ENGLISH

INKNXMIT001A200 User Manual

Mitsubishi Electric Ecodan Air-to-Water Units to KNX TP (Application's Program Version 1.0)

USER MANUAL
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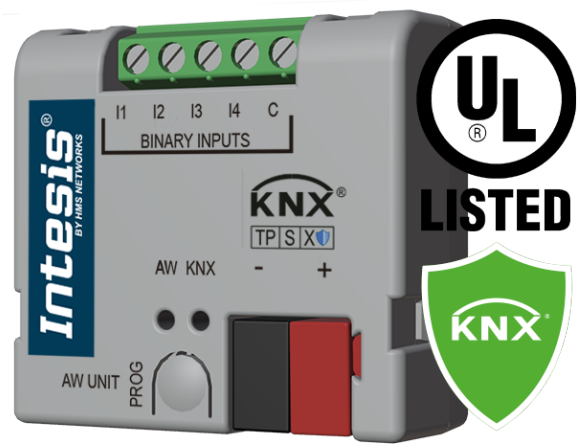

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1. Description and Order Codes

KNX TP Secure gateway for Mitsubishi Electric Ecodan air-to-water units.

Compatible with Ecodan air-to-water units commercialized by Mitsubishi Electric.

Use the compatibility tool to get a complete list of compatible units: https://compatibility.intesis.com/

ORDER CODE	LEGACY ORDER CODE
INKNXMIT001A200	-

2. General Information

2.1. Intended Use of the User Manual

This manual contains the main features of this Intesis 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.

2.2. 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.

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

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

Take the necessary antistatic precautions before manipulating the gateway to avoid electrostatic discharges.

Binary inputs are potential-free contacts. Do not connect any voltage.

Safety instructions in other languages can be found here.

2.3. 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.

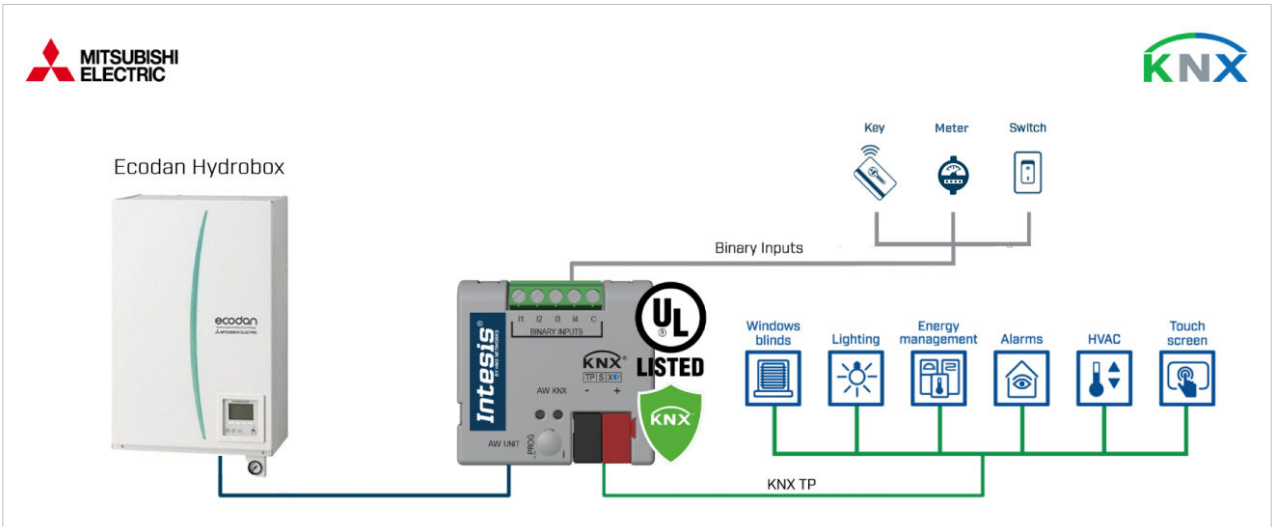
NOTE
Additional information which may facilitate installation and/or operation.

TIP
Helpful advice and suggestions.

NOTICE
Remarkable Information.

3. Overview

Figure 1. Integration of Mitsubishi Electric Ecodan units into KNX TP control systems using the intesis INKNXMIT001A200 gateway.



NOTE
This document assumes the user is familiar with KNX TP and Mitsubishi Electric heat pump technologies, including their associated technical terminology.

3.1. Inside the Package

ITEMS INCLUDED

- Intesis INKNXMIT001A200 gateway
- Cable to connect the gateway and the Ecodan unit
- Installation Guide

3.2. Main Features

- This is a KNX Data Secure gateway.
- Configuration using ETS, the KNX standard configuration tool.
- Compatible with all KNX thermostats on the market.
- Reduced dimensions: 17.6 x 40.7 x 38.35 mm / 0.69 x 1.6 x 1.51 "
- Four binary inputs to integrate external devices (S0 energy meters supported).
- No power supply is needed. The gateway is powered by the KNX bus.
- Simultaneous control of the Ecodan unit via both the remote controller and KNX.
- Up to 10 scenes can be saved and executed from KNX.

- Compatibility with the principal Ecodan system features, including simultaneous control of domestic hot water (DHW) and two climate zones.
- ≈300 communication objects to ensure monitoring and control over the main functions of the Ecodan unit: error monitoring, leak detection, running hours counter, temperature limits for DHW and climate, monitoring of compressor and circulation pump operation, and many more.
- Significant reduction of the HVAC system energy consumption.

4. Quickstart Guide

1. Place the gateway in the appropriate location.
2. Connect the gateway to the Ecodan unit using the supplied cable.
3. Connect the gateway to the KNX TP bus via its KNX port.
4. Download the ETS database for this product.
5. Import the database and add it to the current ETS project.
6. Link the KNX communication objects of the gateway with the communication objects of the KNX system by matching their group addresses.
7. Download the application program.
8. When the project is already configured, send it from the ETS software to the gateway using the standard procedure.

IMPORTANT
When configuring the gateway for the first time, use the **Full download** option.

5. Hardware

5.1. Mounting

General indications

IMPORTANT

- Do not mount the gateway in air-handling units or conducts.
- Keep communication wires away from power and ground wires.

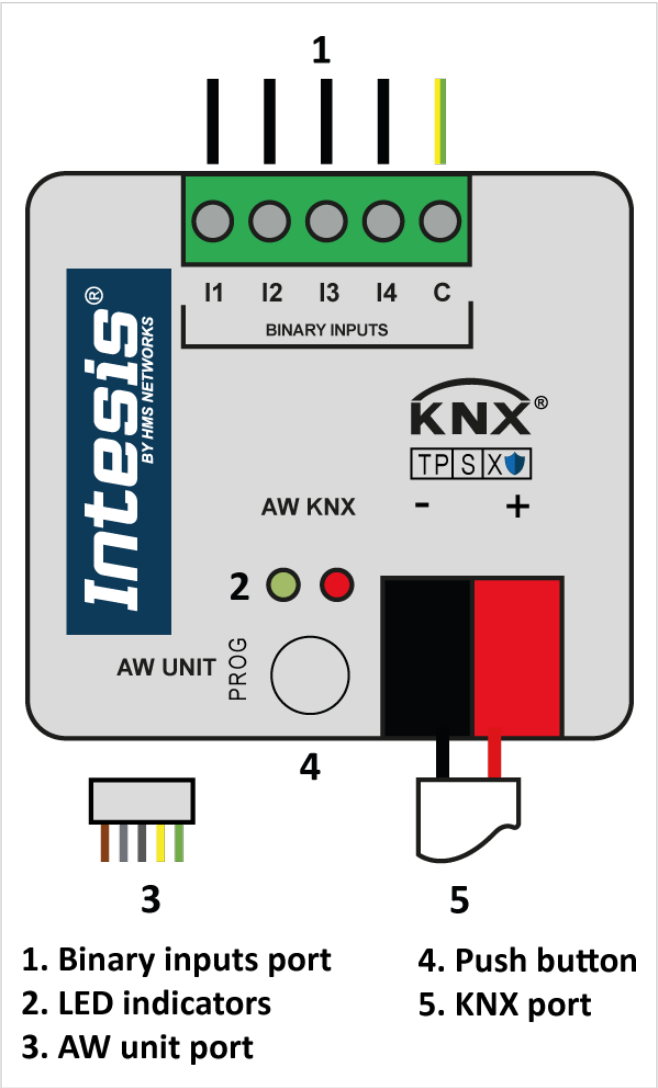
If mounting the gateway inside the indoor unit

IMPORTANT

- Ensure the gateway does not block any mobile parts of the unit.
- Leave the gateway on top of a secure, plain surface.

TIP
Use double-sided tape to ensure a secure fixing if needed.

5.2. Connections



5.2.1. Connection to the Ecodan Unit

IMPORTANT
Disconnect the Mitsubishi Electric Ecodan unit from power before connecting it to the gateway.

Use the supplied cable to connect the Ecodan unit and the gateway.

IMPORTANT
This cable is 1.5 m (5.77 feet) long. Its modification in length may affect the correct operation of the gateway.

1. Plug the largest unsheathed cable part connector into the socket CN105 of the Ecodan unit control board.
2. Plug the other end connector, the one on the shortest unsheathed part of the cable, into the gateway's socket labeled as AW Unit.

5.2.2. Connection to the KNX Bus

IMPORTANT
Disconnect the KNX bus from power before proceeding.

Connect the KNX bus to the gateway through its standard KNX terminal block.

IMPORTANT
Observe polarity.

NOTICE
Power is supplied to the gateway through the KNX bus.

- Voltage rating: 29 VDC
- Power consumption: 17 mA

5.2.3. Potential-Free Binary Inputs Connection

The gateway features a five-pole connector labeled **BINARY INPUTS** on top of the housing, used to connect third-party devices such as digital locks, meters, and switches.

IMPORTANT
Binary inputs are potential-free contacts. Do not connect any voltage.

NOTICE
This connection is compatible with the S0 pulse counter type.

Use terminals **I1**, **I2**, **I3**, and **I4** to connect up to four devices. Use the **C** terminal for the common connection (ground).

