

Installation Guide for the IN485MIT001A000 Gateway

Version 1.0.0

Integration of Mitsubishi Electric air-to-water units into BACnet MS/TP or Modbus RTU control systems

Owner's record

Find the serial number on the silver label on the right side of the gateway. For sales or technical assistance, we recommend writing it in the space below:

SN:

Quick Start

- Read the safety information.
- Configure the gateway with the DIP switches.
- Mount the gateway.
- Wire the gateway.
- Check the gateway's status through its LED indicators.

Safety Information



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 electric 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.

All wires for communication and power supply (if needed) must only be connected to networks without routing to the outside plant. All communication ports are considered for indoor use and must only be connected to SELV circuits.

Mount the gateway, preferably, on a DIN rail inside a grounded metal cabinet following the instructions below.

Disconnect power wires before manipulating and connecting them to the gateway.
Respect the expected polarity of power (if needed) and communication cables when connecting them to the gateway.

Safety instructions in other languages can be found [here](#).

DIP Switches

The gateway includes three DIP switches: SW1 (8 switches) at the bottom and SW2 (8 switches) and SW3 (3 switches) at the top.

Table 1. **SW1** (P1, P4): Not used; (P5): Control system selection; (P6 to P8): BACnet MS/TP or Modbus RTU baudrate

Position								Description	
1	2	3	4	5	6	7	8	BACnet	Modbus
X	X	X	X	OFF	X	X	X	BACnet MS/TP enabled (default)	
X	X	X	X	ON	X	X	X	Modbus RTU enabled	
X	X	X	X	X	OFF	OFF	OFF	Autobaudrate (default)	2400 bps (default)
X	X	X	X	X	ON	OFF	OFF	9600 bps	4800 bps
X	X	X	X	X	OFF	ON	OFF	19200 bps	9600 bps
X	X	X	X	X	ON	ON	OFF	38400 bps	19200 bps
X	X	X	X	X	OFF	OFF	ON	57600 bps	38400 bps
X	X	X	X	X	ON	OFF	ON	76800 bps	57600 bps
X	X	X	X	X	OFF	ON	ON	115200 bps	76800 bps
X	X	X	X	X	ON	ON	ON	Autobaudrate	115200 bps

Table 2. **SW2 (BACnet MS/TP)** (P1 to P7): BACnet MS/TP MAC address; (P8): Temperature unit (°C/°F)

Position								BACnet address	Description
1	2	3	4	5	6	7	8		
OFF	OFF	OFF	OFF	OFF	OFF	OFF	X	0	-
ON	OFF	OFF	OFF	OFF	OFF	OFF	X	1	-
OFF	ON	OFF	OFF	OFF	OFF	OFF	X	2	-
ON	ON	OFF	OFF	OFF	OFF	OFF	X	3	-
...								...	-
ON	OFF	ON	ON	ON	ON	ON	X	125	-
OFF	ON	ON	ON	ON	ON	ON	X	126	-
ON	ON	ON	ON	ON	ON	ON	X	127	-
X	X	X	X	X	X	X	OFF	-	Temp. in °C (default)
X	X	X	X	X	X	X	ON	-	Temp. in °F

Table 3. **SW2 (Modbus RTU)** (P1 to P6): Modbus server address; (P7): Degree decimals setting; (P8): Temperature unit (°C/°F)

Position								Modbus address	Description
1	2	3	4	5	6	7	8		
ON	OFF	OFF	OFF	OFF	OFF	X	X	1	-
OFF	ON	OFF	OFF	OFF	OFF	X	X	2	-
ON	ON	OFF	OFF	OFF	OFF	X	X	3	-
...								...	-
ON	OFF	ON	ON	ON	ON	X	X	61	-
OFF	ON	ON	ON	ON	ON	X	X	62	-
ON	ON	ON	ON	ON	ON	X	X	63	-
X	X	X	X	X	X	OFF	X	-	Temp. in degrees x1 (default)
X	X	X	X	X	X	ON	X	-	Temp. in degrees x10. Example: 19.2°=192
X	X	X	X	X	X	X	OFF	-	Temp. in °C (default)
X	X	X	X	X	X	X	ON	-	Temp. in °F

