ENGLISH

700series Metering Gateway - IN712MEB***0000

Integrate M-Bus Meters into Modbus TCP and BACnet/IP Control Systems

USER MANUAL
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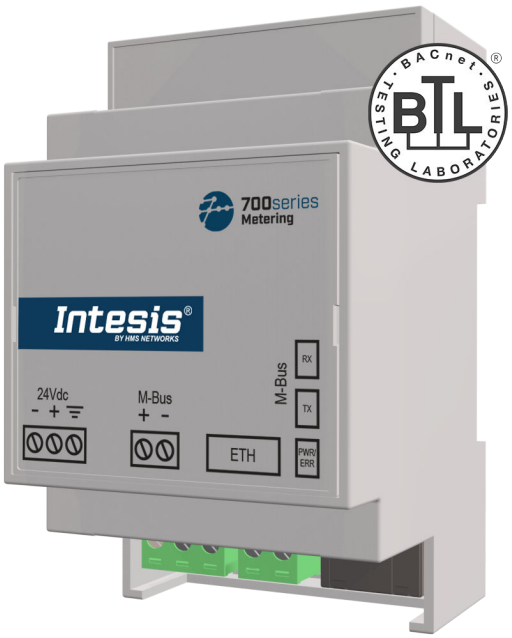

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1. Description and Order Codes

IN712MEB*0000 network gateway**

Integration of M-Bus meters into a BACnet/IP or Modbus TCP control system

ORDER CODE	LEGACY ORDER CODE
IN712MEB0200000	INBACMEB0200100 INMBSMEB0200100
IN712MEB0500000	INBACMEB0500100 INMBSMEB0500100

ORDER CODE	DESCRIPTION	INTESIS MAPS TEMPLATE	APPLICATION
IN712MEB***0000	Intesis network gateway with M-Bus to IP	IN-MBSTCP-MBUS	M-Bus to Modbus TCP server
		IN-BACIP-MBUS	M-Bus to BACnet/IP server

NOTICE

The order code may vary depending on the product seller and the buyer's location.

2. Licensing

Distribution licences for the gateway:

Order Code	Maximum number of M-Bus meters
IN712MEB0200000	20
IN712MEB0500000	50

NOTE
The order code may vary depending on the product seller and the buyer's location.

3. General Information

3.1. Intended Use of the User Manual

This manual contains the main features of this gateway and the instructions for its appropriate installation, configuration, and operation.

Any person who installs, configures, or operates this gateway or any associated equipment should be aware of this manual's contents.

Keep this manual for future reference during the installation, configuration, and operation.

3.2. General Safety Information

IMPORTANT
Follow these instructions carefully. Improper work may seriously harm your health and damage the gateway and/or any other equipment connected to it.

Only technical personnel, following these instructions and the country legislation for installing electrical equipment, can install and manipulate this gateway.

Install this gateway indoors, in a restricted access location, avoiding exposure to direct solar radiation, water, high relative humidity, or dust.

Preferably, mount this gateway on a DIN rail inside a grounded metallic cabinet, following the instructions in this manual.

If mounting on a wall, firmly fix this gateway on a non-vibrating surface, following the instructions in this manual.

Connect this gateway only to networks without routing to the outside plant.

All communication ports are considered for indoor use and must only be connected to SELV circuits.

Disconnect all systems from power before manipulating and connecting them to the gateway.

Use SELV-rated NEC class 2 or limited power source (LPS) power supply.

MANDATORY GROUND CONNECTION

YOU MUST connect the gateway to the installation ground terminal. Always use the gateway's dedicated connector ⏚

NEVER use the positive or negative gateway's connectors to establish this connection. Not following this indication can cause ground loops and damage the gateway and/or any other equipment connected to it.

If the power supply includes a ground connection, that terminal must be connected to ground.

Use a circuit breaker between the gateway and the power supply. Rating: 250 V, 6 A.

Supply the correct voltage to power the gateway. The admitted range is detailed in the technical specifications table.

Respect the expected polarity of power and communication cables when connecting them to the gateway.

3.3. Admonition Messages and Symbols

CAUTION
Instruction that must be followed to avoid a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.

IMPORTANT
Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment or to avoid a network security risk.

NOTE
Additional information which may facilitate installation and/or operation.

TIP
Helpful advice and suggestions.

NOTICE
Remarkable Information.

4. Overview

This Intesis® gateway enables easy integration of M-Bus meters into any of the following IP-based building automation system protocols:

- BACnet/IP
- Modbus TCP

The aim of this integration is to make M-Bus meters accessible from a BACnet/IP or a Modbus TCP control system or device, to get the same behavior as if the M-Bus meters were part of the BACnet/IP or the Modbus TCP installation.

