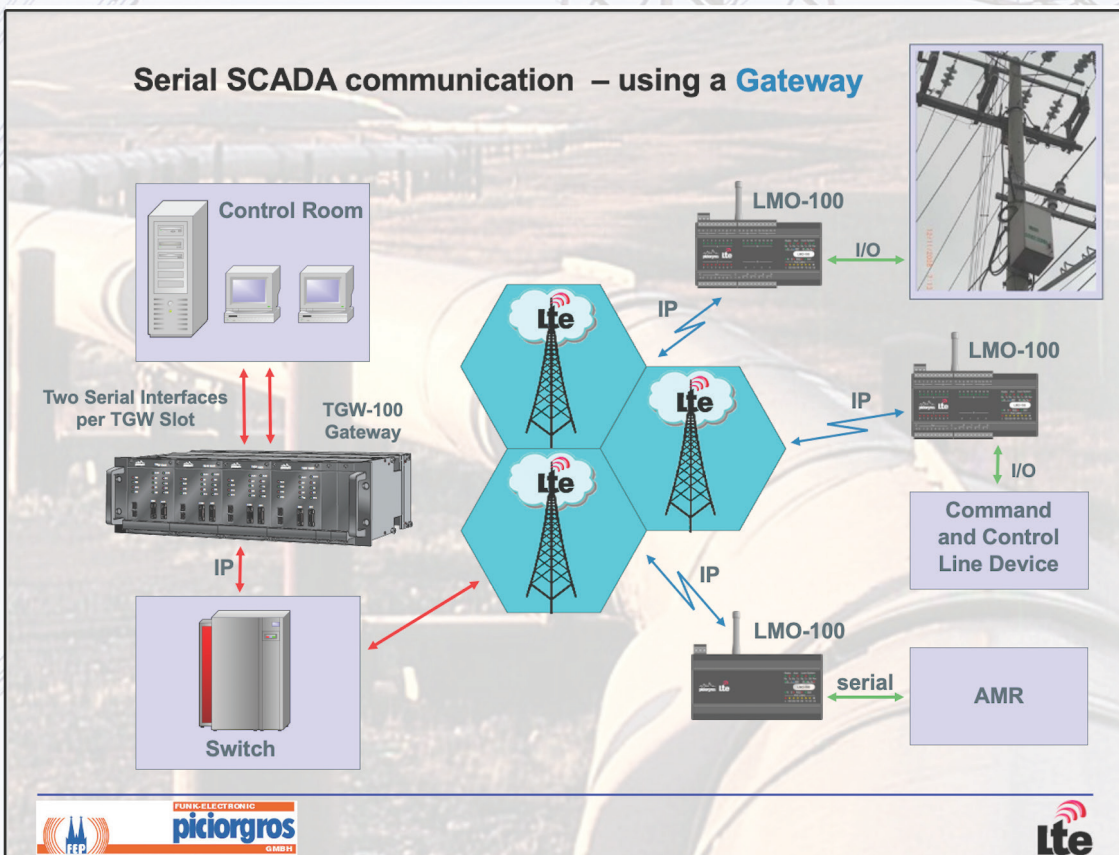
The inputs and outputs can be addressed locally and via the LTE network from a control room or SCADA server using the standardized SCADA protocols MODBUS/RTU, MODBUS/IP, IEC60870-5-101, IEC60870-5-104 as well as DNP3.

This means that telemetry applications in smaller or medium sized stations like local transformer stations, switch gears, water treatment plants or pump stations can be realized without an additional PLC or RTU.

In addition to that the inputs and outputs can be addressed and controlled via a smartphone (SMS) using text based MMI commands, which makes further applications possible such as opening security doors.

SMS-alarms can be sent by an LMO-100 using the optional PicoLogo Platform. When certain values are met (can be analog or digital inputs), a pre-set text message will be sent to a pre-set list of recipients.

Critical alarms can be sent from the control room to any on-call duty phone.



System Features:

General Information	Technical Information
Device type: LTE telemetry device for Cat M1 and NB2 networks with direct support of transmission of serial and IP based SCADA protocols Optional: embedded binary and analog inputs and outputs with RTU functionality Additional Features: Optional application platform PicoLogo for local control functions or alarms via SMS Field Strength Display: LED-bar graph on front of the device Other LEDs: Display status of binary inputs and outputs Display communication via the interfaces Display SIM ok and IP link Display of field strength Operating Voltage: 12-24 Volt DC +/- 20% Power Consumption: ~110mA @12V ~55mA @24V Operating temperature: -20°C - +70°C Enclosure: Anodized aluminum with plastic ends according to DIN 43880 Mounting: 35 mm DIN Rail Dimensions: 80mm x 162mm x 62mm Sustainability: Waste electrical and electronic equipment (WEEE) and Restriction of Hazardous Substances (RoHS) compliant	LTE-Bands: 88 (412 – 415 MHz) 87 (410 – 415 MHz) 72 (451 – 456 MHz) 31 (452.5 – 457.5 MHz) 28 (703 – 748 MHz) 20 (832 – 862 MHz) 8 (880 – 915 MHz) 3 (1710 – 1785 MHz) 1 (1920 – 1980 MHz) Interfaces: 2 serial interfaces (COM, AUX) as RS-232 or optional RS-422/485-interface with 9-pol SubMini-D Ethernet-Interface 10/100 Mbit/s Interface for I/O expansion modules (Only /DA-Devices) Inputs and Outputs: DA1: 16 DI, 8DO, 4AI DA2: 16DI, 8DO DA3: 16DI, 16DO DA4: 16DI, 8DO, 2AI, 2AO DA5: 16DI, 8DO, 4AO All I/Os are electrically isolated Functions: IP-router for connected devices (PLC, Data logger...) SCADA Modem for serial SCADA protocols for direct connection of devices via one of the two serial interfaces, incl. intelligent protocol based Routing LTE-RTU with embedded I/O SCADA Protocols for modem functionality: MODBUS, ROC, DNP3, IEC60870, Pakbus, SINAUT, BSAP plus many more and custom protocols SCADA Protocols for integrated RTU functionality: MODBUS-RTU, MODBUS/IP, IEC-60870-5-101, IEC-60870-5-104, DNP3/IP Integrated control and alarming function: By using the application platform PicoLogo



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