5.3. Push Button

Find the push button below the LED indicators. Use this button to:

- Enable/disable the gateway's KNX programming mode.
- Reset the gateway to the factory settings:

  1. Disconnect the gateway from power.
  2. Press and hold the button.
  3. Connect the gateway to power again.
  4. After five seconds, release the button.

     NOTE
     The red LED flashes five times, indicating that the procedure has been completed.

5.4. LED Indicators

Two LEDs are placed above the push button.

LED	Pattern	Description
RED KNX programming mode	Off	Programming mode disabled
	Steady on	Programming mode enabled
	Blinking[1]	Individual address check
YELLOW Gateway power AW bus activity	Off	No power
	Flashing[2]	Communication OK
	Blinking[1]	AW error
	Steady on	Communication error
[1] ***Blinking:*** *50 % on / 50 % off* [2] ***Flashing:*** *10 % on / 90 % off*		

5.5. Technical Specifications

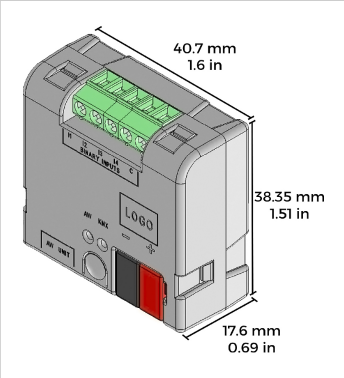
Housing	Material: Plastic, type PC/ABS UL94-V0 Color: Light grey. RAL 7035 Net dimensions (HxWxD): 38.35 x 40.7 x 17.6 mm / 1.51 x 1.6 x 0.69" Protection: IP20
Weight	23 g / 0.8 oz
Mounting	Inside the AW unit
Wiring	Cross-section/gauge per terminal: • One core: 0.2 .. 2.5 mm2 (24 .. 11 AWG) • Two cores: 0.2 .. 1.5 mm2 (24 .. 15 AWG) • Three cores: Not permitted Use solid wires or stranded wires (twisted or with ferrule)
AW port	1 x Specific socket
Binary inputs port	1 x Terminal block (five poles) I1, I2, I3, I4, and C (common)
KNX port	1 x KNX TP-1 standard terminal block (2 poles) • KNX power consumption: 7 ma • Voltage rating: 29 VDC • 4000 V isolation from other ports
Buttons	1 x Push button
LED indicators	1 x RED for KNX programming mode 1 x YELLOW for gateway power and AW bus communication status
Operating conditions	Temperature: 0 .. 60°C / 32 .. 140°F Humidity: 5 .. 95% RH, non-condensing

5.6. Dimensions

NET DIMENSIONS (HxWxD):

Millimeters: 38.35 x 40.7 x 17.6 mm

Inches: 1.51 x 1.6 x 0.69"



IMPORTANT
Leave enough clear space to wire the gateway easily and for the subsequent manipulation of elements.

6. Configuration

6.1. Before Starting

IMPORTANT
Power the gateway by connecting it to the KNX bus before starting the configuration process. See Connection to the KNX Bus (page 9).

6.2. Prerequisites

For this integration, you will need:

- The items supplied by HMS Networks:
  - Intesis INKNXMIT001A200 gateway.
  - This User Manual.
  - ETS database for this gateway.

NOTICE
Find it on the HMS website's product page under **Support and downloads → Configuration files**, or click here to download it.

- An ETS license (version 5.7.7 onwards).
- A Windows® PC to run the ETS configuration tool.

6.3. Downloading the Configuration to the Gateway

IMPORTANT
Depending on the data you have to send, remember to push the gateway's button to activate the programming mode. See Push Button (page 9).

When the configuration is finished, use the standard procedure to download the configuration into the Intesis gateway through the **Download** variants offered by ETS:

Download variant	Shortcut	Comment
Download all	Ctrl + Shift + L	All project data in ETS is downloaded into the gateway: the individual address, application program, parameters, and group addresses and associations.
Partial download	Ctrl + D	Only the parts that have changed in ETS and have not been downloaded before are downloaded.
Download Individual Address	Ctrl + Shift + I	It assigns the individual address to the gateway.
Overwrite Individual Address	Ctrl + Shift + Alt + I	It assigns the individual address to the gateway by overwriting a known address.
Download Application	Ctrl + Shift + Alt + D	It downloads the application program into the gateway.

6.4. ETS Parameters

NOTE
The following sections list all the available ETS parameters for this gateway.

6.4.1. GENERAL

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: General (page 33).

- **Intesis Interface Order Code**: This parameter shows the gateway's order code: INKNXMIT001A200.
- **Unit Type**: Air To Water.

  IMPORTANT
  Some menus, parameters, and communication objects are specific to each unit type. If that is the case, a note will indicate it.

- **Behavior after power recovery**: Set the behavior of the Ecodan unit after a power recovery.
  - **No action. (Default option)**: No action is performed.
  - **Send last status before reset**: Send the Ecodan unit's last status.
  - **Activate scene**: Activate a scene.

    IMPORTANT
    To activate a scene after a power recovery, besides selecting this **Activate scene** option, you also must:

    1. Enable the **Scenes (and additional modes)** parameter at the end of this menu.
    2. Enter the **SCENES** menu.
    3. Select a value >0 in the **Number of scenes (or additional modes)** parameter.
    4. Enable the parameter **Activate scene after power recovery**.
    5. Configure the **Number** and **Activation delay** parameters.

    To know more, see SCENES (page 23).

- **Behavior after download**: Set the behavior of the Ecodan unit after downloading the ETS project to the gateway.
  - **No action. (Default option)**: No action is performed.
  - **Send last status before reset**: Send the the Ecodan unit's last status.
  - **Activate scene**: Activate a scene.

IMPORTANT

To activate a scene after downloading the ETS project to the gateway, besides selecting this **Activate scene** option, you also must:

1. Enable the **Scenes (and additional modes)** parameter at the end of this menu.
2. Enter the **SCENES** menu.
3. Select a value >0 in the **Number of scenes (or additional modes)** parameter.
4. Enable the parameter **Activate scene after download**.
5. Configure the **Number** and **Activation delay** parameters.

To know more, see SCENES (page 23).

- **Read on init delay**: Set the time in seconds before the gateway sends READ telegrams for the group addresses associated with its Control_ objects on bus recovery or application reset/start-up. (0 .. 255 seconds. Default value: **0 sec**).

NOTE

This function gives other KNX devices on the bus enough time to start up before sending READ telegrams.

All Control_ objects with both Transmit (T) and Update (U) flags enabled will send READ telegrams, and their values will be updated with the response when received.

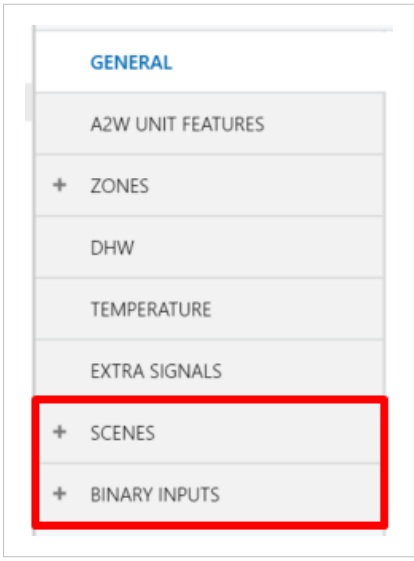
- **Time telegram rate**: Set the time in milliseconds between two telegrams. (0 .. 5000. Default value: **0 ms**).
- **Heartbeat. (Unchecked by default)**: Activate the **Heartbeat (Status)** object, allowing the gateway to report keep-alive notifications.
  - **Notification period**: Set the time in minutes between keep-alive notifications. (1 .. 255. Default value: **15 min**).
- **Error notifications. (Checked by default)**: Activate the **Error: Flag (Status)** object, which reports if there's an error. It also allows the activation of the following parameters.
  - **Error Code notifications [2 bytes]. (Unchecked by default)**: Activate the **Error: Code (Status)** object, which reports the error code when an error occurs.
  - **Error Text notifications [14 bytes]. (Unchecked by default)**: Activate the **Error: Description (Status)** object, which reports a text with information about the error when an error occurs.

  Consult the complete list of error codes and their descriptions in Error Codes (page 58).
- **Refrigerant leak detector signals. (Unchecked by default)**: Activate the **Refrigerant Leak Detector Signal: Flag (Status)** object, which reports if there's a refrigerant leak.
- **Remote Control Lock. (Unchecked by default)**: Activate the **Remote Control Lock (Control)** and **Remote Control Lock (Status)** objects, which are used to block/unblock commands sent to the Ecodan unit from its remote control.
- **KNX Control Lock. (Unchecked by default)**: Activate the **KNX Control Lock (Control)** and **KNX Control Lock (Status)** objects, which are used to block/unblock commands sent to the Ecodan unit from KNX.
- **Operating time counter. (Unchecked by default)**: Activate the Ecodan unit operating time counting objects through the following parameters.
  - **Operating time object (seconds). (Checked by default)**: Activate the **Operating Time Counter (s) (Control)** and **Operating Time Counter (s) (Status)** objects, which are used to count the Ecodan unit's running time in seconds.

- **Operating time object (hours). (Checked by default)**: Activate the **Operating Time Counter (h) (Control)** and **Operating Time Counter (h) (Status)** objects, which are used to count the Ecodan unit's running time in hours.
- **Notification period <0=disabled>**: Set the time in minutes between operating time counting notifications. (0 .. 65535. Default value: **0 min**).

- **Advanced features. (Unchecked by default)**: Activate the **ADVANCED FEATURES** menu and the **OCCUPANCY**, **WINDOW CONTACT**, and **SLEEP TIMER** submenus.
- **Scenes (and additional modes). (Unchecked by default)**: Activate the **SCENES** menu.
- **Binary Inputs. (Unchecked by default)**: Activate the **BINARY INPUTS** menu.

When activating these two last parameters, new tabs appear in the menu to configure each feature:



6.4.2. A2W UNIT FEATURES

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Zones (page 34).

- Supported modes: Unactive option.
- **Supported Heat. (Checked by default)**: Activate the **Zones: Mode: Heat (Control)** and **Zones: Mode: Heat (Status)** objects.
- **Supported Cool. (Unchecked by default)**: Activate the **Zones: Mode: Cool (Control)** and **Zones: Mode: Cool (Status)** objects.