To do this, the Intesis gateway acts as a BACnet/IP or Modbus TCP server device in its IP interface, depending on the current protocol combination, allowing it to read/write points from the BACnet or Modbus client device(s), respectively. From the M-Bus point of view, the gateway acts as an M-Bus level converter and Master device (EN-13757-3). The gateway performs the readings of the M-Bus meters by automatic continuous polling or on demand (to reduce battery consumption).

The gateway configuration is carried out through the Intesis MAPS configuration tool.

Figure 1. Integration of M-Bus meters into BACnet/IP installations

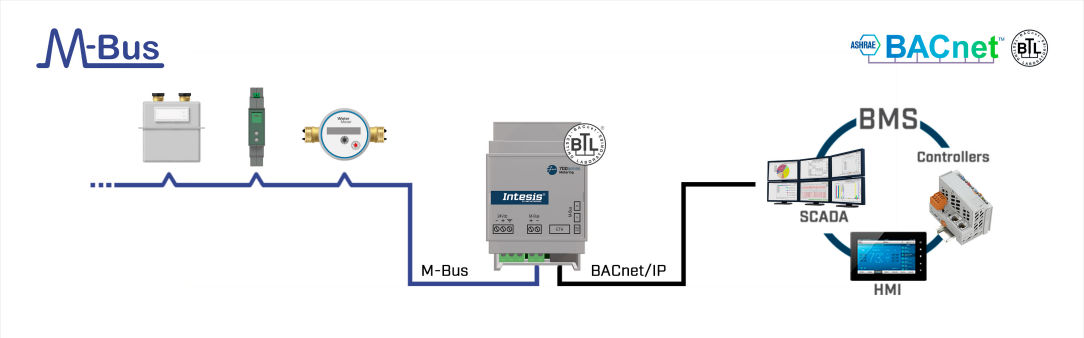
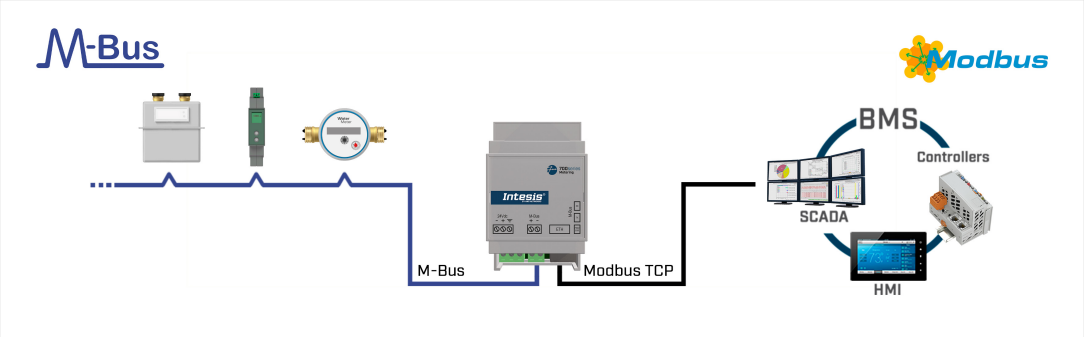


Figure 2. Integration of M-Bus meters into Modbus TCP installations



IMPORTANT
This document assumes that the user is familiar with M-Bus, BACnet/IP, and Modbus TCP technologies and their technical terms.

4.1. Inside the Package

ITEMS INCLUDED

- Intesis IN712MEB∗∗∗0000 network gateway
- Installation guide

4.2. Main Features

- Support for BACnet/IP or Modbus TCP (only one at a time).
- BTL mark ensures full interoperability with BACnet devices.
- Embedded level converter. Direct connection to M-Bus meters with no extra hardware required.
- Scan function: detect M-Bus meters and their available registers automatically.
- Inter-polling interval configurable to up to 48 hours to extend meter battery life.
- Import/Export of M-Bus meter templates. Reduce commissioning time when adding multiple meters of the same type.
- Baud rate configurable within the M-Bus allowed range (300 to 9600 bps. The devices are normally configured at 2400 bps).
- Specific parameters and timeouts are available to maximize compatibility with any possible peculiarity between different meter manufacturers.
- Availability of variables for communication errors, both at meter and general level, helping you to know if the communication with one or more meters has failed.
- DIN rail and wall mounting case.
- Flexible configuration using the Intesis MAPS configuration tool.

