Installation Guide V1.3

LPRS-MODBUS-DIN-LoRa
LPRS Enabled Reader for Modbus & M-Bus Devices

LPRS
CONNECTED SOLUTIONS

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LPRS-MODBUS-DIN-LoRa
LPRS Enabled Reader for Modbus & M-Bus Devices

IMPORTANT – PLEASE READ

Safety

Important safety information is contained in this document. Familiarise yourself with this information before attempting installation or other procedures. This product can only be installed by persons trained and competent to permanently install mains powered electrical equipment.

Please read this installation guide fully before beginning and if you have any questions contact us:

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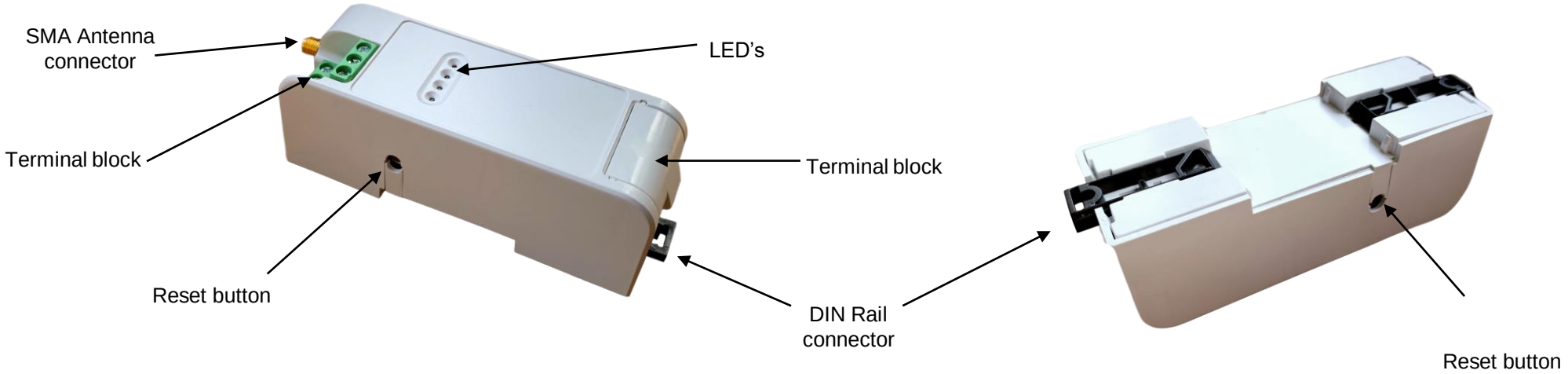
Description

LPRS-MODBUS-DIN-LoRa
LPRS Enabled Reader for Modbus & M-Bus Devices



Part Number: LPRS-MODBUS-DIN-LoRa

Description: LPRS Connected Solutions Ltd long range wireless receiver gateway for Modbus RS485 applications (RS232 option available).

The LPRS-MODBUS-DIN-LoRa acts as a receiving gateway for LPRS's Multi-Sensor (MSS) devices or other devices powered by LPRS's eRIC-LoRa radio module.

It receives wireless signals from sensors and translates them into Modbus RS485 binary format, for use in building management systems, industrial control, HVAC and more. Uses standard 35mm industrial DIN rail mounting.

Technical Specification

- Voltage Input: 90-265V AC
- RS485 Input power: 5V
- Frequency Range: 47-63Hz
- Insulation: Class I
- Housing: IP51 Indoor
- Device size: 100mm x 37mm x 35mm
- Max. Operating Temp: -20°C to +80°C
- Maximum number of wireless devices per gateway: 64 (each device up-to 8 inputs)

Safety

Important safety information is contained in this document. Familiarise yourself with this information before attempting installation or other procedures. This product can only be installed by persons trained and competent to permanently install mains powered electrical equipment.

Symbols used in this document to highlight safety critical warnings are:

Risk of Danger
These instructions contain important safety information. Read them before starting installation or servicing of the equipment.

Caution
Risk of Electric shock.

If unsure at anytime how to safely use this device, please contact us to discuss further at contact@lprsconnected.co.uk

Installation

The LPRS-MODBUS-DIN-LoRa has been designed to be mounted in a 35mm DIN rail.

All cabling should be fastened neatly to ensure that no contact is made between wires and pipes.

Ensure that all power is turned off before connecting this device.

This device is not fused, it is a requirement that it is preceded by a fused switch spur maximum rating 3 Amp which should be switched as part of the installation.

Recommended cable size is 1.5mm², maximum solid 2.5mm².

See opposite diagram of wiring connections.
Please note: Deviating from this may cause permanent damage to the device and/or cause harm.

Pairing

All Multi-Sensor devices will automatically pair with this device on power up using a generic group ID. No further configuration is necessary. For extra data security specific ID ranges available on request.

Auxiliary
- L IN - Live
- N IN – Neutral

Terminals
- A - RS485+
- B - RS485-
- C - RS232 Tx
- D - RS232 Rx (TTL 3.3V)
- G - Ground
- 5V - 5V

Serial Settings
- Baud rate: 9600
- Data bits: 8
- Stop bits: 1
- Parity: None

Modbus Settings
- Set Host Modbus PLC/HMI to read input registers.

USB/RS485 interface
- This device can be interfaced to by our USB to RS485 bridge cable. Please contact us for more information.

LED's

The LED's to indicate the current state and various activity, please see opposite which specifies each LED's meaning.

Reset

Each device can be reset which clears its memory of all Multi-Sensors previously paired with it. To reset:

→ Turn off the device.

→ Press and hold the reset button on the side of the device and turn the device on. Keep the reset button held in for approximately 5-6 seconds and then release the button.

→ The devices memory will have now been deleted.

Please note: Deleting the devices memory is permanent and cannot be reversed.

Antenna

This device is fitted with a mating SMA connector for the supplied antenna.
To fit, simply screw the antenna clockwise into the socket until finger tight. Do not overtighten as this may cause damage to the device.

Each device can be supplied with either:

- Standard antenna: Suitable for plastic enclosure installations.
- External mount antenna: Suitable for metallic enclosure installations.

Please note:

i) The device uses a specific antenna tuned for the operating frequency used for data transmission, only LPRS supplied antennas' may be used.

ii) For optimum antenna performance it should be located in as free space as possible.

LED Indicators	
	GREEN - POWER When powered, the Green LED will be permanently on.
	AMBER - SERIAL Flashes each time a Modbus request is received.
	BLUE - WIRELESS Flashes each time wireless communication is received.
	RED Not in use.

Data format

Sensor data

The format for data coming into the gateway must be as follows:

Character	Meaning
{	Start character
SSSSSSSS	Unique sensor serial number
1111	1st value as int16 *
2222	2nd value as int16 *
}	Finish character

**** Data will appear in Hex format. Convert to decimal and divide by 100 to obtain the correct reading in decimal format.***

Example reading: {SSSSSSSS11112222}

Paired devices can report up-to 8 sensor readings. Each additional reading will be the same format as 1111 & 2222, appended to each data string. For example a device with 4 sensors will be {SSSSSSSS1111222233334444} and so on.

---------- **END** ----------