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sindcon RS485 Modbus LoRaWAN Bridge User Manual

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Product Overview

Sindcon's Neptune series Modbus-LoRaWAN bridge is an affordable solution for converting traditional wired Modbus devices into Lo RaWAN wireless nodes. It enables reading and writing of any register of the connected Modbus device through the Lo RaWAN. The configuration of Modbus register mapping of the Modbus-LoRaWAN bridge device can be easily done remotely from the Sindcon LoRaWAN server by downlink commands. Moreover, users can use the Mobile App (Busy Box) which are available from Apple Store and Google Store, to configure the device to different Modbus devices on field.

Features

- AC Power Supply with wide input range (85V to 250V)
- LoRa SoC (STM32WLESXX) integrating ARM.
- Cortex-M4 Core as processor
- Compliant with standard Modbus Protocol
- Compliant with Standard LoRaWAN Protocol 1.0.3
- Remotely configuration of Modbus register mapping from mobile APP
- Maximum upload data size can be up to 128 bytes by utilizing the Sindcon LoRaWAN Server

Product Diagrams and Installation
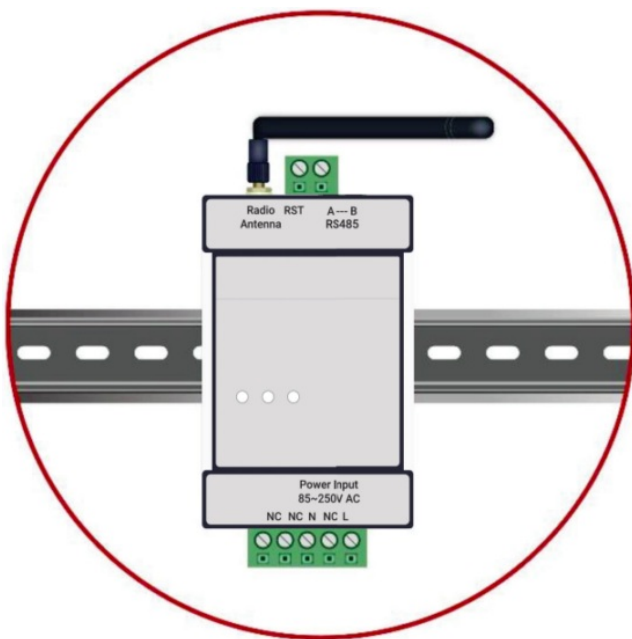
DIN rail installation

Installation Instructions
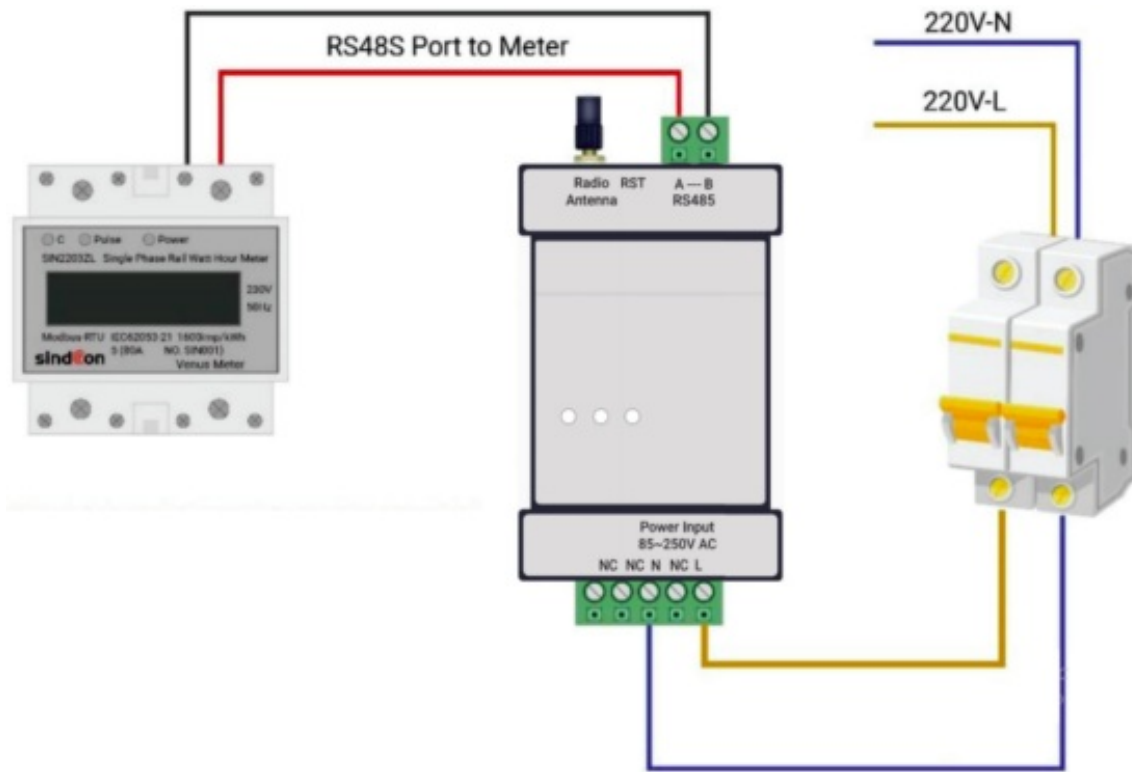
Pin	Description
ANT	Antenna port
RST	Reset Botton
A	RS485-A(+)
B	RS485-B(-)
L	220V-L
N	220V-N
NC	No Connection