4.3. General Functionality

This gateway acts as a server on its IP side and as a master on its M-Bus interface, thus allowing the integration of M-Bus meters into an IP building management system (BMS).

NOTICE
The available IP options are:

- BACnet/IP
- Modbus TCP

The gateway can integrate the M-Bus metering system of any building service, such as water, gas, or electric infrastructure, into a BMS or controller.

The gateway polls the M-Bus metering devices either in a definel interval[1] or when commanded from the BMS[2].

NOTICE
[1] You can define this interval using the Intesis MAPS configuration tool. The interval of time allows up to 48 hours, which is especially appropriate for some battery-powered metering devices. With every poll, the gateway stores the values obtained in its memory and transmits them to the BMS when requested.

[2] The gateway grants full control of the metering system from the BMS, allowing polling of all metering devices or specific metering devices at any time. Furthermore, the interval configured with Intesis MAPS can also be activated and deactivated from the BMS.

Primary or secondary addressing is allowed for M-Bus meters. When a signal status changes, the gateway sends a write telegram to the BMS, waits for the response, and performs the corresponding action.

Other M-Bus information accessible from the BMS side, using specific points of the gateway, is:

- Bus activity: Indicates if meters are currently being polled or polling is on standby.
- M-Bus status of every meter: This is sent by the meter itself with every poll and indicates the internal status, which is always manufacturer-specific.

A lack of response from a signal activates a communication error, allowing you to know which signal from which M-Bus meter is not working correctly. There is also a general communication error available that will be active whenever communication with one or more M-Bus meters fails.

4.4. Gateway Capacity

Element	IN712MEB0200000	IN712MEB0500000
Type of Modbus client devices	Modbus TCP	
Type of BACnet client devices	BACnet/IP	
Number of Modbus client devices	Up to five TCP connections	
Type of M-Bus meters	M-Bus slave meters	
Number of M-Bus meters	20	50
Maximum total of active signals	3000 (including M-Bus registers)	

5. Quick Start Guide

IMPORTANT
While the following procedure outlines the fundamental steps for installing, wiring, and configuring the gateway, it is crucial to thoroughly review all documentation to prevent errors.

1. Install Intesis MAPS on your laptop. Use the setup program supplied and follow the instructions given by the installation wizard.
2. Mount the gateway at the desired installation site. The gateway can be mounted on a DIN rail or a wall. Mounting the gateway on a DIN rail inside a metallic industrial cabinet grounded to earth is recommended. See Mounting (page 9).
3. Disconnect all systems from power before wiring the gateway.
4. Connect the communication cable coming from the Modbus TCP or BACnet/IP BMS to the port marked as **ETH** on the gateway. See Gateway Connectors (page 11).
5. Connect the server network wires to the gateway. See Connection of the Meters (page 14). Connect the communication cables coming from the M-Bus meters network to the port marked as **M-Bus** on the gateway.
6. Power the gateway. The supply voltage is 24 VDC. Observe the polarity. See Connection to the Power Supply (page 14).
7. Connect the gateway to your laptop to configure it with Intesis MAPS. To do so, connect the Ethernet cable from the laptop to the port marked as **ETH** on the gateway. .See Connection to a Computer for Configuration (page 15).

   NOTICE
   Use a switch or a hub to accomodate both Ethernet connections, one from the BMS and other from the laptop.

8. Open Intesis MAPS and create a new project selecting the needed project template. Consult the Intesis MAPS Guide for IN712MEB***0000.
9. Modify the configuration as needed, save it, and send the configuration file to the gateway.
10. Go to the **Diagnostic** tab and check the communication activity between the gateway, the BMS, and the server systems. If there is no communication activity, check that all systems are operative and both the wiring of all devices and the configuration of the gateway are correct.

6. Hardware

6.1. Mounting

IMPORTANT
Before mounting, please ensure that the chosen installation place preserves the gateway from direct solar radiation, water, high relative humidity, or dust.

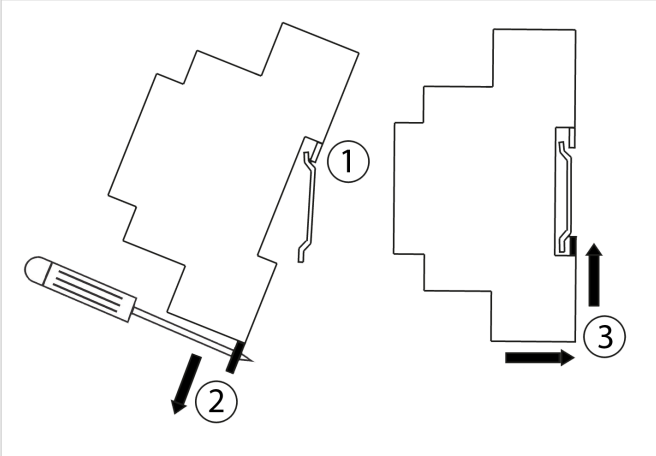
NOTE
Mount the gateway on a wall or over a DIN rail. We recommend the DIN rail mounting option, preferably inside a grounded metallic industrial cabinet.