Table 4. **SW3** (P1 to P3): BACnet/Modbus polarization and termination resistor

Position			Description
1	2	3	
OFF	X	X	EIA-485 bus without termination resistor. The gateway is not at one end of the EIA-485 bus (default value)
ON	X	X	120 Ω termination resistor active. The gateway is at one end of the EIA-485 bus
X	OFF	OFF	No bus polarization (default value)
X	ON	ON	Bus polarization active



Observe the **ON** indicator on each DIP switch as a reference.
The DIP switches configuration will only take effect after repowering the gateway.

Mounting

Mount the gateway over a DIN rail or over a wall.



Leave enough clear space to wire the gateway easily and for the subsequent manipulation of elements such as connectors, DIP switches, etc.

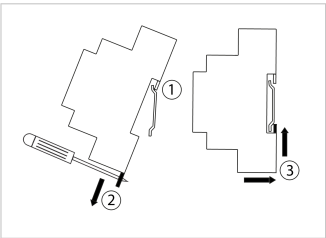


Do not mount the gateway in air-handling units or conducts.



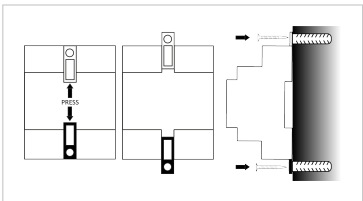
DIN rail mounting inside a grounded metallic cabinet is recommended.

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





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



- Wall mounting
- Press the rear panel clips outwards until you hear a *click*.
 - Use the clip holes to screw the gateway to the wall.
 - Make sure the gateway is firmly fixed.

Wiring

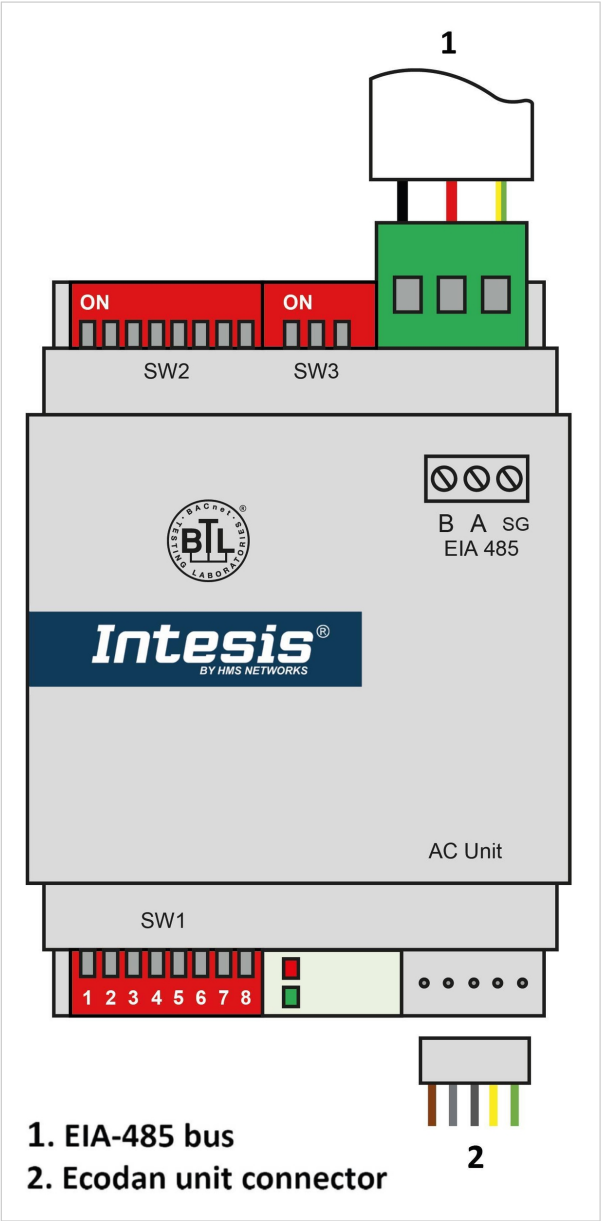


Figure 1. Wiring diagram (wire colors are indicative only)