Install the RS485_LoRa Bridge Model NPL-IN(AC) on the Energy Meter and connect the cables, follow the steps below:

Step 1: Connect to Energy Meter (Modbus Port):

- Locate the RS485_LoRa Bridge Model NPL-IN(AC).
- Identify the upper port on the RS485_LoRa Bridge, labeled as "Modbus Port" (AB).
- Connect one end of a suitable RS485 cable to the Modbus Port (AB) of the RS485_LoRa Bridge.
- Connect the other end of the RS485 cable to the corresponding Modbus communication port on the Energy Meter.

Step 2: Power Supply Connection:

- Find the lower port on the R5485_LoRa Bridge, labeled as "Power Supply Port."
- Connect the power supply source. Port on the RS485_LoRa Bridge. Ensure that the voltage and current rating of the power supply match the requirements of the RS485_LoRa Bridge.

Step 3: Install the Antenna,

- Locate the antenna port on the RS485_LoRa Bridge, situated on top.
- Connect the provided antenna to the Antenna Port securely. The antenna is crucial for establishing wireless communication between the RS485_LoRa Bridge and other LoRa devices.

Step 4: Check Connections and Power Up:

- Double-check all the connections to make sure they are correctly installed according to the connection definitions.
- Ensure that the RS485 cable is securely connected to both the RS485_LoRa Bridge and the Energy Meter.
- Confirm that the power supply is correctly connected to the Power Supply Port.
- Verify that the antenna is securely attached to the Antenna Port.
- Once everything is in place, power on the RS485_LoRa Bridge by turning on the connected power supply.

Multi-Protocol LoRaWAN Bridge NPL-IN (AC)
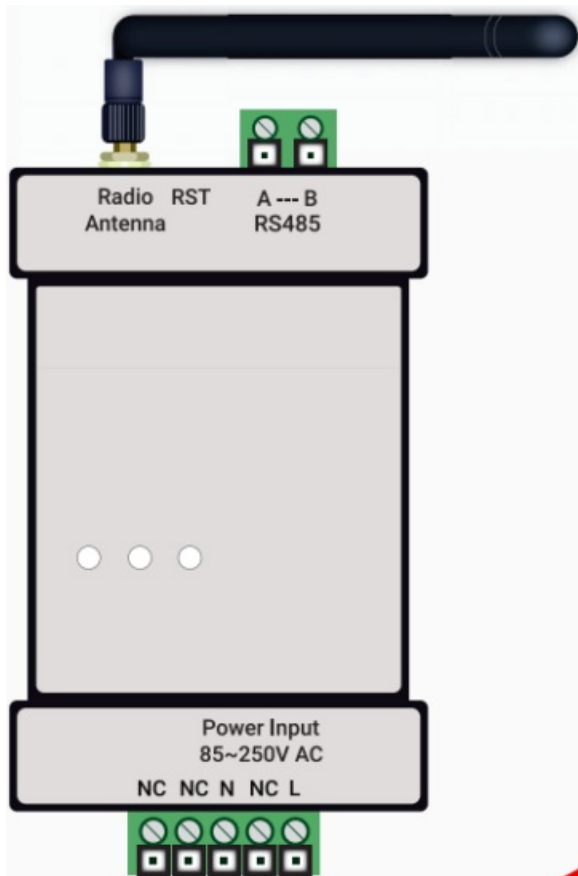
DESCRIPTION