IMPORTANT
Ensure the gateway has sufficient clearances for all connections when mounted. See Dimensions (page 17).

DIN RAIL MOUNTING

1. Fit the gateway's top-side clip in the upper edge of the DIN rail.
2. Press the low side of the gateway gently to lock it in the DIN rail.
3. Make sure the gateway is firmly fixed.

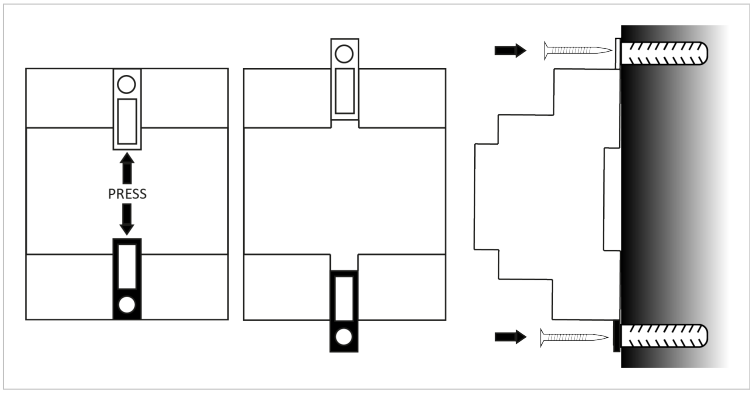
NOTE
For some DIN rails, to complete step 2, you may need a small screwdriver or similar to pull the bottom clip down.



Wall mounting

IMPORTANT
For reasons of security, the maximum height for wall mounting is two meters (6.5 feet).

1. Press the rear panel clips outwards until you hear a *click*.



2. Use the clip holes to screw the gateway to the wall.

NOTE
Use M3 screws, 25mm (1") length.

3. Make sure the gateway is firmly fixed.

6.2. Connection

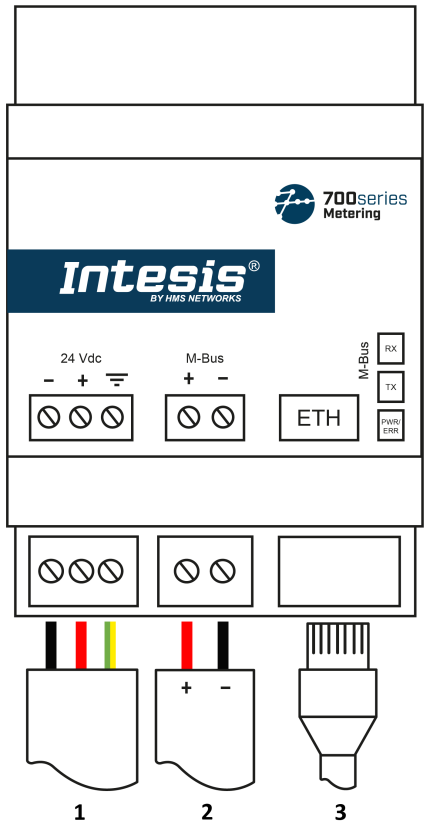
CAUTION
Disconnect all systems from power before manipulating and connecting them to the gateway.

IMPORTANT
Keep communication cables away from power and ground wires.

NOTE
Mount the gateway in the desired place before wiring it.

6.2.1. Gateway Connectors

Figure 3. General view of all gateway connectors



1. **Power Supply** (24Vdc +/-10%, 11W)
2. **M-Bus**
3. **Ethernet** (BACnet/IP or Modbus TCP)

NOTE
You can also use the **Ethernet Port** to connect the gateway to the PC for configuration purposes.