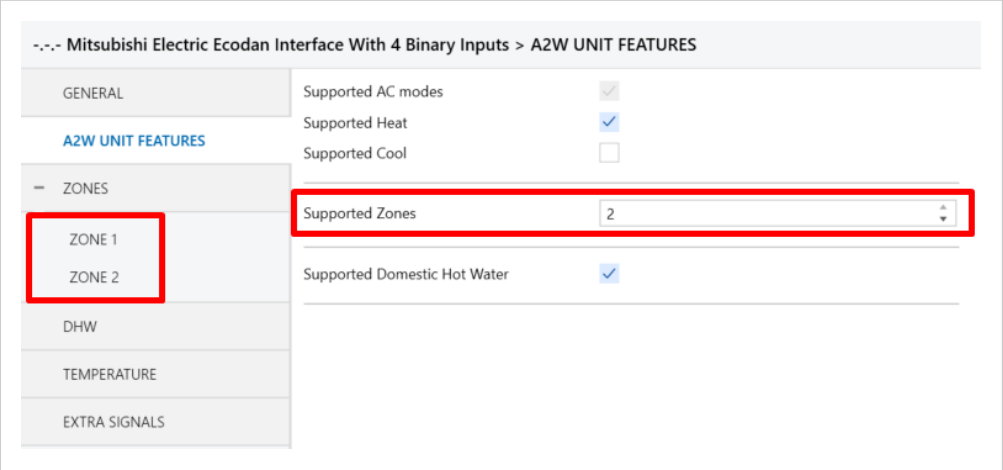
IMPORTANT
If the Ecodan system supports climate control (heating/cooling), you must set the **Supported Zones** parameter below to 1 or 2, in addition to selecting the required parameter(s) above.

NOTICE
When both the **Supported Heat** and the **Supported Cool** parameters are checked, the objects **Zones: Mode (Control)** and **Zones: Mode (Status)** are also activated.

- **Supported Zones**: Set the number of zones of the Ecodan system (0 .. 2. Default value: **1**).

> **IMPORTANT**
> If the Ecodan system supports climate control (heating/cooling), you must set this parameter to 1 or 2. Setting it to 0 means that the Ecodan system is only used for domestic hot water.

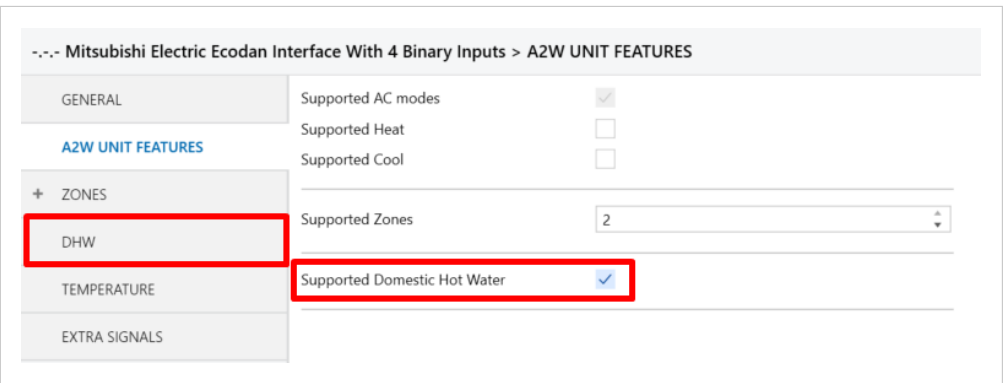
New tabs appear under the **ZONES** menu to configure each zone when the parameter is set to **1** or **2**.



Setting the parameter to **1** activates all Control and Status objects related to Zones, as well as the default Control and Status objects for Zone 1. Setting the parameter to **2** also activates the default Control and Status objects for Zone 2.

> **NOTICE**
> Setting this parameter to **0** will deactivate all objects related to Zones.

- **Supported Domestic Hot Water. (Unchecked by default)**: Activate the default Control and Status objects related to domestic hot water.
  When activating this parameter, a new tab appears in the menu to configure the **DHW** parameters.



6.4.3. ZONES

Expand this menu by clicking the + button.

> **NOTICE**
> This menu is only enabled if you set the **Supported Zones** parameter to **1** or **2**. See A2W UNIT FEATURES (page 15).

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Zones (page 34).

- **1 bit simplified mode (Cool/Heat) objects. (Unchecked by default)**: Activate the **Zones: Mode: Simplified (Cool/Heat) (Control)** and **Zones: Mode: Simplified (Cool/Heat) (Status)** objects.

6.4.3.1. ZONE 1

NOTICE
This menu is only enabled if you set the **Supported Zones** parameter to **1** or **2**. See A2W UNIT FEATURES (page 15).

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Zones (page 34).

- **Control type**. Select the element used to control the temperature of this zone:

  IMPORTANT
  If you change the default **No action** option, ensure that the Ecodan system includes the necessary components for the selected option. For example, if you set this parameter to **Room Thermostat Ambient Temperature** (auto-adaptation), verify that the zone has a properly configured room thermostat.

  Refer to the Ecodan system control types and their associated components in the Ecodan system service documentation.

  – **Outlet Water Temperature**

    IMPORTANT
    This is the only control type permitted when the Ecodan system is set to cooling.

  – **Room Thermostat Ambient Temperature**

    IMPORTANT
    Only one zone should be configured with this option.

    This option activates the following parameter:

    - **Sending of room thermostat temperature reference**: Select when to send the reference temperature of the room thermostat.
      – **Disabled. (Default option)**: The room thermostat reference temperature is not reported.
      – **Change of value**: The room thermostat reference temperature is reported when the current value changes. This option activates the following parameters:
        - **Minimum change between sendings**: Set the minimum room thermostat reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
        - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
      – **Periodically**: The room thermostat reference temperature is periodically reported. This option activates the following parameter:

    - **Notification period**: Set the time in minutes between the room thermostat reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Weather Compensation Curve**
- **No action (Default option)**

> **NOTICE**
> When the default **No action** option is set, the **Control type** parameter does not affect the Ecodan system, which will continue operating under its current control type.

- **Scheduled mode. (Unchecked by default)**: Activate the **Zone 1: Scheduled Mode (Control)** and **Zone 1: Scheduled Mode (Status)** objects.
- **Setpoint temperature limits. (Unchecked by default)**: Activate the following parameters:
  - **Heating custom lower limit.** (-10 .. 80°C. Default value: **-10°C**).
  - **Heating custom upper limit.** (-10 .. 80°C. Default value: **80°C**).
  - **Cooling custom lower limit.** (-10 .. 80°C. Default value: **-10°C**).
  - **Cooling custom upper limit.** (-10 .. 80°C. Default value: **80°C**).

> **NOTICE**
> With these parameters above, you can customize limits to establish a range of temperatures for both heat and cool modes.

  - **Setpoint temperature limit objects. (Unchecked by default)**: Activate all Control and Status objects related to customizing temperature limits for Zone 1.

6.4.3.2. ZONE 2

> **NOTICE**
> This menu is only enabled if you set the **Supported Zones** parameter to **2**. See A2W UNIT FEATURES (page 15).

> **NOTICE**
> Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Zones (page 34).

- **Control type**. Select the element used to control the temperature of this zone:

> **IMPORTANT**
> If you change the default **No action** option, ensure that the Ecodan system includes the necessary components for the selected option. For example, if you set this parameter to **Room Thermostat Ambient Temperature** (auto-adaptation), verify that the zone has a properly configured room thermostat.
>
> Refer to the Ecodan system control types and their associated components in the Ecodan system service documentation.

  - **Outlet Water Temperature**

> **IMPORTANT**
> This is the only control type permitted when the Ecodan system is set to cooling.

– **Room Thermostat Ambient Temperature**

> **IMPORTANT**
> Only one zone should be configured with this option.

This option activates the following parameter:

- **Sending of room thermostat temperature reference**: Select when to send the reference temperature of the room thermostat.
  - **Disabled. (Default option)**: The room thermostat reference temperature is not reported.
  - **Change of value**: The room thermostat reference temperature is reported when the current value changes. This option activates the following parameters:
    - **Minimum change between sendings**: Set the minimum room thermostat reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The room thermostat reference temperature is periodically reported. This option activates the following parameter:
    - **Notification period**: Set the time in minutes between the room thermostat reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.

– **Weather Compensation Curve**

– **No action (Default option)**

> **NOTICE**
> When the default **No action** option is set, the **Control type** parameter does not affect the Ecodan system, which will continue operating under its current control type.

- **Scheduled mode. (Unchecked by default)**: Activate the **Zone 2: Scheduled Mode (Control)** and **Zone 2: Scheduled Mode (Status)** objects.
- **Setpoint temperature limits. (Unchecked by default)**: Activate the following parameters:
  - **Heating custom lower limit.** (-10 .. 80°C. Default value: **-10°C**).
  - **Heating custom upper limit.** (-10 .. 80°C. Default value: **80°C**).
  - **Cooling custom lower limit.** (-10 .. 80°C. Default value: **-10°C**).
  - **Cooling custom upper limit.** (-10 .. 80°C. Default value: **80°C**).

> **NOTICE**
> With these parameters above, you can customize limits to establish a range of temperatures for both heat and cool modes.

  - **Setpoint temperature limit objects. (Unchecked by default)**: Activate all Control and Status objects related to customizing temperature limits for Zone 2.

6.4.4. DHW

NOTICE
This menu is only enabled if you select the **Supported Domestic Hot Water** parameter from the section A2W UNIT FEATURES (page 15).

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: DHW (page 43).

- **Sending of domestic hot water tank reference temperature**. Select when to send the DHW tank reference temperature.
  - **Disabled. (Default option)**: The DHW tank reference temperature is not reported.
  - **Change of value**: The DHW tank reference temperature is reported when the current value changes. This option activates the following parameters:
    - **Minimum change between sendings**: Set the minimum DHW tank reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The DHW tank reference temperature is periodically reported. This option activates the following parameter:
    - **Notification period**: Set the time in minutes between DHW tank reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Disinfection mode. (Unchecked by default)**: Activate the **Disinfection Mode (Status)** object.
- **Setpoint temperature limits. (Unchecked by default)**: Activate the following parameters:
  - **Custom lower limit.** (-10 .. 80°C. Default value: **-10°C**).
  - **Custom upper limit.** (-10 .. 80°C. Default value: **80°C**).

