

LoRaWAN™ - MODBUS RS485 BRIDGE



The LoRaWAN™ ModBus RS485 bridge collects data from any ModBus RTU existing equipment and connect these devices to a public or private LoRaWAN™ network. The Bridge has the capability to change the behaviour of the ModBus device by writing into its registers.

APPLICATIONS

- Monitoring and control of ModBus slave equipment from a remote server via a public or private LoRaWAN network : inputs, outputs, electrical machines, measuring equipment ...

BENEFITS & KEY FEATURES

- LoRaWAN™, Class A
- Easy to use and deploy
- Management of all the variables (read and write) of a ModBus (or JBus) RTU slave equipment from a remote server via a LoRaWAN™ network
- Battery life >10 years
- IP61

QUALITY & RELIABILITY

- RoHS, CE



The LoRaWAN™ ModBus RS485 Bridge acts as a ModBus master. It manages a set of ModBus slaves connected on a wired bus (RTU mode). It communicate with a remote server via a public or private LoRaWAN™ network.

The sensor supports up to 8 different configuration profiles. Each profile is configurable remotely (periodicity of data collection, equipment address, ModBus function code).

Once the configuration is complete, data collection start automatically and periodically.

At every wake-up, the bridge transmits the ModBus commands to the ModBus connected devices. The response of the ModBus connected devices is transmitted to the remote server. The remote server can achieve a write request into the bits or registers of a ModBus equipment.

The bridge does not interpret the ModBus (or JBus) commands: the list of functions to be executed and the addresses of the devices are set by the remote server.

As an option, it is possible to force the wake-up of the sensor from an external signal.

The LoRaWAN™ ModBus RS485 Bridge is easy to use, deploy and maintain:

- NFC tag for identification (Part number, serial number and manufacturing number)
- Magnetic switch to activate/de-activate the sensor
- Buzzer with different melodies for activation, de-activation and network pairing

When powered through a 3.6V/3,6Ah lithium battery, the autonomy of the bridge is more than 10 years when transmitting 4 bytes every 30mn in SF12. It can also be powered from an external 9-24V / 100mW power supply.

NKE WATTECO, YOUR PARTNER IN SMART SENSORS & ACTUATORS

We are a European leader in designing and manufacturing highly reliable and low power consumption smart sensors, actuators and multiprotocol remote data solutions.

nke Watteco is an adopter member of the LoRa® Alliance

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TECHNICAL CHARACTERISTICS

RADIOFREQUENCY	
Frequency (MHz)	EU: 863-870
Transmit Power (dBm)	+14
Receiver Sensitivity (dBm)	-140
FIRMWARE	
Protocole	LoRaWAN™, Class A.
Application layer syntax	ZCL (ZigBee Cluster Library) – to be interpreted by the remote server
Transmission cycles	15mn, 1h, 12h or configurable from LoRaWAN™ remote server
Activation method	Activation by Personalization (ABP) Over-The-Air Activation (OTAA)
Data encryption	AES128
MODBUS	
Physical link	RS485 – 2 line– protection against overvoltage Termination resistor can be activated at set-up
Serial link	UART – Half Duplex
Data rate (kbit/s)	1,2 / 2,4 / 4,8 / 9,6 / 19,2 / 38,4 / 57,6 / 115,2
Mode	RTU
Configurable parameters from the LoRaWAN™ remote server	- Data rate, parity, number of data bits, number of stop bits - Wake-up periodicity to read/write ModBus - Transmit measurement periodicity
Transmit duty cycle	The LoRaWAN™ remote server must properly set the transmission duty cycle to comply with ESTI EN 300-220-1 (page 24) regulation. This regulatory constraint limits the volume of transmitted data.
Option	Wake-up to read/write ModBus command from an external signal
POWER	
Voltage	3,6V / 3600mAh –lithium battery or 9V-24V 100mW – external supply <u>Note:</u> The bridge does not supply connected equipment
Autonomy within a +10°C to +25°C temperature range	>10 years when transmitting 4 bytes every 30mn in SF12
INTERFACE	
NFC Tag	Product number, serial number, manufacturing number
Buzzer	Configuration, Network pairing / unpairing
Magnetic switch	Reset, ON/OFF
MECHANICAL FEATURES	
Size (mm)	84x82x85
Installation	Fixed with 2 screws + anchors (supplied) or DIN rail (with optional clips)
IP Class	IP61
Fire resistance	Non-flammable treated housing: UL94-V0HB
ENVIRONMENTAL	
Operating temperature (°C)	-10 / +50
Storage temperature (°C)	-10 / +30
DIRECTIVES & STANDARD	
EN, 61000-4-2 EN 300-220-1 V2-4-1, EN 301 489 V1-6-1 CE, RoHS	



ORDERING INFORMATION

REFERENCE	DESCRIPTION
50-70-080	LoRaWAN™ ModBus RS485 BRIDGE