WIRING THE CONNECTORS

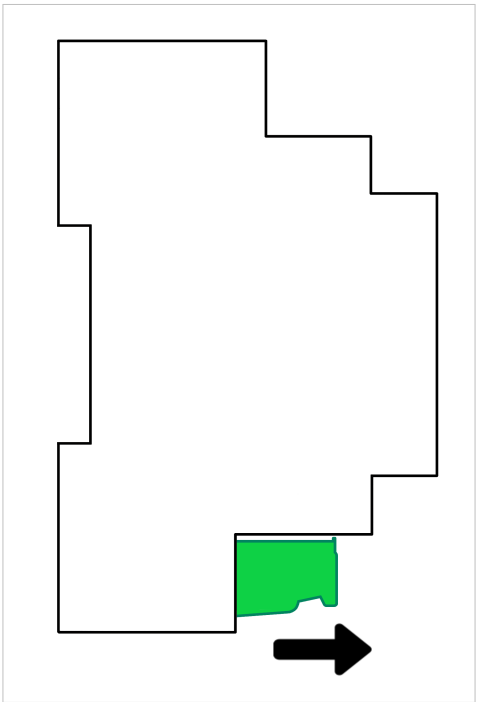
IMPORTANT
For all connectors, use solid or stranded wires (twisted or with ferrule).

Cross-section/gauge per terminal:

- One core: 0.2 .. 2.5 mm^2 / 24 .. 11 AWG
- Two cores: 0.2 .. 1.5 mm^2 / 24 .. 15 AWG
- Three cores: Not permitted

NOTE
To know more about each port's specifications, see Technical Specifications (page 17).

TIP
Terminal block connectors can be unplugged to facilitate the wiring process.



COMMUNICATION PORTS

PORT	USAGE	WIRING	
M-Bus	M-Bus	+	-
Ethernet	**As an IP/TCP port:** Modbus TCP and BACnet/IP **As a console port:** Connection to a PC for configuration purposes	Ethernet cable (CAT5 or higher) When using the building LAN, contact the network administrator and make sure traffic is allowed. When starting up the gateway for the first time, DHCP will be enabled for 30 seconds. After that time, the default IP 192.168.100.246 will be set.	

POWER SUPPPLY CONNECTOR

The power supply connector is a green pluggable terminal block (three poles) labeled as **24Vdc**.

IMPORTANT
Consult all the power supply specifications in Connection to the Power Supply (page 14)

6.2.2. Connection of the BMS Communication Bus

6.2.2.1. Connection to Modbus TCP

Connect the Modbus TCP Ethernet cable to the gateway's **Ethernet Port**. The correct cable to use depends on where the gateway is connected:

- **Connecting directly to a Modbus TCP device:** use a crossover Ethernet UTP/FTP CAT5 or higher cable.
- **Connecting to a hub or switch of the LAN of the building:** use a straight Ethernet UTP/FTP CAT5 or higher cable.

NOTE
When commissioning the gateway for the first time, DHCP will be enabled for 30 seconds. During that time, if there is a DHCP server, an IP address will be automatically assigned to the gateway. After that time, the default IP address 192.168.100.246 will be automatically set.

IMPORTANT
If communicating through the LAN of the building, contact the network administrator and make sure traffic on the used port is allowed through all LAN paths.

NOTE
See the General view of all gateway connectors (page 11).

6.2.2.2. Connection to BACnet/IP

Connect the BACnet/IP Ethernet cable to the gateway's **Ethernet Port**. The correct cable to use depends on where the gateway is connected:

- **Connecting directly to a BACnet/IP device:** use a crossover Ethernet UTP/FTP CAT5 or higher cable.
- **Connecting to a hub or switch of the LAN of the building:** use a straight Ethernet UTP/FTP CAT5 or higher cable.

NOTE
When commissioning the gateway for the first time, DHCP will be enabled for 30 seconds. During that time, if there is a DHCP server, an IP address will be automatically assigned to the gateway. After that time, the default IP address 192.168.100.246 will be automatically set.

IMPORTANT
If communicating through the LAN of the building, contact the network administrator and make sure traffic on the used port is allowed through all LAN paths.

NOTE
See the General view of all gateway connectors (page 11).

6.2.3. Connection of the Meters

6.2.3.1. M-Bus Meters

Connect the M-Bus bus to the gateway's **M-Bus** port.

The connector for the M-Bus bus is a green pluggable terminal block labeled **+** and **-**.

IMPORTANT
Observe polarity.

NOTE
See the General view of all gateway connectors (page 11).

6.2.4. Connection to the Power Supply

The power supply connector is a green pluggable terminal block (three poles) labeled as **24Vdc**.

Apply the voltage within the admitted range and of enough power: 24 VDC (±10%), 11 W

IMPORTANT
Use a SELV-rated NEC class 2 or limited power source (LPS) power supply.

IMPORTANT
Use a circuit breaker between the gateway and the power supply. Rating: 250 V, 6 A.

IMPORTANT
Respect the polarity labeled on the power connector for the positive and negative wires.