    NOTICE
    With these parameters above, you can customize limits to establish a range of temperatures for the DHW tank temperature.

  - **Setpoint temperature limit objects. (Unchecked by default)**: Activate all Control and Status objects related to customizing temperature limits for the DHW tank.

6.4.5. TEMPERATURE

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Temperature (page 45)[1].

[1] The characteristics of the objects related to the Virtual temperature function are listed in the section Communication Objects: Zone 1 (page 35) and Communication Objects: Zone 2 (page 39), instead.

- **Ambient reference temperature provided by an external KNX device. (Unchecked by default)**: Activate all Control and Status objects related to the Virtual temperature function, which allows a thermistor from the KNX system to provide the reference temperature for the Ecodan unit. See Virtual Temperature (page 55).
- **Sending of A2W unit outdoor ambient reference temperature**: Select when to send the ambient reference temperature reported by the outdoor unit.
  - **Disabled. (Default option)**: The ambient reference temperature is not reported.
  - **Change of value**: The ambient reference temperature is reported when the current value changes. This option activates the **Temperature: A2W Unit Outdoor Ambient Reference (Status)** object, as well as the following parameters:
    - **Minimum change between sendings**: Set the minimum ambient reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The ambient reference temperature is periodically reported. This option activates the following parameter:
    - **Notification period**: Set the time in minutes between ambient reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Sending of refrigerant reference temperature**: Select when to send the refrigerant reference temperature.
  - **Disabled. (Default option)**: The refrigerant reference temperature is not reported.
  - **Change of value**: The refrigerant reference temperature is reported when the current value changes. This option activates the **Temperature: Refrigerant Reference (Status)** object, as well as the following parameters:
    - **Minimum change between sendings**: Set the minimum refrigerant reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The refrigerant reference temperature is periodically reported. This option activates the following parameter:
    - **Notification period**: Set the time in minutes between refrigerant reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Sending of outlet water reference temperature**: Select when to send the outlet water reference temperature.
  - **Disabled. (Default option)**: The outlet water reference temperature is not reported.
  - **Change of value**: The outlet water reference temperature is reported when the current value changes. This option activates the **Temperature: Outlet Water Reference (Status)** object, as well as the following parameters:
    - **Minimum change between sendings**: Set the minimum outlet water reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The outlet water reference temperature is periodically reported. This option activates the following parameter:

    - **Notification period**: Set the time in minutes between outlet water reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Sending of inlet water reference temperature**: Select when to send the inlet water reference temperature.
  - **Disabled. (Default option)**: The inlet water reference temperature is not reported.
  - **Change of value**: The inlet water reference temperature is reported when the current value changes. This option activates the **Temperature: Inlet Water Reference (Status)** object, as well as the following parameters:
    - **Minimum change between sendings**: Set the minimum inlet water reference temperature change required before sending a change-of-value notification. (1 .. 100°C. Default value: **1°C**).
    - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
  - **Periodically**: The inlet water reference temperature is periodically reported. This option activates the following parameter:
    - **Notification period**: Set the time in minutes between inlet water reference temperature notifications. (1 .. 255 minutes. Default value: **5 min**).
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.

6.4.6. EXTRA SIGNALS

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Extra Signals (page 45).

- **Holiday mode. (Unchecked by default)**: Activate the **Holiday Mode (Control)** and **Holiday Mode (Status)** objects.
- **Maintenance objects. (Unchecked by default)**: Activate all Control and Status objects related to maintenance, including compressor and circulation pump operating time objects. This option also activates the following parameters:
  - **Sending of water flow rate (l/h)**: Select when to send the water flow rate.
    - **Disabled. (Default option)**: The water flow rate is not reported.
    - **Change of value**: The water flow rate is reported when the current value changes. This option activates the **Water Flow Rate (Status)** object, as well as the following parameters:
      - **Minimum change between sendings**: Set the minimum water flow rate change required before sending a change-of-value notification. (0 .. 4294967295 l/h. Default value: **1 l/h**).
      - **Minimum time between sendings**: Set the time in seconds before sending the change-of-value notification. (1 .. 255 seconds. Default value: **60 sec**).
    - **Periodically**: The water flow rate is periodically reported. This option activates the following parameter:
      - **Notification period**: Set the time in minutes between water flow rate notifications. (1 .. 255 minutes. Default value: **5 min**).
    - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.

- **Energy consumption objects sending (kWh)**: Select when to send the Ecodan system's total energy consumption.
  - **Disabled. (Default option)**: The energy consumption is not reported.
  - **Any other option (Change of value, Periodically, Periodically & Change of value)**: The energy consumption is reported once per day at 23:59:59.

    IMPORTANT
    You can omit the remaining options within the **Energy consumption objects sending (kWh)** parameter. Regardless of the settings, the energy consumption is reported once per day at 23:59:59.

    - **Minimum change between sendings**: Regardless of the settings, the energy consumption is reported once per day at 23:59:59.
    - **Minimum time between sendings**: Regardless of the settings, the energy consumption is reported once per day at 23:59:59.
  - **Periodically**: Regardless of the settings, the energy consumption is reported once per day at 23:59:59.
    - **Notification period**: Regardless of the settings, the energy consumption is reported once per day at 23:59:59.
  - **Periodically & Change of value**: This option activates the previous parameters for both **Change of value** and **Periodically** options.
- **Supported features objects. (Unchecked by default)**: Activate the **Zones: Heat Mode Support**, **Zones: Cool Mode Support**, and **DHW Support** objects.

6.4.7. SCENES

NOTE
You can set up to 10 scenes.

NOTICE
This menu is only enabled if you select the **Scenes (and additional modes)** parameter from the section GENERAL (page 13).

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Scenes (page 47).

- **Number of scenes (or additional modes)**: Select how many scenes you want to add to your project (0 .. 10. Default value: **0**).

  When setting this parameter with a value >0, you can expand the **SCENES** menu by clicking the + button.
- **Activate scene after power recovery. (Unchecked by default)**: Set the scene you want to activate after a power recovery.

  NOTICE
  This parameter appears only if the **Behavior after power recovery** parameter of the **GENERAL** menu (page 13) is set to **Activate scene** and the value of the **Number of scenes (or additional modes)** in this menu is set to >0.
  - **Number**: Select the number of the scene to activate after a power recovery.

  - **Activation delay**: Set the time in seconds between the power recovery and the activation of the scene.

- **Activate scene after download. (Unchecked by default)**: Set the scene you want to activate after downloading the ETS project to the gateway.

> **NOTICE**
> This parameter appears only if the **Behavior after download** parameter of the **GENERAL** menu (page 13) is set to **Activate scene** and the value of the **Number of scenes (or additional modes)** in this menu is set to >0.

  - **Number**: Select the number of the scene to activate after downloading the ETS project to the gateway.
  - **Activation delay**: Set the time in seconds between the project download and the activation of the scene.

- **SCENE #N**: For each scene, you can set:
  - **Number**: Set the number of the scene (1 .. 64).
  - **Description**: Type a description for the scene (64 bytes allowed).

> **NOTICE**
> You can also edit the **Number** and **Description** parameters from the specific menu of each scene.

6.4.7.1. SCENE #1 .. SCENE #10

- **Number**: Set the number of the scene (1 .. 64).
- **Description**: Type a description for the scene (64 bytes allowed).
- **Scene storage (values can be updated with current AC status in runtime). (Checked by default)**: Enable updating the scene's values during runtime.

> **TIP**
> By enabling this parameter, you allow the end user to customize a scene at runtime through a touch panel or another sensor in the KNX installation, without needing to open the project in ETS and edit the gateway's configuration.

> **IMPORTANT**
> If you disable this parameter, the values of this scene cannot be updated during runtime. This implies that this scene can only be edited through the ETS project.

- **On/Off**: Select the Ecodan unit state for this scene.
  - **Unchanged. (Default value)**: The Ecodan unit remains in the same state it was in before triggering this scene.

> **IMPORTANT**
> The **Unchanged** option will prevent updating this specific value during runtime, even if the previous parameter **Scene storage (values can be updated with current AC status in runtime)** is enabled.

  - **Off**: The Ecodan unit turns off.
  - **On**: The Ecodan unit turns on.

- **Zones Mode**: Select the Ecodan unit zones mode for this scene.

> **NOTICE**
> The following parameters for Zones depend on the value set in the **Supported Zones** parameter in A2W UNIT FEATURES (page 15).

- **Unchanged. (Default value)**: Zones mode remains in the same mode it was in before triggering this scene.

> **IMPORTANT**
> The **Unchanged** option will prevent updating this specific value during runtime, even if the previous parameter **Scene storage (values can be updated with current AC status in runtime)** is enabled.

- **Heat**: Zones are set to heating mode.
- **Cool**: Zones are set to cooling mode.

> **NOTICE**
> The **Heat** and **Cool** options depend on whether the **Supported Heat** and **Supported Cool** parameters are enabled in A2W UNIT FEATURES (page 15).

- **Zone 1 Setpoint change. (Unchecked by default)**. Activate the following parameter:
  - **Zone 1 Setpoint**: Set the Zone 1 temperature for this scene (-10 .. 80°C. Default value: **45°C**).
- **Zone 2 Setpoint change. (Unchecked by default)**. Activate the following parameter:
  - **Zone 2 Setpoint**: Set the Zone 2 temperature for this scene (-10 .. 80°C. Default value: **45°C**).
- **DHW On/Off**: Select the DHW state for this scene.

> **NOTICE**
> The following parameters for DHW depend on whether the **Supported domestic hot water** parameter is enabled in A2W UNIT FEATURES (page 15).

  - **Unchanged. (Default value)**: The DHW remains in the same state it was in before triggering this scene.

> **IMPORTANT**
> The **Unchanged** option will prevent updating this specific value during runtime, even if the previous parameter **Scene storage (values can be updated with current AC status in runtime)** is enabled.

