



SMART COMMUNICATION

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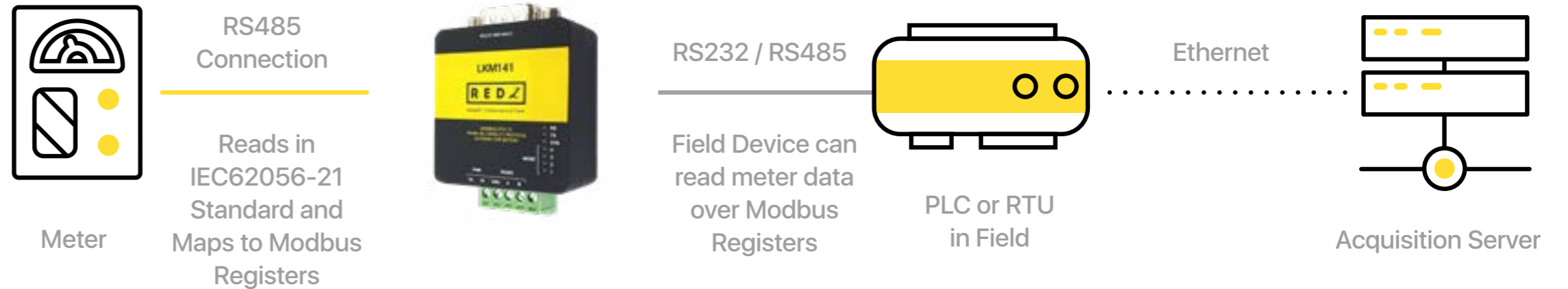
LKM141 MODBUS RTU to IEC62056-21 Protocol Meter Gateway

With RS232 DB9 Male on Modem Side
and RS485 2 Wire Connection on Meter Side



Main Features

- Auto reads Electricity meters that communicates in IEC62056-21 standard and maps in predefined MODBUS register table
- Configurable Modbus address via Modbus Commands
- Configurable Reading Period on IEC6056-21 side via Modbus Commands
- Configurable Reading Table Number on IEC6056-21 side via Modbus Commands
- Dual Power Input: Can be powered over RS232 line or external power input
- Wide range power input: 3,3V – 28V DC
- Wide operating temperature range from -40 to 85 °C
- Very Small form factor, only 2.1 x 4.2 x 4.4cm
- Customization of reading process and register tables based on client request
- Firmware upgradable over serial line



LKM Series Modbus RTU to IEC62056-21 Protocol Gateway are designed to be used with electricity meters that communicates in IEC62056-21 standard

The meters that supports IEC62056-21 standard has read out tables that has several data such as import energy, export energy, phase voltages and currents. LKM Series Modbus RTU to IEC62056-21 Protocol Gateway automatically reads that values and maps to Modbus registers. Field devices or software systems can easily read data over Modbus RTU protocol so that energy meter reading can easily be integrated to field automation or monitoring systems without need of IEC6056-21 protocol implementation.

Technical Specifications

Interface and Indicators



RS232 Connector DB9 Male RS232 Connector. Only Tx-Rx-GND for data transmission

2 – Rx	3 – Tx	5 – GND
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RS485 Connector Terminal Connector for 2 wire RS485 connection and GND

Operation Mode Selection Switch Selects the operating mode of the device

Mode Selection	Modem Side Communication Parameters	Meter Side Communication Parameters
Mode 1 (LED 1 ON)	19200 8N1	Starts with 300 baud rate and changes during transmission to target baud rate based on IEC62056-21 protocol
Mode 2 (LED 2 ON)	9600 8N1	Starts with 300 baud rate and changes during transmission to target baud rate based on IEC62056-21 protocol
Mode 3 (LED 3 ON)	19200 8N1	19200 7E1 Fixed
Mode 4 (LED 4 ON)	9600 8N1	9600 7E1 Fixed

Modbus RTU and IEC62056-21 Characteristics

Modbus RTU Address	Default value is 0x01 Changeable via Modbus Command
Reading Period on IEC62056-21 Protocol Meter Side	Default value is 10 (in seconds) Changeable via Modbus Command
IEC62056-21 Protocol Meter Read Out Table	Default value is 0x30 = '0' in ASCII Changeable via Modbus Command
IEC62056-21 Protocol Meter Reading Method	Two methods available: 1. Method 1: Read full table and check BCC and register data 2. Method 2: Read each line of table and register data during reading Default Method is 2 Changeable via Modbus Command