MANDATORY GROUND CONNECTION

YOU MUST connect the gateway to the installation ground terminal. Always use the gateway's dedicated connector ⏚

NEVER use the positive or negative gateway's connectors to establish this connection. Not following this indication can cause ground loops and damage the gateway and/or any other equipment connected to it.

If the power supply includes a ground connection, that terminal must be connected to ground.

NOTE
See the General view of all gateway connectors (page 11).

6.2.5. Connection to a Computer for Configuration

Use an Ethernet cable (not supplied) to connect the gateway through its **ETH** port to a computer to configure it with Intesis MAPS.

NOTE
To know more about the gateway configuration, consult the Intesis MAPS guide for IN712MEB***0000.

NOTE
See the General view of all gateway connectors (page 11).

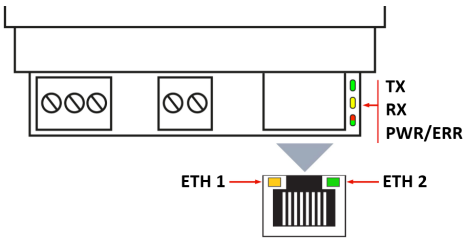
6.3. LED Indicators

The gateway's LEDs are placed next to the Ethernet port:

- RX (green)
- TX (yellow)
- PWR/ERR (red/green)

Besides, the Ethernet connector has its own LEDs:

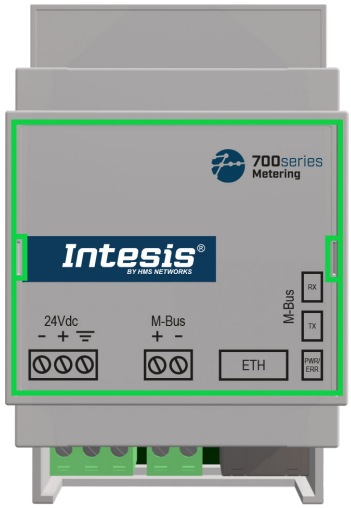
- ETH 1 (orange)
- ETH 2 (green)



LED	Color	Description
RX	Green	**Off**: No M-Bus packet reception **Blinking**: Every blink is a packet received over M-Bus
TX	Yellow	**Off**: No M-Bus packet transmission **Blinking**: Every blink is a packet transmitted over M-Bus
PWR/ERR	Green/red	**Off**: No power **Green**: Power ON **Red**: Error
ETH 1 (RJ45) Speed	Orange	**ON**: Connection to a switch, a hub, or a PC at 100 Mbps link speed. **OFF**: Connection not established, or established at a lower link speed.
ETH 2 (RJ45) Link/activity	Green	**ON**: Ethernet connection established **Blinking**: Ethernet activity

6.4. Push Button

The gateway has a push button located inside the housing, on the PCB board. To gain access to the push button, the front cover must be removed.



NOTICE
Use a thin flathead screwdriver to remove the cover by inserting it into one of the two vertical slots located on the vertical edges of the cover.

The push button is located at the center right of the circuit board. This is what it looks like:

It offers two different functionalities:

- **RESET FACTORY SETTINGS**
  1. Remove power from the gateway.
  2. Press and hold the button.
  3. Apply power back to the gateway.
  4. Wait ten seconds.
  5. Release the button. The LED feedback will turn red after the reset has started and then start blinking green after a while once the gateway is back up and running.
  6. The gateway should be back to its factory default mode.
- When the current project is BACnet (IN-BACIP-MBUS), a brief button press sends an I-Am message.