  - **Off**: The DHW turns off.
  - **On**: The DHW turns on.
- **DHW Setpoint change. (Unchecked by default)**. Activate the following parameter:
  - **DHW Setpoint**: Set the DHW temperature for this scene (-10 .. 80°C. Default value: **45°C**).
- **DHW Powerful On/Off**: Select the DHW powerful mode state for this scene.
  - **Unchanged. (Default value)**: The DHW powerful mode remains in the same state it was in before triggering this scene.

> **IMPORTANT**
> The **Unchanged** option will prevent updating this specific value during runtime, even if the previous parameter **Scene storage (values can be updated with current AC status in runtime)** is enabled.

  - **Off**: The DHW powerful mode turns off.

  - **On**: The DHW powerful mode turns on.

- **KNX Control Lock**: Select the KNX control state for this scene.
  - **Unchanged. (Default value)**: The KNX control remains in the same state it was in before triggering this scene.
  - **Unlocked**: The KNX control is unlocked. (The Ecodan unit can be controlled from the KNX system).
  - **Locked**: The KNX control is locked. (The Ecodan unit cannot be controlled from the KNX system).

> **IMPORTANT**
> This option prevents any command from KNX from affecting the system, including triggering scenes. When a scene has this option enabled, no command sent from the KNX system through the gateway will affect the Ecodan system until the scene ends or the value of this parameter is changed.

- **Remote Control Lock**: Select the remote control state for this scene.
  - **Unchanged. (Default value)**: The remote control remains in the same state it was in before triggering this scene.
  - **Unlocked**: The remote control is unlocked. (The Ecodan unit can be controlled with the remote controller).
  - **Locked**: The remote control is locked. (The Ecodan unit cannot be controlled with the remote controller).
- **Timer Options. (Unchecked by default)**. Activate the following parameters to delay the scene and establish its duration.
  - **Sending delay**: Select the unit and the duration for this scene delay.
    - **Seconds**: Set the time in seconds for the sending delay when this scene is triggered. (0 .. 15300 seconds. Default value: **600 sec**).
    - **Minutes. (Default value)**: Set the time in minutes for the sending delay when this scene is triggered. (0 .. 255 minutes. Default value: **10 min**).
  - **Duration (0=no end)**: Select the unit and the duration of this scene.
    - **Seconds**: Set the time in seconds for the duration of this scene. (0 .. 15300 seconds. Default value: **600 sec**).
    - **Minutes. (Default value)**: Set the time in minutes for the duration of this scene. (0 .. 255 minutes. Default value: **10 min**).

> **NOTE**
> Setting a value of 0 prevents the scenes from ending.

- **Individual object for the scene (or additional mode). (Unchecked by default)**: Activate individual Control objects for the activation and saving of each scene.

6.4.8. BINARY INPUTS

Expand this menu by clicking the + button.

NOTE

- You can set up to four binary inputs.
- The binary input contact type by default is Normally Open.
- Open Circuit Logic Level '0': Inactive.
- Short Circuit Logic Level '1': Active.
- Rising Edge: Inactive → Active.
- Falling Edge: Active → Inactive.

NOTICE
This menu is only enabled if you select the **Binary Inputs** parameter from the section GENERAL (page 13).

NOTICE
Refer to the characteristics of the communication objects related to these parameters in the section Communication Objects: Binary Inputs (page 49).

- **Number of binary inputs**: 4.
- **Binary Input 1. (Unchecked by default)**: Activate the **Binary Input 1: Physical Input Status (Status)** and **Binary Input 1: Switching (Status)** objects.
  - **Description**: Type a description for this binary input (64 bytes allowed).
- **Binary Input 2. (Unchecked by default)**: Activate the **Binary Input 2: Physical Input Status (Status)** and **Binary Input 2: Switching (Status)** objects.
  - **Description**: Type a description for this binary input (64 bytes allowed).
- **Binary Input 3. (Unchecked by default)**: Activate the **Binary Input 3: Physical Input Status (Status)** and **Binary Input 3: Switching (Status)** objects.
  - **Description**: Type a description for this binary input (64 bytes allowed).
- **Binary Input 4. (Unchecked by default)**: Activate the **Binary Input 4: Physical Input Status (Status)** and **Binary Input 4: Switching (Status)** objects.
  - **Description**: Type a description for this binary input (64 bytes allowed).

6.4.8.1. BINARY INPUTS 1, 2, 3, and 4

For each binary input, you can set these parameters:

- **Binary Input 1. (Unchecked by default)**: Activate binary input 1.
  - **Description**: Type a description for this binary input. (Default text: **BINARY INPUT 1**).
- **Contact type**: Normally Open.
- **Debounce time**: (0 .. 255. Default value: **50 ms**).
- **Function**: Select the function for this binary input.
  - **Switching. (Default value)**: For this function type, you must set the following parameters.
    - **Rising edge action**: Actions to be executed on the pulse's rising edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).

  - **On. (Default value)**
  - **Off**
  - **Toggle (On/Off)**
  - **No action**
- **Falling edge action**: Actions to be executed on the pulse's falling edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
  - **On**
  - **Off. (Default value)**
  - **Toggle (On/Off)**
  - **No action**
- **Periodical sending**
  - **When output value is On**
  - **When output value is Off**
  - **Always**
  - **Never. (Default value)**
- **Send after reboot**
  - **Current Status**
  - **On**
  - **Off**
  - **No action. (Default value)**

– **Dimming**: For this function type, you must set the following parameters.

- **Action triggered on**
  - **Rising edge. (Default value)**: Actions will be executed on the pulse's rising edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).
  - **Falling edge**: Actions will be executed on the pulse's falling edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
- **Dimming action**
  - **Short press=On; Long press=Brighter. (Default value)**
  - **Short press=Off; Long press=Darker**
  - **Short press=Toggle (On/Off); Long press=Toggle (Brighter/Darker)**
- **Dimming step (brighter)**
  - **100%**
  - **50%**
  - **25%. (Default value)**
  - **12.50%**
  - **6.25%**
  - **3.13%**
  - **1.56%**

- **Dimming step (darker)**
  - **-100%**
  - **-50%**
  - **-25%. (Default value)**
  - **-12.50%**
  - **-6.25%**
  - **-3.13%**
  - **-1.56%**
- **Minimum long press time**: (1 .. 255. Default value: **10x100 ms**).
- **Periodical sending of long press action. (Unchecked by default)**
  - **Notification period**: (1 .. 255. Default value: **10x100 ms**).
- **Send after reboot**
  - **On**
  - **Off**
  - **No action. (Default value)**

– **Shutter/Blind**: For this function type, you must set the following parameters.

- **Action triggered on**
  - **Rising edge. (Default value)**: Actions will be executed on the pulse's rising edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).
  - **Falling edge**: Actions will be executed on the pulse's falling edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
- **Shutter/Blind action**
  - **Up. (Default value)**
  - **Down**
  - **Toggle (Up/Down)**
- **Shutter/Blind operation method**
  - **Step-Move-Step. (Default value)**
  - **Move-Step**
- **Minimum long press time**: (1 .. 255. Default value: **20x100 ms**).
- **Vanes adjustment time**: (1 .. 255. Default value: **10x100 ms**).
- **Send after reboot**
  - **Move up**
  - **Move down**
  - **No action. (Default value)**

– **Value**: For this function type, you must set the following parameters.

- **Action triggered on**
  - **Rising edge. (Default value)**: Actions will be executed on the pulse's rising edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).

  - **Falling edge**: Actions will be executed on the pulse's falling edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
- **DPT to be sent**
  - **DPT 5.010 (1 byte). (Default value)**
  - **DPT 7.001 (2 byte)**
  - **DPT 8.001 (2 byte)**
  - **DPT 9.001 (2 byte)**
  - **DPT 12.001 (4 byte)**
  - **Value to send**: (0 .. 255. Default value: **0**).
- **Send after reboot**
  - **Sending delay**: (0 .. 255. Default value: **0 sec**).

- **Scene (Internal)**: For this function type, you must set the following parameters.
  - **Action triggered on**
    - **Rising edge. (Default value)**: Actions will be executed on the pulse's rising edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).
    - **Falling edge**: Actions will be executed on the pulse's falling edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
  - **Scene number**: (1 .. 64. Default value: **1**).
  - **Save scene on long press action. (Unchecked by default)**
    - **Minimum long press time**: (1 .. 255. Default value: **10x100 ms**).

- **Pulse counter meter**: For this function type, you must set the following parameters.
  - **Pulse trigger mode**: Select when to count the pulse.
    - **Rising edge. (Default value)**: Count on the pulse's rising edge (the switch/sensor transitions from closed to open, i.e., the logic value changes from 1 to 0).
    - **Falling edge**: Count on the pulse's falling edge (the switch/sensor transitions from open to closed, i.e., the logic value changes from 0 to 1).
    - **Rising edge and falling edge**: Count for both pulse behaviors.
  - **Number of received pulses per counted pulse (pulses/counted pulse)**: (1 .. 10000. Default value: **1**).
  - **Increase per counted pulse (unit of measurement/counted pulse)**: (1 .. 10000. Default value: **1**).
  - **Pulse width**: Set the pulse with in milliseconds. (1 .. 99999. Default value: **50 ms**).
  - **Unit of measurement**:
    - **W**
    - **kW**
    - **W·h. (Default value)**
    - **kW·h**
    - **l**
    - **l/h**
    - **m^3**
    - **m^3/h**

  - **Individual objects for each AC mode (for monitoring AC system consumption). (Unchecked by default)**

    IMPORTANT
    If enabling this parameter, the meter connected to this binary input must monitor the outdoor unit controlled by this gateway.

