BLC-MBUS-250 BACnet® gateway for M-Bus & Modbus meters

M-Bus

Modbus RTU

Modbus IP

PRODUCT DESCRIPTION

Intended Use

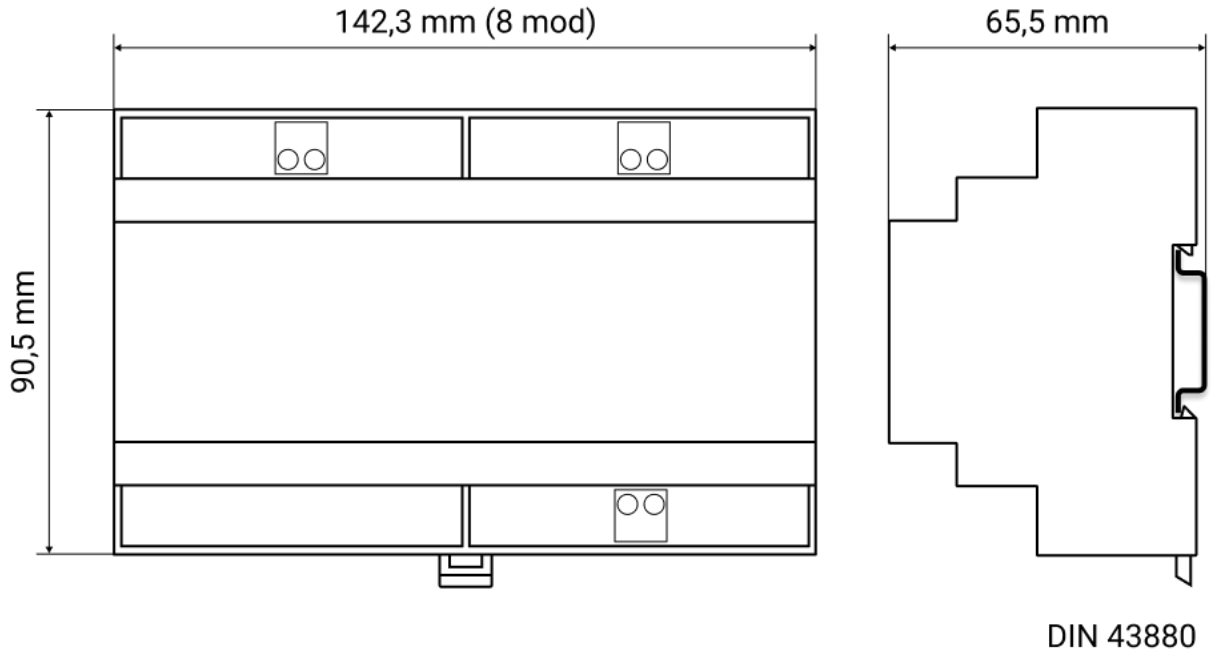
The BLC-MBUS-250 gateway is designed to integrate water meters, heat meters, energy meters and other measuring devices. It allows you to search and configure meters, map their registers to standard BACnet objects and perform cyclic readings.

The gateway supports 50 devices with protocols: M-Bus, Modbus RTU or Modbus IP. This limit can be increased by uploading licenses expanding the gateway to 100, 150, 200 or a maximum of 250 meters.

Key Features

- Advanced M-Bus master implementation:
  - searching and addressing meters
  - support for primary and secondary addressing
  - bus current monitoring
  - port with a capacity of 500 mA, protected against short circuit and overload
  - 1000 V optoisolation
- Connection parameters and reading interval individual for each meter
- Mapping to BACnet objects: Analog Value, Large Analog Value, Character String...
- Editable BACnet object names, created in several languages by default
- Information about the meter's lack of response
- Cyclical and on-demand data readings
- Option to register readings in Trend Log objects