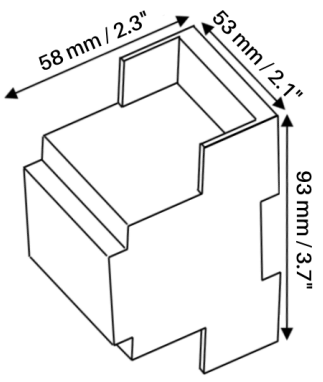
6.5. Technical Specifications

Housing	Plastic, type PC (UL 94 V-0) Color: Light Grey. RAL 7035 Net dimensions (HxWxD): 93 x 53 x 58 mm / 3.6 x 2.1 x 2.3"
Weight	101 g (3.6 oz)
Terminal wiring **For power supply and low-voltage signals**	Per terminal: solid wires or stranded wires (twisted or with ferrule) Wire cross-section/gauge: One core: 0.2 mm^2 .. 2.5 mm^2 (24 .. 11 AWG) Two cores: 0.2 mm^2 .. 1.5 mm^2 (24 .. 15 AWG) Three cores: Not permitted For distances longer than 3.05 meters (10 feet), use Class 2 cables.
Power supply	1 x Green pluggable terminal block (3 poles) 24 VDC +/- 10%, 11W Use SELV-rated NEC class 2 or limited power source (LPS) power supply
Mounting	Wall DIN rail (recommended mounting) EN60715 TH35
Ethernet port	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity
M-Bus Port	1 x M-Bus port: pluggable terminal block (two poles) M-Bus properties: • Up to 50 M-Bus loads (75 mA) • Collision detection at 25 mA and 50 mA Voltage rating: 36 VDC
Push button	1 x Push button • Factory reset • I-Am message (for BACnet only)
LED indicators	1 x Power / Error 1 x M-Bus Tx 1 x M-Bus Rx
Operational temperature	Celsius: -10 to 60°C Fahrenheit: 14 to 140°F
Storage temperature	Celsius: -30 to +60°C Fahrenheit: -22 to +140°F
Operational and storage humidity	5 to 95%, non-condensing
Isolation voltage between communication ports	1000 VDC
Protection	IP20 (IEC60529)

6.6. Dimensions

- **Net dimensions (HxWxD)**
  Millimeters: 93 x 53 x 58 mm
  Inches: 3.6 x 2.1 x 2.3"

IMPORTANT
Ensure the gateway has sufficient clearance for all connections when mounted.



7. Available Protocol Combinations

For the BMS/control side, you can configure this gateway for Modbus TCP or BACnet MS/TP.

The following sections list all the Modbus registers and BACnet objects supported by the gateway.

7.1. Integration into Modbus Systems

7.1.1. Modbus Registers

Table 1. Global signals

Register	Address	Format	# bits	Possible values	Read/Write
General Comm. Error	0	-	1	0: No device has comm. error 1: At least one device has comm. error	0: Read
Force Bus Reading	1	-	1	0: No general polling pending to start 1: Polling of all meters pending to start	1: Trigger[1]
Activate Continuous Polling	2	-	1	0: No polling unless it has been triggered by user 1: Polling for all devices is periodic	2: Read/Write
Bus Activity	3	0: Unsigned	16	0: No Tx or Rx is pending with any meter 1: Polling in process	0: Read
Gateway timestamp	4	0: Unsigned	**64**/32*	Gateway date time in epoch time format	0: Read

NOTE
[1] Trigger: Read/Write register that can be written, but its value will return to the default status after being transmitted.

NOTE
* Signals with two listed data lengths (**# bits**) can be configured with Intesis MAPS to use any of them. The bolded type is the default value.

Table 2. Default signals per meter

Register (x = 0 .. 19 / 49)	Format	# bits	Possible values	Read/Write
Comm. Error Device x (Applies to meter with "Meter Index")	-	1	0: Comm. error (No response after polling) 1: No comm. error	0: Read
Force reading Device x (Polling request by user for meter with "Meter Index")	-	1	0: No polling trigger pending 1: Pending to start polling	2: Read/Write
Timestamp Device X	0: Unsigned	**64**/32*	Time since the last reading of the meter in epoch time format	0: Read
Serial number Device x	0: Unsigned	**64**/32*	Device's serial number	0: Read
Status M-Bus Device x[2]	0: Unsigned	16	See **Status M-Bus Device x Bitfields** table below	0: Read

NOTE
[2]When configuring the gateway with Intesis MAPS, you can decide how to check the status of the M-Bus meter, either through this unique signal that groups five different statuses or through the five different signals listed next, each dedicated to one error or status signal:

Register (x = 0 .. 19 / 49)	Format	# bits	Possible values	Read/Write
Application error Device x	0: Unsigned	16	0: No error 1: Application busy 2: Any application error 3: Abnormal condition/alarm	0: Read
Power low Device x	-	16	0: Device x power is OK 1: Device x power is low	0: Read
Permanent error Device x	-	16	0: No permanent error in device x 1: Permanent error in device x	0: Read
Temporary error Device x	-	16	0: No temporary error in device x 1: Device x has recovered from a temporary error	0: Read
Manufacturer error Device x	0: Unsigned	16	Manufacturer-specific error[3]	0: Read

NOTICE
[3] For more information about manufacturer-specific errors, consult the manufacturer's documentation.

NOTE
* Signals with two listed data lengths (**# bits**) can be configured with Intesis MAPS to use any of them. The bolded type is the default value.