- **Sending of measures**
  - **Change of value. (Default value)**
    - **Minimum change between sendings**: (0 .. 4294967295. Default value: **0**).
    - **Minimum time between sendings**: (1 .. 255. Default value: **1 sec**).
  - **Periodically**
    - **Notification period <0=disabled>**: (0 .. 255. Default value: **0 min**).
  - **Periodically & change of value**
    - **Minimum change between sendings**: (0 .. 4294967295. Default value: **0**).
    - **Minimum time between sendings**: (1 .. 255. Default value: **1 sec**).
    - **Notification period <0=disabled>**: (0 .. 255. Default value: **0 min**).
- **Send after power recovery. (Unchecked by default)**
  - **Sending delay**: (0 .. 255. Default value: **0 sec**).
- **Measurement values after KNX download**
  - **Keep current value. (Default value)**
  - **Set new value**
    - **New total measurement value**: (0 .. 4294967295. Default value: **0**).
    - **New heat measurement value**: (0 .. 4294967295. Default value: **0**).

      NOTE
      This parameter is visible only when the unit of measurement is **W·h** or **kW·h** and the **Individual objects for each AC mode (for monitoring AC system consumption)** parameter is enabled.

    - **New cool measurement value**: (0 .. 4294967295. Default value: **0**).

      NOTE
      This parameter is visible only when the unit of measurement is **W·h** or **kW·h** and the **Individual objects for each AC mode (for monitoring AC system consumption)** parameter is enabled.

    - **New others measurement value**: (0 .. 4294967295. Default value: **0**).

      NOTE
      This parameter is visible only when the unit of measurement is **W·h** or **kW·h** and the **Individual objects for each AC mode (for monitoring AC system consumption)** parameter is enabled.

  - **Unit of measurement**: It shows the unit of measurement previously selected.

- **Binary Input lock. (Unchecked by default)**: Activate the following parameters.

- **Binary Input lock object polarity: 0=Unlocked; 1=Locked. (Checked by default)**: Activate the **Binary Input 1: Lock/Unlock (Control) - 0=Unlocked; 1=Locked** and **Binary Input 1: Lock/Unlock (Status) - 0=Unlocked; 1=Locked** objects.
- **Binary Input lock object polarity: 0=Locked; 1=Unlocked. (Unchecked by default)**: Activate the **Binary Input 1: Unlock/Lock (Control) - 0=Locked; 1=Unlocked** and **Binary Input 1: Unlock/Lock (Status) - 0=Locked; 1=Unlocked** objects.

6.5. KNX Communication Objects

NOTICE
Communication object flags:

- **R**: The KNX system can read this signal.
- **W**: The KNX system can write this signal.
- **T**: The KNX system receives a telegram when this signal changes its value.
- **U**: This signal's data is updated after a reboot of either the gateway or the bus.

6.5.1. Communication Objects: General

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
1	Heartbeat (Status)	1=Alive	1 bit	1	11	X		X	
6	Error: Flag (Status)	0=No Error 1=Error	1 bit	1	5	X		X	
7	Error: Code (Status)	See Mitsubishi Electric Ecodan Error Codes (page 58)	2 byte	8		X		X	
8	Error: Description (Status)	See Mitsubishi Electric Ecodan Error Codes (page 58)	14 byte	16	1	X		X	
14	Refrigerant Leak Detector Signal: Flag (Status)	0=No Error 1=Error	1 bit	1	5	X		X	
17	Operating Time Counter (s) (Status)	0 .. 2147483647 (s)	4 byte	13	100	X		X	
19	Operating Time Counter (h) (Status)	0 .. 65535 (h)	2 byte	7	7	X		X	
20	Remote Control Lock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
	NOTICE If a value of **1** is written in the **Remote Control Lock (Control)** object, the Ecodan unit can only be controlled through the KNX system, and any command sent through any remote control will have no effect.								
21	Remote Control Lock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
22	KNX Control Lock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
NOTICE If a value of **1** is written in the **KNX Control Lock (Control)** object, the Ecodan unit can only be controlled through its own controller, and any command sent through the KNX system will have no effect, including the triggering of scenes.									
23	KNX Control Lock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	
24	On/Off (Control)	0=Off 1=On	1 bit	1	1	X	X		X
25	On/Off (Status)	0=Off 1=On	1 bit	1	1	X		X	
26	Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
NOTICE The **Operation (Status)** object reports whether there is a demand for climate and/or DHW, and thus whether the system is operating.									

6.5.2. Communication Objects: Zones

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
28	Zones: On/Off (Status)	0=Off 1=On	1 bit	1	1	X		X	
29	Zones: Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
NOTICE The **Zones: Operation (Status)** object reports whether there is a demand for climate in any zone, and thus whether the climate system is operating.									
30	Zones: Mode (Control)	0=Auto 1=Heat 3=Cool	1 byte	20	105	X	X		X
31	Zones: Mode (Status)	0=Auto 1=Heat 3=Cool	1 byte	20	105	X		X	
32	Zones: Mode: Simplified (Cool/Heat) (Control)	0=Cooling 1=Heating	1 bit	1	100	X	X		X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
33	Zones: Mode: Simplified (Cool/Heat) (Status)	0=Cooling 1=Heating	1 bit	1	100	X		X	
36	Zones: Mode: Heat (Control)	1=Heat (True)	1 bit	1	2	X	X		X
37	Zones: Mode: Heat (Status)	1=Heat (True)	1 bit	1	2	X		X	
38	Zones: Mode: Cool (Control)	1=Cool (True)	1 bit	1	2	X	X		X
39	Zones: Mode: Cool (Status)	1=Cool (True)	1 bit	1	2	X		X	

6.5.3. Communication Objects: Zone 1

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
41	Zone 1: On/Off (Status)	0=Off 1=On	1 bit	1	1	X		X	
42	Zone 1: Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	

NOTICE
The **Zone 1: Operation (Status)** object reports whether there is a demand for climate in Zone 1, and thus whether the Zone 1 climate system is operating.

44	Zone 1: Control Type (Status)	0=Outlet Water Temperature 1=Room Thermostat Ambient Temperature 2=Weather Compensation Curve	1 byte	20		X		X	
45	Zone 1: Control Type (Control)	0=Outlet Water Temperature 1=Room Thermostat Ambient Temperature 2=Weather Compensation Curve	1 byte	20		X	X		X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
NOTICE When the Ecodan system is set to cooling, the only control type allowed is **0=Outlet Water Temperature**. For Ecodan systems with two climate zones, only one zone can be set to **1=Room Thermostat Ambient Temperature**. For more information, refer to the Ecodan unit documentation.									
49	Zone 1: Temperature: Setpoint (Control)	°C	2 byte	9	1	X	X		X
NOTICE Use the **Zone 1: Temperature: Setpoint (Control)** object to write the desired setpoint temperature for Zone 1.									
50	Zone 1: Temperature: Setpoint (Status)	°C	2 byte	9	1	X		X	
NOTICE The **Zone 1: Temperature: Setpoint (Status)** object reports the current setpoint temperature for Zone 1.									
IMPORTANT When the virtual temperature function is enabled, this object reports the recalculated temperature setpoint sent to the indoor unit after the gateway applies the offset formula. In this case, the reported value may differ from the value entered in the **Zone 1: Temperature: Setpoint (Control)** object. To know more, see Virtual Temperature (page 55).									
51	Zone 1: Temperature: Setpoint: Custom Lower Limit: Heat (Control)	°C	2 byte	9	1	X	X		X
52	Zone 1: Temperature: Setpoint: Custom Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	
53	Zone 1: Temperature: Setpoint: Custom Upper Limit: Heat (Control)	°C	2 byte	9	1	X	X		X
54	Zone 1: Temperature: Setpoint: Custom Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
55	Zone 1: Temperature: Setpoint: Custom Lower Limit: Cool (Control)	°C	2 byte	9	1	X	X		X
56	Zone 1: Temperature: Setpoint: Custom Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
57	Zone 1: Temperature: Setpoint: Custom Upper Limit: Cool (Control)	°C	2 byte	9	1	X	X		X
58	Zone 1: Temperature: Setpoint: Custom Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	

NOTICE

Use the **Temperature: Setpoint: Custom** objects above to customize limits to establish a range of temperatures for both heat and cool modes.

These limits cannot surpass the limits supported by the Ecodan unit. See the following four objects.

59	Zone 1: Temperature: Setpoint: Unit Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	
60	Zone 1: Temperature: Setpoint: Unit Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	
61	Zone 1: Temperature: Setpoint: Unit Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
62	Zone 1: Temperature: Setpoint: Unit Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
NOTICE The **Temperature: Setpoint: Unit** objects above report the maximum and minimum temperatures supported by the Ecodan unit for both heat and cool modes. These are absolute limits that cannot be surpassed by means of any other object.									
63	Zone 1: Temperature: Setpoint: Applied Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	
64	Zone 1: Temperature: Setpoint: Applied Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	
65	Zone 1: Temperature: Setpoint: Applied Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
66	Zone 1: Temperature: Setpoint: Applied Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	
67	Zone 1: Temperature: Reference (Status)	°C	2 byte	9	1	X		X	
68	Zone 1: Temperature: KNX Room Thermostat Ambient Reference (Control)	°C	2 byte	9	1	X	X		X
NOTICE Use the **Zone 1: Temperature: KNX Room Thermostat Ambient Reference (Control)** object to write the ambient temperature provided by a thermistor installed in the KNX system. Once a valid value is written in this object, the virtual temperature function is activated. See Virtual Temperature (page 55).									
69	Zone 1: Temperature: Outlet Water Reference (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
70	Zone 1: Temperature: Inlet Water Reference (Status)	°C	2 byte	9	1	X		X	
290	Zone 1: Temperature: KNX User Setpoint (Status)	°C	2 byte	9	1	X		X	
NOTICE The **Zone 1: Temperature: KNX User Setpoint (Status)** object indicates the original temperature setpoint requested from the KNX system.									
291	Zone 1: Virtual Temperature active (Status)	0=Off 1=On	1 bit	1	1	X		X	
NOTICE The **Zone 1: Virtual Temperature active (Status)** object reports whether the virtual temperature function is active. See Virtual Temperature (page 55).									

6.5.4. Communication Objects: Zone 2

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
104	Zone 2: On/Off (Status)	0=Off 1=On	1 bit	1	1	X		X	
105	Zone 2: Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
NOTICE The **Zone 2: Operation (Status)** object reports whether there is a demand for climate in Zone 1, and thus whether the Zone 1 climate system is operating.									
107	Zone 2: Control Type (Status)	0=Outlet Water Temperature 1=Room Thermostat Ambient Temperature 2=Weather Compensation Curve	1 byte	20		X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
108	Zone 2: Control Type (Control)	0=Outlet Water Temperature 1=Room Thermostat Ambient Temperature 2=Weather Compensation Curve	1 byte	20		X	X		X

NOTICE
When the Ecodan system is set to cooling, the only control type allowed is **0=Outlet Water Temperature**.