- ⚠ Disconnect all systems from power before wiring the gateway.
1. Use the supplied cable to connect the Ecodan unit and the gateway:

⚠ This cable is 1.5 m (4.9 feet) long. Its modification in length may affect the correct operation of the gateway.

a. **Connection to the Ecodan unit:** Plug the largest unsheathed cable part connector into the socket CN105 of the Ecodan unit control board.

b. **Connection to the gateway:** Plug the other end connector, the one on the shortest unsheathed part of the cable, into the socket labeled as **AC Unit**.

2. Connect the BACnet MS/TP or Modbus RTU bus to the EIA-485 port of the gateway.

⚠ Observe polarity: B -, A +, and SG for ground connection.

ⓘ **Standard EIA-485 bus requirements:** Maximum distance of 1200 meters (4000 ft); up to 32 devices connected; a 120 Ω resistor at each end of the bus is needed. (Configure the bus biasing and termination resistor for the gateway's EIA-485 port using the DIP switch **SW1**).

3. Reconnect all systems to power.

⚠ Keep communication cables away from power and ground wires.
- LEDs Information
- Two LEDs are placed between the DIP switch **SW1** and the **AC Unit** socket at the gateway's bottom.
- | LED | Status | Description |
|--|------------|--|
| When the gateway is set for BACnet MS/TP | | |
| L1
Green | ON | EIA-485 bus link performed |
| | Flickering | Activity on the EIA-485 bus |
| | OFF | EIA-485 bus link not performed |
| L2
Red | ON | Ecodan-gateway communication error |
| | Blinking | Ecodan unit error |
| | Flashing | Ecodan-gateway communication OK |
| When the gateway is set for Modbus RTU | | |
| L1
Green | Blinking | Communication error
Ecodan unit error |
| | Flashing | Normal operation |
| L1 Green + L2 Red | Pulse | Gateway startup |
| LED PATTERNS: | | |
| Flickering: 90 % on / 10 % off | | |
| Blinking: 50 % on / 50 % off | | |
| Flashing: 10 % on / 90 % off | | |
| Pulse: 5 sec on / then off | | |
- Technical Specifications
- | | |
|----------------------------------|--|
| Housing | Plastic, type PC (UL 94 V-0) |
| | Net dimensions (HxWxD): 93 x 53 x 58 mm / 3.7 x 2.1 x 2.3"
Color: Light grey. RAL 7035 |
| Net weight | 85 g (3 oz) |
| Terminal wiring | Wire cross-section/gauge per terminal:
One core: 0.2 .. 2.5 mm ² (24 .. 11 AWG)
Two cores: 0.2 .. 1.5mm ² (24 .. 15 AWG)
Three cores: Not permitted |
| | Use solid or stranded wires (twisted or with ferrule). |
| Mounting | DIN rail or wall |
| EIA-485 port | 1 x pluggable terminal block (3 poles: B, A, and SG) |
| AC unit port | 1 x Specific socket |
| LED indicators | 2 x Communication status |
| DIP switches | SW1: Gateway and baudrate configuration |
| | SW2: BACnet/Modbus address and temperature unit |
| | SW3: Bus polarization and termination |
| Operational temperature | 0 to +70°C / 32 to 158°F |
| Storage temperature | -20 to 85°C / -4 to 185°F |
| Operational and storage humidity | 5% to 95% RH non-condensing |
| Isolation between comm. ports | 1000 VDC |
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- Disposal and Recycling
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- This product contains electronic components and must be properly disposed of according to local laws and regulations. For further information, refer to: <https://www.hms-networks.com/sustainability>
- For further information on the installation, connection, and configuration of this gateway, refer to the [User Manual](#).
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