Table 3. Status M-Bus Device x Bitfields

Bit	Bit value	Meaning
0, 1: Application Error	00	No error
	01	Application busy
	10	Any application error
	11	Abnormal condition/Alarm
2: Power Low	0	OK power
	1	Low power
3: Permanent Error	0	No permanent error
	1	Permanent error
4: Temporary Error	0	No temporary error
	1	Temporary error
5 .. 7: Manufacturer Specific Error	000 .. 111	Manufacturer Specific Error
8 .. 15: Not used	-	-

NOTICE
Individual signals per meter are added via the Intesis MAPS configuration tool. Refer to the MAPS Configuration Guide for more information.

7.2. Integration into BACnet Systems

NOTICE
You can consult the Protocol Implementation Conformance Statement (PICS) document here.

7.2.1. BACnet Objects

Table 4. Global signals

Object	Instance	Type	Possible values	Read/Write
General Comm. Error	0	Binary Input	0: No device has comm. error 1: At least one device has comm. error	R
Force Bus Reading	0	**Binary Value*** Analog Output Analog Value Binary Output Multi-state Output Multi-state Value	0: No general polling pending to start 1: Polling of all meters pending to start	R/W
Activate Continuous Polling	1	**Binary Value*** Analog Output Analog Value Binary Output Multi-state Output Multi-state Value	0: No polling unless it has been triggered by user 1: Polling for all devices is periodic	R/W
Bus Activity	1	Binary Input	0: No Tx or Rx is pending with any meter 1: Polling in process	R
Gateway timestamp	0	**Large Analog Value (Read only)*** / Analog Input	Gateway date time in epoch time format	R

NOTE
* Signals with multiple listed types can be configured with Intesis MAPS to use any of those types. The bolded type is the default value.

Table 5. Default signals per meter

Object (x = 0 .. 19 / 49)	Instance	Type	Possible values	Read/Write
Comm. Error Device x (Applies to meter with “Meter Index”)	2	Binary Input	0: Comm. error (No response after polling) 1: No comm. error	R
Force reading Device x (Polling request by user for meter with “Meter Index”)	2	Binary Value	0: No polling trigger pending 1: Pending to start polling	R/W
Timestamp Device X	1	**Large Analog Value (Read only)*** / Analog Input	Time since the last reading of the meter in epoch time format	R
Serial number Device x	2	**Large Analog Value (Read only)*** / Analog Input	Device's serial number	R
Status M-Bus Device x[1]	-	Analog Input	See **Status M-Bus Device x Bitfields** table below	R

NOTE
[1] When configuring the gateway with Intesis MAPS, you can decide how to check the status of the M-Bus meter, either through this unique signal that groups five different statuses or through the five different signals listed next, each dedicated to one status:

Object (x = 0 .. 19 / 49)	Instance	Type	Possible values	Read/Write
Application error Device x	0	Analog Input	0: No error 1: Application busy 2: Any application error 3: Abnormal condition/alarm	R
Power low Device x	3	Binary Input	0: Device x power is OK 1: Device x power is low	R
Permanent error Device x	4	Binary Input	0: No permanent error in device x 1: Permanent error in device x	R
Temporary error Device x	5	Binary Input	0: No temporary error in device x 1: Device x has recovered from a temporary error	R
Manufacturer error Device x	0	Analog Input	Manufacturer-specific error	R

NOTE

* Signals with multiple listed types can be configured with Intesis MAPS to use any of those types. The bolded type is the default value.

Table 6. Status M-Bus Device x Bitfields

Bit	Bit value	Meaning
0, 1: Application Error	00	No error
	01	Application busy
	10	Any application error
	11	Abnormal condition/Alarm
2: Power Low	0	OK power
	1	Low power
3: Permanent Error	0	No permanent error
	1	Permanent error
4: Temporary Error	0	No temporary error
	1	Temporary error
5 .. 7: Manufacturer Specific Error	000 .. 111	Manufacturer Specific Error
8 .. 15: Not used	-	-

NOTICE

Individual signals per meter are added via the Intesis MAPS configuration tool. Refer to the MAPS Configuration Guide for more information.

8. Late Configuration: Change the Gateway's Protocol

Reconfiguring the gateway with a different protocol is very easy:

1. Connect the gateway to the computer and open the configuration tool Intesis MAPS.
2. Select the new template you need.
3. Click **Next** or double-click the template in the list.
4. A message will pop up, asking if you want to save the project currently loaded in the gateway.
5. Click **Yes** or **No**, depending on your needs.
6. Configure the needed parameters and signals for your new project.
7. Send the configuration to the gateway.

NOTE
To know more about the gateway configuration, consult the Intesis MAPS guide for IN712MEB∗∗∗0000.