For Ecodan systems with two climate zones, only one zone can be set to **1=Room Thermostat Ambient Temperature**.

For more information, refer to the Ecodan unit documentation.

112	Zone 2: Temperature: Setpoint (Control)	°C	2 byte	9	1	X	X		X

NOTICE
Use the **Zone 2: Temperature: Setpoint (Control)** object to write the desired setpoint temperature for Zone 1.

113	Zone 2: Temperature: Setpoint (Status)	°C	2 byte	9	1	X		X	

NOTICE
The **Zone 2: Temperature: Setpoint (Status)** object reports the current setpoint temperature for Zone 1.

IMPORTANT
When the virtual temperature function is enabled, this object reports the recalculated temperature setpoint sent to the indoor unit after the gateway applies the offset formula. In this case, the reported value may differ from the value entered in the **Zone 2: Temperature: Setpoint (Control)** object. To know more, see Virtual Temperature (page 55).

114	Zone 2: Temperature: Setpoint: Custom Lower Limit: Heat (Control)	°C	2 byte	9	1	X	X		X
115	Zone 2: Temperature: Setpoint: Custom Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
116	Zone 2: Temperature: Setpoint: Custom Upper Limit: Heat (Control)	°C	2 byte	9	1	X	X		X
117	Zone 2: Temperature: Setpoint: Custom Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	
118	Zone 2: Temperature: Setpoint: Custom Lower Limit: Cool (Control)	°C	2 byte	9	1	X	X		X
119	Zone 2: Temperature: Setpoint: Custom Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
120	Zone 2: Temperature: Setpoint: Custom Upper Limit: Cool (Control)	°C	2 byte	9	1	X	X		X
121	Zone 2: Temperature: Setpoint: Custom Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	

NOTICE

Use the **Temperature: Setpoint: Custom** objects above to customize limits to establish a range of temperatures for both heat and cool modes.

These limits cannot surpass the limits supported by the Ecodan unit. See the following four objects.

122	Zone 2: Temperature: Setpoint: Unit Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	
123	Zone 2: Temperature: Setpoint: Unit Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
124	Zone 2: Temperature: Setpoint: Unit Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
125	Zone 2: Temperature: Setpoint: Unit Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	

NOTICE

The **Temperature: Setpoint: Unit** objects above report the maximum and minimum temperatures supported by the Ecodan unit for both heat and cool modes.

These are absolute limits that cannot be surpassed by means of any other object.

126	Zone 2: Temperature: Setpoint: Applied Lower Limit: Heat (Status)	°C	2 byte	9	1	X		X	
127	Zone 2: Temperature: Setpoint: Applied Upper Limit: Heat (Status)	°C	2 byte	9	1	X		X	
128	Zone 2: Temperature: Setpoint: Applied Lower Limit: Cool (Status)	°C	2 byte	9	1	X		X	
129	Zone 2: Temperature: Setpoint: Applied Upper Limit: Cool (Status)	°C	2 byte	9	1	X		X	
130	Zone 2: Temperature: Reference (Status)	°C	2 byte	9	1	X		X	
131	Zone 2: Temperature: KNX Room Thermostat Ambient Reference (Control)	°C	2 byte	9	1	X	X		X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
NOTICE Use the **Zone 2: Temperature: KNX Room Thermostat Ambient Reference (Control)** object to write the ambient temperature provided by a thermistor installed in the KNX system. Once a valid value is written in this object, the virtual temperature function is activated. See Virtual Temperature (page 55).									
132	Zone 2: Temperature: Outlet Water Reference (Status)	°C	2 byte	9	1	X		X	
133	Zone 2: Temperature: Inlet Water Reference (Status)	°C	2 byte	9	1	X		X	
292	Zone 2: Temperature: KNX User Setpoint (Status)	°C	2 byte	9	1	X		X	
NOTICE The **Zone 2: Temperature: KNX User Setpoint (Status)** object indicates the original temperature setpoint requested from the KNX system.									
293	Zone 2: Virtual Temperature active (status)	0=Off 1=On	1 bit	1	1	X		X	
NOTICE The **Zone 2: Virtual Temperature active (Status)** object reports whether the virtual temperature function is active. See Virtual Temperature (page 55).									

6.5.5. Communication Objects: DHW

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
141	DHW: On/Off (Status)	0=Off; 1=On	1 bit	1	1	X		X	
142	DHW: Operation (Status)	0=Off; 1=On	1 bit	1	1	X		X	
NOTICE The **DHW: Operation (Status)** object reports whether there is a demand for DHW, and thus whether the DHW system is operating.									
147	DHW: Temperature: Setpoint (Control)	°C	2 byte	9	1	X	X		X
148	DHW: Temperature: Setpoint (Status)	°C	2 byte	9	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
149	DHW: Temperature: Setpoint: Custom Lower Limit (Control)	°C	2 byte	9	1	X	X		X
150	DHW: Temperature: Setpoint: Custom Lower Limit (Status)	°C	2 byte	9	1	X		X	
151	DHW: Temperature: Setpoint: Custom Upper Limit (Control)	°C	2 byte	9	1	X	X		X
152	DHW: Temperature: Setpoint: Custom Upper Limit (Status)	°C	2 byte	9	1	X		X	

NOTICE
Use the **Temperature: Setpoint: Custom** objects above to customize limits to establish a range of temperatures for the DHW.

These limits cannot surpass the limits supported by the water tank. See the following two objects.

153	DHW: Temperature: Setpoint: Tank Lower Limit (Status)	°C	2 byte	9	1	X		X	
154	DHW: Temperature: Setpoint: Tank Upper Limit (Status)	°C	2 byte	9	1	X		X	

NOTICE
The **Temperature: Setpoint: Tank** objects above report the maximum and minimum temperatures supported by the water tank.

These are absolute limits that cannot be surpassed by means of any other object.

155	DHW: Temperature: Setpoint: Applied Lower Limit (Status)	°C	2 byte	9	1	X		X	
156	DHW: Temperature: Setpoint: Applied Upper Limit (Status)	°C	2 byte	9	1	X		X	
157	DHW: Temperature: Tank Reference (Status)	°C	2 byte	9	1	X		X	
162	DHW: Eco Mode (Control)	0=Off; 1=On	1 bit	1	1	X	X		X

NOTICE
Use the **DHW: Eco Mode (Control)** object to set the domestic hot water ECO mode on and off.

163	DHW: Eco Mode (Status)	0=Off; 1=On	1 bit	1	1	X		X	
172	DHW: Powerful Operation (Control)	0=Off; 1=On	1 bit	1	1	X	X		X

NOTICE
Use the **DHW: Powerful Operation (Control)** object to set the DHW tank's built-in electric resistor on and off.

173	DHW: Powerful Operation (Status)	0=Off; 1=On	1 bit	1	1	X		X	
175	DHW: Disinfection Mode (Status)	0=Off; 1=On	1 bit	1	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U

NOTICE
The **DHW: Disinfection Mode (Status)** object reports the Antilegionella cycle status (on/off).

6.5.6. Communication Objects: Temperature

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
176	Temperature: A2W Unit Outdoor Ambient Reference (Status)	-40 .. 88 ºC	2 byte	9	1	X		X	
177	Temperature: Refrigerant Reference (Status)	-40 .. 88 ºC	2 byte	9	1	X		X	
178	Temperature: Outlet Water Reference (Status)	-40 .. 88 ºC	2 byte	9	1	X		X	
180	Temperature: Inlet Water Reference (Status)	-40 .. 88 ºC	2 byte	9	1	X		X	

6.5.7. Communication Objects: Extra Signals

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
181	Holiday Mode (Control)	0=Off 1=On	1 bit	1	1	X	X		X
182	Holiday Mode (Status)	0=Off 1=On	1 bit	1	1	X		X	
185	Emergency Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
186	Defrost/Start Up (Status)	0=false 1=true (defrost)	1 bit	1	2	X		X	
188	3-Way Valve Operation (Status)	0=Climatize 1=DHW	1 bit	1		X		X	
189	Back Up Heater Operation: Level 1 (Status)	0=Off 1=On	1 bit	1	1	X		X	

NOTICE
The **Back Up Heater Operation: Level 1 (Status)** object reports the status of the built-in electric resistor 1.

190	Back Up Heater Operation: Level 2 (Status)	0=Off 1=On	1 bit	1	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
NOTICE The **Back Up Heater Operation: Level 2 (Status)** object reports the status of the built-in electric resistor 2.									
191	Booster Heater Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
192	Compressor Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
193	Compressor Operating Time (Control)	0 .. 65535 (h)	2 byte	7	7	X	X		X
NOTICE Use the **Compressor Operating Time (Control)** object to overwrite the time counter, which runs while **Compressor Operation (Status)** is On (1). Write a value of **0** to reset this counter manually.									
194	Compressor Operating Time (Status)	0 .. 65535 (h)	2 byte	7	7	X		X	
195	Circulation Pump Operation (Status)	0=Off 1=On	1 bit	1	1	X		X	
196	Circulation Pump Operating Time (Control)	0 .. 65535 (h)	2 byte	7	7	X	X		X
NOTICE Use the **Circulation Pump Operating Time (Control)** object to overwrite the time counter, which runs while **Circulation Pump Operation (Status)** is On (1). Write a value of **0** to reset this counter manually.									
197	Circulation Pump Operating Time (Status)	0 .. 65535 (h)	2 byte	7	7	X		X	
198	Water Flow Rate (Status)	0 .. 4294967295 (l/h)	2 byte	9	25	X		X	
203	Energy Consumption: Total (Status)	0 .. 4294967295 (kW·h)	4 byte	13	13	X		X	
204	Energy Consumption: Total (Control)	1=Reset (reset to 0)	1 bit	1	1	X	X		X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
NOTICE By writing a value of **1** in the **Energy Consumption: Total (Control)** object, all **Energy Consumption** objects are reset to 0 (objects 203, 205, 206, and 207).									
205	Energy Consumption: Zones: Heat (Status)	0 .. 4294967295 (kW·h)	4 byte	13	13	X		X	
206	Energy Consumption: Zones: Cool (Status)	0 .. 4294967295 (kW·h)	4 byte	13	13	X		X	
207	Energy Consumption: DHW (Status)	0 .. 4294967295 (kW·h)	4 byte	13	13	X		X	
209	Zones: Heat Mode Support	0=No 1=Yes	1 bit	1	2	X		X	
210	Zones: Cool Mode Support	0=No 1=Yes	1 bit	1	2	X		X	
211	DHW Support	0=No 1=Yes	1 bit	1	2	X		X	