DIMENSIONS and INSTALLATION



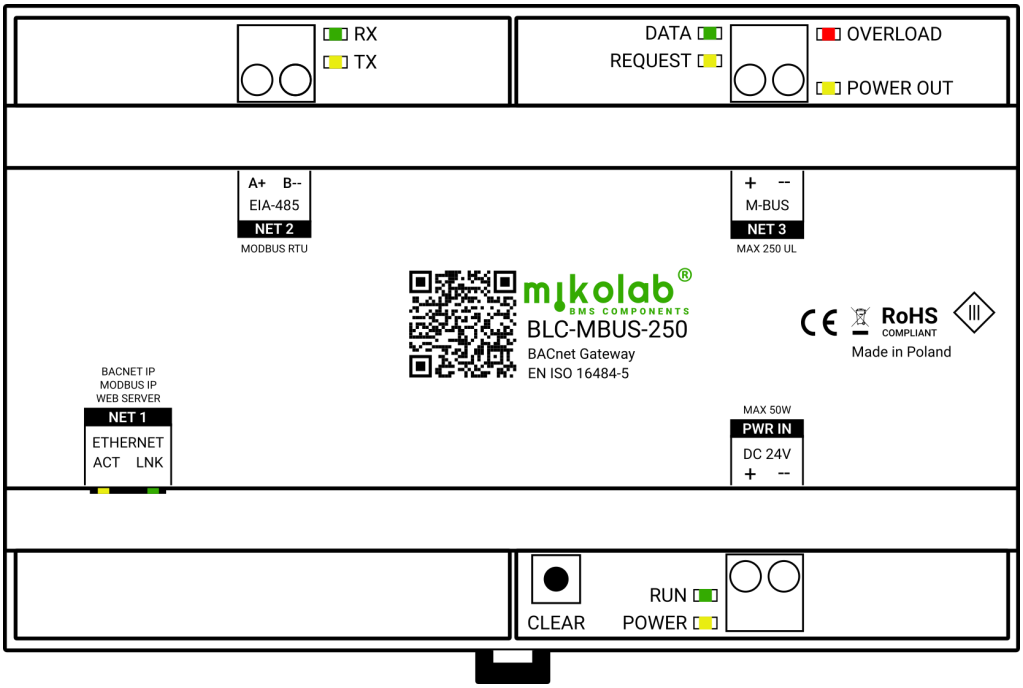
Install in the switchgear, on a horizontal TH35 rail (EN60715) ensuring cooling air circulation. The heat gains generated by the gateway increase with the number of connected M-Bus meters and the frequency of their polling. Installing directly next to other heat emitters, limiting air circulation around and through the gate, or covering the ventilation holes in the housing may lead to overheating, reducing the durability of the device.

BACnet® is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, used to designate the international standard described in the standard: PN-EN-ISO-16484-5 Building automation and control systems (BACS) - Part 5: Exchange protocol data.

Safety

- Installation and connection activities should be performed by qualified electricians who are familiar with the documentation and functions of the device.
- Before starting the installation, make sure that there is no voltage on the connection cables.
- Dismantling the enclosure, beyond the scope described in the manual, poses a risk of electric shock and voids the warranty.

ARRANGEMENT AND FUNCTIONS OF ELEMENTS



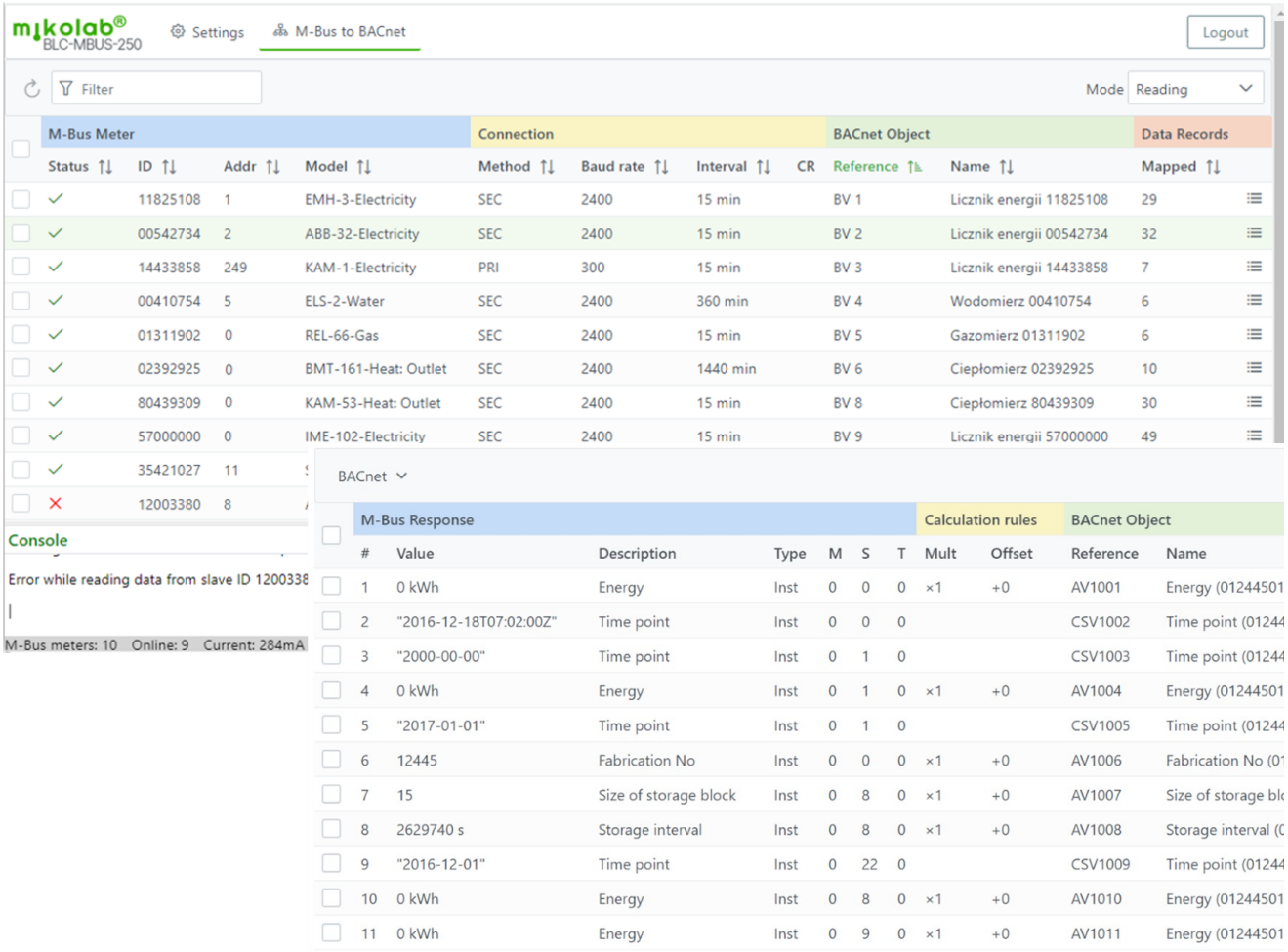
POWER IN	LED POWER	Confirms that the gateway is powered.
	LED RUN	Blinking when the program is running correctly. Blinking after a power failure means that the capacitor gate is working while saving changes to memory.
	CLEAR button	It is used to delete the configuration created by the user and restore the default connection settings. To do this, press the button for 3-seconds until the RUN LED turns off. Then release the button and wait for the device to resume operation.
NET1 Ethernet	LED ACT	Blinking while transmitting or receiving.
	LED LINK	Indicates that electrical connection has been established.
NET2 EIA-485	LED TX	Blinking while transmitting data to meters.
	LED RX	Blinking during receiving data from meters.
NET3 M-Bus	LED REQUEST	Blinking while querying meters.
	LED DATA	Blinking while receiving data from the meter.
	LED POWER	Indicates that the meters are powered from the port.
	LED OVERLOAD	Blinking during hard response collisions. Lights up during overload or short circuit. Temporary signaling when switching the load or during searching is a normal condition.

