com·t·ac
Let things talk.

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LPN-Modbus-Bridge-EM

Product-Highlights

- Modbus RTU Master for reading up to 16 * 32 Modbus registers
- Time synchronized reading and transmission
- Transmission with attached timestamp
- Ideally suited for energy monitoring applications
  optimization of consumption
  accounting
- LoRa® radio technology
- External antenna
- Large radio range
- Simple configuration via USB interface

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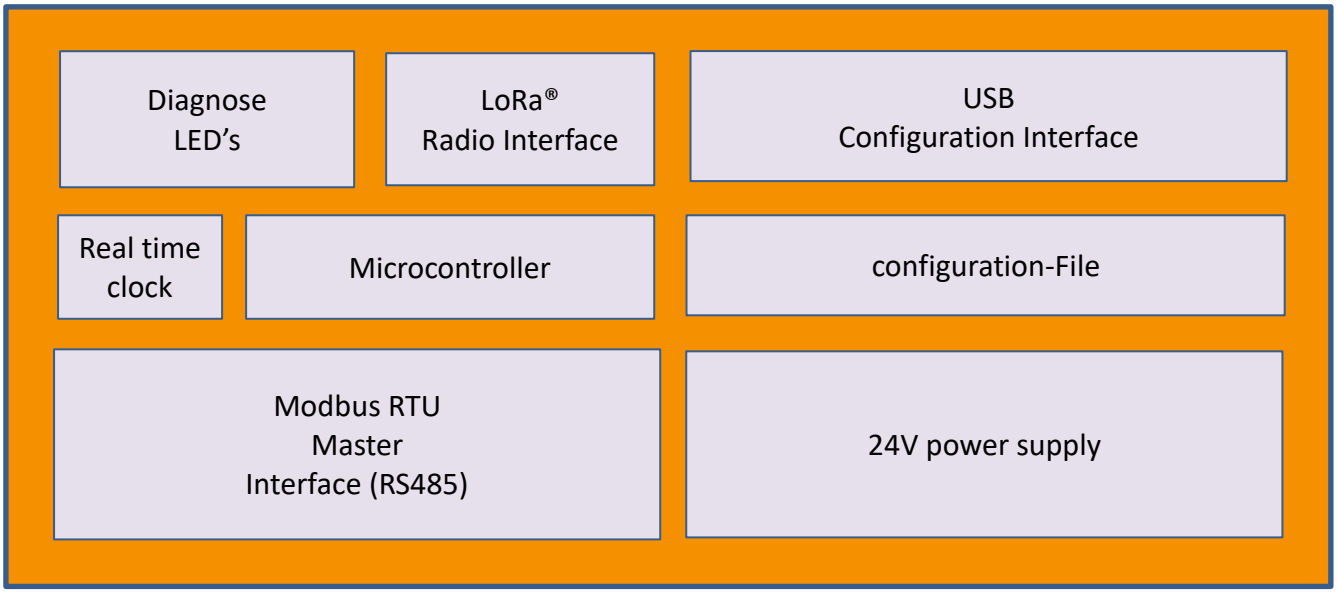
Functional Block Diagram



Functional Description

Modbus RTU interface:

- RS485 physical layer interface
- Internal Bus-termination resistor
- Baudrate and data setup configurable
- Modbus RTU Master protocol
- Up to 16 Modbus Slaves addressable
- Read out of up to 16 register blocks up to 32 Modbus registers each
- Per register block Slave-address, first register, register count, function code for reading configurable
- Reading interval and timepoint locally or remotely via LoRa configurable
  e.g. reading and transmission once per hour, every 5 minutes past the hour
  (0h05; 1h05; 2h05; …)
- Easy to connect to energy meters, multifunctional meters,…

Time synchronization:

- Internal real time clock (rtc)
- Synchronization of rtc via LoRA downlink
- enables synchronized reading of meters at different locations e.g. for accounting

Power supply:

- 24VDC

Configuration:

- Simple configuration of all parameters via local USB interface (configuration file)
- Parameter setting can be read and changed via LoRa interface

Mechanics / House:

- Ingress Protection Class IP65
- wheather- & UV- stable
- flame retardand
- dimensions 90mm(H) x 60mm(B) x 35mm(T) (w/o antenna, incl. PG-screw)
- removeable anntena for optimal placement and radio performance
- wall mounting
- DIN Rail mounting adapter available

Radio:

- LoRaWAN®-Technology with LoRaWAN®-protocol
- OTAA and ABP supported
- 14 dBm rf power
- -137 dBm receiver sensitivity
- Power and frequency according EU regional parameters (others on request)
- Easy attachable to public or private LoRa®- networks

Datatransmission:

- Time synchronized transmission of data read from Modbus-Slaves
- Register blocks are transmitted en block via LoRa to ensure data conistency
- Transmission timestamp per register block
- Status per register block (ok or Modbus-Error, Timeout, ...)
- Confirmed / unconfirmed transmission selectable
- Easy integration in IoT platforms
- Payload Decoder available

Leds and button:

- Status of Modbus – and LoRa-Communication by 4 Leds
- 2 buttons to manually trigger Modbus query and LoRa-Transmission

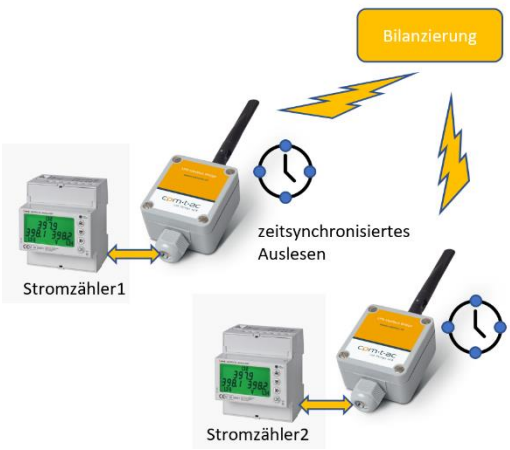
Terminals:

- PushIn -Clamps for power supply and ModBus
- Micro-USB for configuration
- antenna: SMA -connector

Application examples:

Time synchronized aquisition of energy consumption

- Real time clocks of Modbus-Bridges are synchronized by superior system via LoRa
- Modbus-Bridgen query counter values from energy meters at parametrized timepoints
- counter values attached with timestamp are send over LoRAWan® to superior system
- at superior system all contemporaneously acquired countervalues are available e.g. for accounting



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Technische Daten:

Power Supply		
Voltage range	10…36V DC	
Current consumption	tbd	
Modbus- RTU Interface		
Baudrate	600…115kBaud	
Databits	8	
Parity	NONE, ODD, EVEN	
Configuration Interface		
USB2.0, Micro USB	Access to configuration interface	Device appears as USB-Stick
LoRaWan® -Interface		
Activation	OTAA / ABP	
Frequency plan	EU868	
Specification	1.01	
Max. transmission power	+14dBm	
Sensitivity	-137dBm	
Antenna	SmA, 50 Ohm	
Buttons		
Button “Send”	trigger LoRa-Transmission and/or Join	
Button “Check”	Trigger Modbus query	
Leds		
red	Status of Time synchronisation, on air time,Modbus-Config	
Orange	Modbus-Error	
Blue	LoRaWan-Status	
green	Power supply, LoRa-receive (downlink)	
Housing		
Ingress Protection	IP65	
Dimensions	90mm(H) x 60mm(B) x 35mm(T)	w/o antenna, incl. PG-screws
Mounting	Wall DIN Rail with optional adapter	

Note:

This product is under continuous development/improvement. Features can change without prior notice.