Powered by ARM Cortex-M4 Core integrated in LoRa SoC, Sindcon's Neptune series Multi-Protocol LoRaWAN Bridge is an affordable solution for converting traditional wired Modbus devices into LoRaWAN wireless nodes. It enables reading and writing of any register of the connected Modbus device through the LoRaWAN. The configuration of Modbus register mapping of the Multi-Protocol LoRaWAN Bridge device can be easily done remotely from the Sindcon LoRaWAN server by downlink commands. Moreover, users can use the Mobile App (Busy Box) which are available from Apple Store and Google Store, to configure the device to different Modbus devices on field.

FEATURES AND BENEFITS

- AC Power Supply with wide input range (85V to 250V)
- LoRa SoC (STM32WLE5XX) integrating ARM
- Cortex-M4 Core as processor
- Compliant with standard Modbus Protocol
- Compliant with Standard LoRaWAN Protocol 1.0.3
- Remotely configuration of Modbus register mapping from mobile APP
- Maximum upload data size can be up to 128 bytes by utilizing the Sindcon LoRaWAN Server
- Provide support for local server alarms
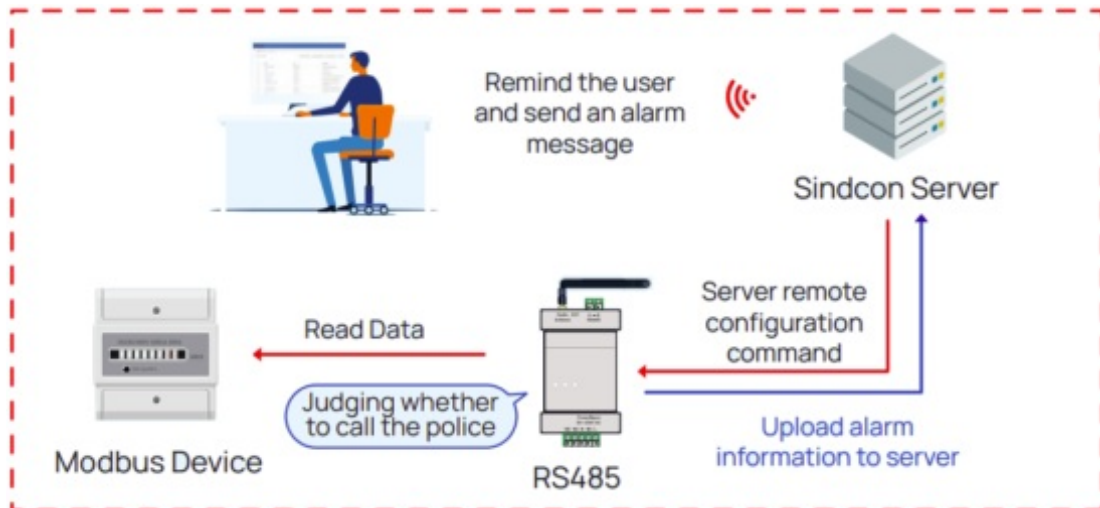
TECHNICAL PARAMETER

Electrical Parameters	
Power Supply	85V-250V AC
Standby Current	54mA
TX Current	80mA
MCU	Arm® 32-bit Cortex®-M4
Memories	256KB Flash: 64KB RAM
LoRaWAN Parameters	
LoRaWAN Class	Class C
ISM Band	AS923, AU915, EU868
RX Sensitivity	Down to -125dBm@BW = 125 kHz. SF = 7
Channels	16
Spreading Factor	SF7-SF10 (adaptive)
LBT(Listen Before Talk)	Yes
Number of Data cached when wireless network interrupted	10*

*Can be configured and need to consult Sindcon for details

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Documents / Resources

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ST0301, 2BHSMST0301, RS485 Modbus LoRaWAN Bridge, RS485, Modbus LoRaWAN Bridge, LoRaWAN Bridge, Bridge

References

- **User Manual**