CONFIGURATION

Built-in Website

The device is configured using a web browser via the built-in website, which enables all integration stages:

- measurement of the current consumed by devices connected to the bus
- assessment of the quality of the cabling based on the oscillogram of the meter's response
- searching for meters by primary and secondary addresses
- change of address and baud rate in meters
- mapping registers to BACnet objects
- individual configuration of readings: pri/sec address, baud rate, interval
- archiving of readings in BACnet Trendlog objects



Virtual COM Port

Some meters require the use of a dedicated configuration program tools. The gateway supports the remote use of such software using ”Serial over IP” technology.

TECHNICAL SPECIFICATION

Power supply (PWR IN)	Voltage	DC 24 V (± 15%)
	Power Consumption	Max 50 W
	Recommended Fuse	Hiccup-type of fast fuse 3 A
NET1 Ethernet port	Standard	10/100 Base-T
	Protocols	BACnet IP (PN EN16484-5)
		Modbus IP
		HTTP
NET2 EIA-485 port	Protocol	Modbus RTU Master
	Baud Rate	300-115200 bit/s
	Bus Power Consumption	1/4 UL
	Segment Length	Max 1200 m
	Optoisolation	No
NET3 M-Bus port	Open-circuit Voltage	40 V
	Maximum Current	500 mA
	Long-term Load	375 mA (250 UL)
	Baud Rate	300, 2400, 9600,19200 bit/s
	Maximum voltage drop on the cable	12 V
	Optoisolation	1000 V
	Protection	Short-circuit
		Overload
		Overvoltage 47 V
		Before reverse polarity
		Resumption of work < 3s
Program limits	Number of Integrated Meters	50-250 Depending on the license
	BACnet register mapping objects	3000
	BACnet Trendlog Objects	1000 With Data Loger option available after firmware 1.3.x
	BACnet Trendlog Object Records	500 000 in Total
Enclosure	Standard	DIN 43880
	Material	Self-extinguishing PC/ABS
Connectors	Spring-type, pluggable	0,2-2,5 mm2 (24-12 AWG)
Dimensions and weight	Dimensions H x W x D	142,3 x 90,5 x 62,5 mm
	Weight	238 g
	Weight with box	275 g
Ambient rating	Temperature	0-40°C
	Relative humidity	10-90% (non-condensing)
	Heat load	Max 40 W

ORDERING

BLC-MBUS-250	BACnet IP gateway for 50 media meters: M-Bus, Modbus RTU or Modbus IP. Expandable to a maximum of 250 meters.
BLC-MBUS-250-AD	License for an additional 50 meters for the BLC-MBUS-250 gateway.
BLC-MBUS-250-TL	Data loger option for BLC-MBUS-250 gateway (up to 500 000 TL samples)*

* Support for the Modbus protocol will be introduced by updating the firmware to version 1.2.x
The Data Loger option will be available after the firmware update to version 1.3.x will be released