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DATA SHEET

MLB

Produal

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MLB - Modbus LoRaWAN bridge



MLB is a Class A LoRaWAN® device that can operate in a public or private network. MLB is designed for converting Modbus RTU messages to wireless LoRaWAN® messages and vice versa. The device functions as a Modbus master and it can read and write up to 32 registers via Modbus RTU bus.

The slave device registers can be configured freely. Up to 16 Modbus slave devices can be connected to MLB and up to 32 registers can be read and written in total. MLB can be connected to any Modbus RTU slave device, and it supports two-way communication.

MLB can be commissioned by using Produal MyTool® Android application. The application includes ready-made definition files for Produal devices. User can also create a definition file for any Modbus device by using Produal MyTool® or Produal MyCloud web page. The commissioning can also be made via LoRaWAN® network.

MLB is equipped with an internal antenna and it is suitable for projects where indoor LoRaWAN® gateways are used. MLB-ANT is equipped with external antenna, which is suitable for public LoRaWAN® networks where the distances can be very long (up to 10 km).

Technical specifications

Property	Value
Supply	10…30 Vac/dc, 30 mA
Communication	LoRaWAN
LoRaWAN specification	1.0.2
Frequency	863...870 MHz
Class	A
Transmit power	14 dBm
Joining method	ABP or OTAA
Communication	Modbus RTU (RS-485)
Bus speed	9600* / 14400 / 19200 / 38400 / 57600 / 115200 bits/s
Data bits	8
Parity	None* / Odd / Even
Stop bits	1* / 2

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Property	Value
Commissioning	Produal MyTool® (NFC) or via LoRaWAN network
Operating conditions	
Temperature	-5...50 °C
Humidity	0...95 %rH (non-condensing)
Wiring terminals	2.5 mm^2
Housing	
Protection class	IP54, cable entry downwards
Materials	PC plastic
Flammability rating	UL 94 HB
Cable entry	2 x M16
Dimensions (w x h x d)	
MLB	106 x 102 x 46 mm
MLB-ANT	106 x 153 x 46 mm

Wiring

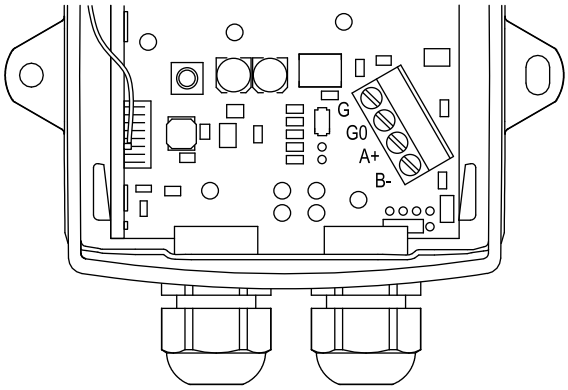
Warning: Device wiring and commissioning can only be carried out by qualified professionals. Always make the device wirings in de-energised electricity network.

Warning: This product is appliance class III product according to IEC 60664-1. The product may only be connected to SELV (safety extra low voltage) electricity network

CAUTION: The product may only be connected to overvoltage category III electricity network according to IEC 60664-1.

CAUTION: Extra care should be taken when mixing full and half rectified devices in same AC electricity network. If the outputs are not isolated, connected devices could be damaged.

Important: The supply voltage source must be the same in the transmitter and in the connected devices.



G	24 Vac/dc supply	**Warning:** Power supply wiring must have a minimum cross-section area of 1.5 mm^2 to ensure over-current protection operation. Too thin wiring may overheat and limit current under the over-current protector trip point.
G0	0 V	**Note:** Power inputs are equipped with an internal fuse and external over-current protection is not needed. The internal fuse can't be replaced.

A+	RS-485, Modbus RTU
B-	**Important:** Don't connect communication ports (RS-485) to other devices that are powered from an other electricity network than this product.