IEC62056-21 Protocol Meter Read Out Data	Date Time Import and Export Active Energy Import and Export Reactive Energy Reactive Energy in 4 Quadrants Import and Export Maximum Demands Active Power Phase Currents for each phase Phase Voltages for each phase Frequency Error Code Extendable/Changeable via firmware change
Monitoring Parameters	IEC Read counter Time counter (in seconds) FW version Query able via Modbus Commands



Indicators

LED Indicators

Following LEDs available to show system status.

1 – Mode 1 LED

2 – Mode 2 LED

3 – Mode 3 LED

4 – Mode 4 LED

5 – System LED: Blinks every second

6 – Tx LED: Sending data from Modem Side to Meter Side

7 – Rx LED: Receiving data from Meter Side to Modem Side

Firmware Upgrade

Upgrade over Serial Line

Available from Modem side Serial Line

RS232 on LKM141

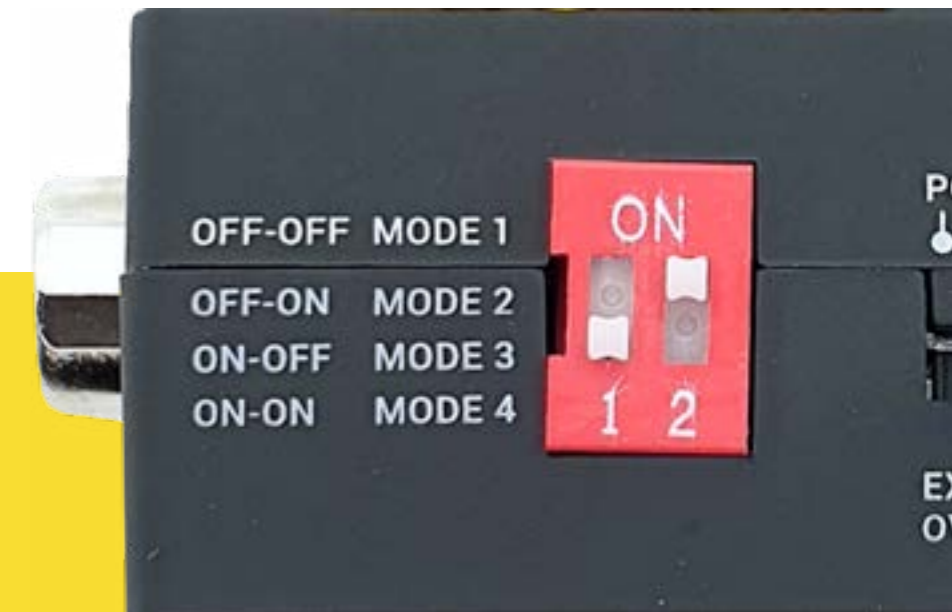
Device must be on operating mode 19200 8N1 for firmware upgrade process

Physical & Environmental Characteristics

Enclosure	ABS, IP40
Dimensions	21 × 42 × 44 (h × w × d) mm
Weight	~ 60 g
Storage Temperature	– 55 to 125 °C
Operating Temperature	– 40 to 85 °C
Operating Humidity	5% to 95% Non-condensing

Power

Power Input Over RS232 (switch selectable)	Device Can be powered over PIN4 and/or PIN8 of RS232 DB9 Male Interface
Power Input Selection Switch	Switch must be in proper position Input power By External Power Source or Input power By RS232 Line pins (4 and/or 8) selectable
Power Input	3,3V – 28V DC
Reverse Polarity Protection	Available
Thermal Shutdown Protection	Available



Ordering Information

LKM141
 Modem side RS232,
 Meter side RS485,
 Modbus RTU to IEC 62056-21 Protocol Meter gateway

Product Selection

Model	3.3 – 28V DC Power input	Power Input via RS232 Serial Line	Operating Mode Selections	Modem Side RS232 DB9 Female Connector	Modem Side RS485 Terminal Connector	Power Input Type Selection	Firmware Upgrade Over Serial Line
LKM141	●	●	●	●		●	●
LKM144	●		●		●		●