The nominal wire terminal screw tightening torque is 0.6 Nm

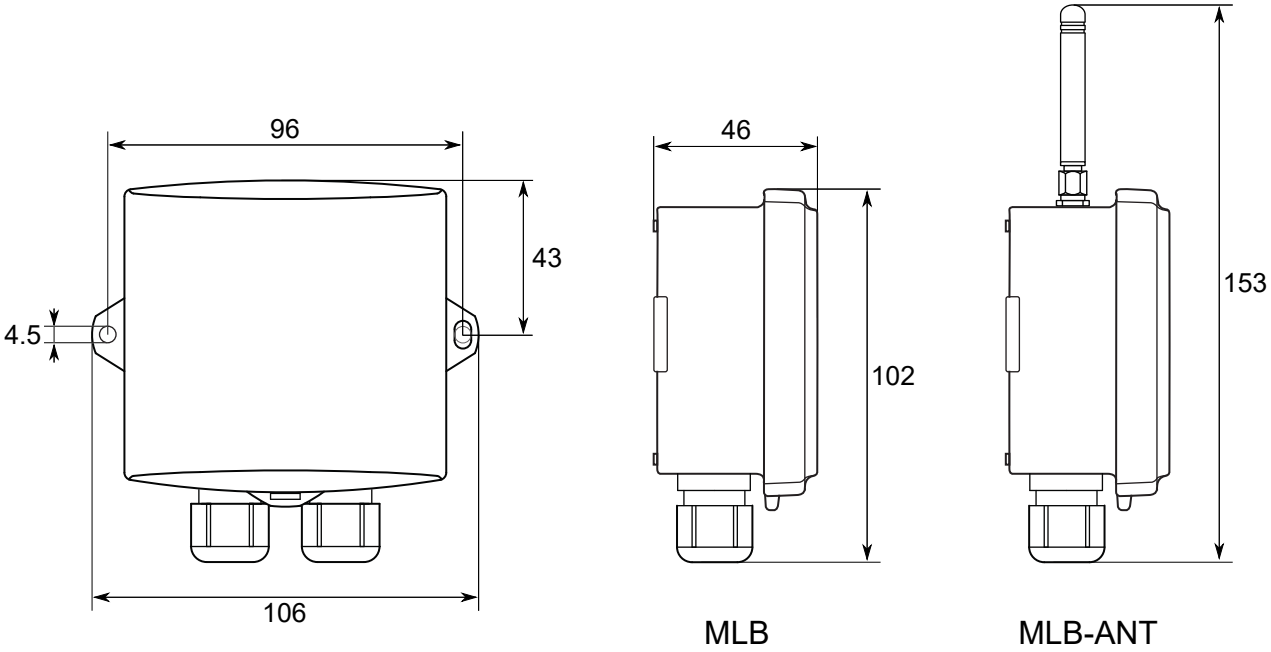
Important: Don't use excessive force when tightening the wiring terminal screws.

CAUTION: Ensure that all covers are closed before connecting supply voltage to the product. Don't remove the covers when the supply voltage is connected.

Ordering information

	Type	Product number	Description
	MLB	5010100000	Modbus LoRaWAN Bridge, internal antenna
	MLB-ANT	5010200000	Modbus LoRaWAN Bridge, external antenna

Dimensions



Supported standards and directives

Standard	Description
2014/30/EU	Electromagnetic Compatibility (EMC).
2014/53/EU	Radio Equipment Directive (RED).
2011/65/EU	Restriction of Hazardous Substances (RoHS2) Directive.

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Standard	Description
(EU) 2015/863	Commission Delegated Directive, amending Annex II to Directive 2011/65/EU.
EN IEC 62368-1:2020	Audio/video, information and communication technology equipment - Part 1: Safety requirements
EN 301 489-1 V2.2.0	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.
EN 301 489-3 V2.1.1	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD).
SFS-EN IEC 63044-3:2018	Home and building electronic systems (HBES) and building automation and control systems (BACS) - Part 3: Electrical safety requirements
SFS-EN IEC 63044-5-1:2019	Home and building electronic systems (HBES) and building automation and control systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up
SFS-EN IEC 63044-5-2:2019	Home and building electronic systems (HBES) and building automation and control systems (BACS) - Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light-industrial environments
SFS-EN IEC 63044-5-3:2019	Home and building electronic systems (HBES) and building automation and control systems (BACS) - Part 5-3: EMC requirements for HBES/BACS used in industrial environments

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