6.5.8. Communication Objects: Scenes

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
214	Scene: Activate/Store (Control)	0 .. 63=Activate Scene 1 .. 64 128 .. 191=Store Scene 1 .. 64	1 byte	18	1	X	X		X
NOTICE The **Scene: Activate/Store (Control)** object allows the activation and saving of each scene through a single object. • **Activate a scene**: Write the number of the scene -1. For example, to activate Scene 8, you should write 7 in this object. • **Save a scene**: Write the number of the scene + 127. For example, to save Scene 8, you should write 135 in this object.									
215	Scene: Cancel (Control)	0 .. 63=Cancel Scene 1 .. 64	1 byte	17	1	X	X		X
216	Scene: Cancel All (Control)	1=Cancel All Scenes	1 bit	1	2	X	X		X
217	Scene: Current Scene (Status)	0 .. 63=Scene 1 .. 64 255=No scene	1 byte	17	1	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
218	Scene: Activate 'SCENE #1' (Control)	1=Activate scene 1	1 bit	1	2	X	X		X
219	Scene: Save 'SCENE #1' (Control)	1=Save scene 1	1 bit	1	2	X	X		X
220	Scene: Activate 'SCENE #2' (Control)	1=Activate scene 2	1 bit	1	2	X	X		X
221	Scene: Save 'SCENE #2' (Control)	1=Save scene 2	1 bit	1	2	X	X		X
222	Scene: Activate 'SCENE #3' (Control)	1=Activate scene 3	1 bit	1	2	X	X		X
223	Scene: Save 'SCENE #3' (Control)	1=Save scene 3	1 bit	1	2	X	X		X
224	Scene: Activate 'SCENE #4' (Control)	1=Activate scene 4	1 bit	1	2	X	X		X
225	Scene: Save 'SCENE #4' (Control)	1=Save scene 4	1 bit	1	2	X	X		X
226	Scene: Activate 'SCENE #5' (Control)	1=Activate scene 5	1 bit	1	2	X	X		X
227	Scene: Save 'SCENE #5' (Control)	1=Save scene 5	1 bit	1	2	X	X		X
228	Scene: Activate 'SCENE #6' (Control)	1=Activate scene 6	1 bit	1	2	X	X		X
229	Scene: Save 'SCENE #6' (Control)	1=Save scene 6	1 bit	1	2	X	X		X
230	Scene: Activate 'SCENE #7' (Control)	1=Activate scene 7	1 bit	1	2	X	X		X
231	Scene: Save 'SCENE #7' (Control)	1=Save scene 7	1 bit	1	2	X	X		X
232	Scene: Activate 'SCENE #8' (Control)	1=Activate scene 8	1 bit	1	2	X	X		X
233	Scene: Save 'SCENE #8' (Control)	1=Save scene 8	1 bit	1	2	X	X		X
234	Scene: Activate 'SCENE #9' (Control)	1=Activate scene 9	1 bit	1	2	X	X		X
235	Scene: Save 'SCENE #9' (Control)	1=Save scene 9	1 bit	1	2	X	X		X
236	Scene: Activate 'SCENE #10' (Control)	1=Activate scene 10	1 bit	1	2	X	X		X
237	Scene: Save 'SCENE #10' (Control)	1=Save scene 10	1 bit	1	2	X	X		X

6.5.9. Communication Objects: Binary Inputs

Binary Input 1

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
238	Binary Input 1: Physical Input Status (Status)	0=Inactive 1=Active	1 bit	1	11	X		X	
239	Binary Input 1: Lock/Unlock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
240	Binary Input 1: Lock/Unlock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	
241	Binary Input 1: Unlock/Lock (Control)	0=Locked 1=Unlocked	1 bit	1	2	X	X		X
242	Binary Input 1: Unlock/Lock (Status)	0=Locked 1=Unlocked	1 bit	1	2	X		X	
243	Binary Input 1: Switching (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
244	Binary Input 1: Dimming: On/Off (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
245	Binary Input 1: Dimming: Step (Status)	0=Break ≤0=Darker ≥0=Brighter	4 bit	3	7	X	X	X	
246	Binary Input 1: Shutter/Blind: Move: Up/Down (Status)	0=Up 1=Down	1 bit	1	8	X	X	X	
247	Binary Input 1: Shutter/Blind: Move: Step (Status)	0=Step Up 1=Step Down	1 bit	1	7	X	X	X	
248	Binary Input 1: Value (Status)	0 .. 255 0 .. 65535 -32768 .. 32767 -273 .. 67043328 0 .. 4294967295	4 byte	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
249	Binary Input 1: Measurement: Total (Control)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X	X		X
250	Binary Input 1: Measurement: Total (Status)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X		X	

Binary Input 2

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
251	Binary Input 2: Physical Input Status (Status)	0=Inactive 1=Active	1 bit	1	11	X		X	
252	Binary Input 2: Lock/Unlock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
253	Binary Input 2: Lock/Unlock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	
254	Binary Input 2: Unlock/Lock (Control)	0=Locked 1=Unlocked	1 bit	1	2	X	X		X
255	Binary Input 2: Unlock/Lock (Status)	0=Locked 1=Unlocked	1 bit	1	2	X		X	
256	Binary Input 2: Switching (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
257	Binary Input 2: Dimming: On/Off (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
258	Binary Input 2: Dimming: Step (Status)	0=Break ≤0=Darker ≥0=Brighter	4 bit	3	7	X	X	X	
259	Binary Input 2: Shutter/Blind: Move: Up/Down (Status)	0=Up 1=Down	1 bit	1	8	X	X	X	
260	Binary Input 2: Shutter/Blind: Move: Step (Status)	0=Step Up 1=Step Down	1 bit	1	7	X	X	X	
261	Binary Input 2: Value (Status)	0 .. 255 0 .. 65535 -32768 .. 32767 -273 .. 67043328 0 .. 4294967295	4 byte	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	X		X	
262	Binary Input 2: Measurement: Total (Control)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X	X		X
263	Binary Input 2: Measurement: Total (Status)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X		X	

Binary Input 3

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
264	Binary Input 3: Physical Input Status (Status)	0=Inactive 1=Active	1 bit	1	11	X		X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
265	Binary Input 3: Lock/Unlock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
266	Binary Input 3: Lock/Unlock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	
267	Binary Input 3: Unlock/Lock (Control)	0=Locked 1=Unlocked	1 bit	1	2	X	X		X
268	Binary Input 3: Unlock/Lock (Status)	0=Locked 1=Unlocked	1 bit	1	2	X		X	
269	Binary Input 3: Switching (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
270	Binary Input 3: Dimming: On/Off (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
271	Binary Input 3: Dimming: Step (Status)	0=Break ≤0=Darker ≥0=Brighter	4 bit	3	7	X	X	X	
272	Binary Input 3: Shutter/Blind: Move: Up/Down (Status)	0=Up 1=Down	1 bit	1	8	X	X	X	
273	Binary Input 3: Shutter/Blind: Move: Step (Status)	0=Step Up 1=Step Down	1 bit	1	7	X	X	X	
274	Binary Input 3: Value (Status)	0 .. 255 0 .. 65535 -32768 .. 32767 -273 .. 67043328 0 .. 4294967295	4 byte	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	X		X	
275	Binary Input 3: Measurement: Total (Control)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X	X		X

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
276	Binary Input 3: Measurement: Total (Status)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X		X	

Binary Input 4

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
277	Binary Input 4: Physical Input Status (Status)	0=Inactive 1=Active	1 bit	1	11	X		X	
278	Binary Input 4: Lock/Unlock (Control)	0=Unlocked 1=Locked	1 bit	1	2	X	X		X
279	Binary Input 4: Lock/Unlock (Status)	0=Unlocked 1=Locked	1 bit	1	2	X		X	
280	Binary Input 4: Unlock/Lock (Control)	0=Locked 1=Unlocked	1 bit	1	2	X	X		X
281	Binary Input 4: Unlock/Lock (Status)	0=Locked 1=Unlocked	1 bit	1	2	X		X	
282	Binary Input 4: Switching (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
283	Binary Input 4: Dimming: On/Off (Status)	0=Off 1=On	1 bit	1	1	X	X	X	X
284	Binary Input 4: Dimming: Step (Status)	0=Break ≤0=Darker ≥0=Brighter	4 bit	3	7	X	X	X	
285	Binary Input 4: Shutter/Blind: Move: Up/Down (Status)	0=Up 1=Down	1 bit	1	8	X	X	X	
286	Binary Input 4: Shutter/Blind: Move: Step (Status)	0=Step Up 1=Step Down	1 bit	1	7	X	X	X	

#	Name	Values	Length	DPT		Flags			
				Main	Sub	R	W	T	U
287	Binary Input 4: Value (Status)	0 .. 255 0 .. 65535 -32768 .. 32767 -273 .. 67043328 0 .. 4294967295	4 byte	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	5.010 (1 byte) 7.001 (2 byte) 8.001 (2 byte) 9.001 (2 byte) 12.001 (4 byte)	X		X	
288	Binary Input 4: Measurement: Total (Control)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X	X		X
289	Binary Input 4: Measurement: Total (Status)	W / kW / W·h / kW·h / l / l/h / m3 / m3/h	4 byte	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	W=14.056 kW=9.024 W·h=13.010 kW·h=13.013 l=12.1200 l/h=9.025 m3=12.1201 m3/h=13.002	X		X	

7. Virtual Temperature

The Virtual Temperature function is a mechanism designed to offset the difference between the current setpoint temperature used by the Ecodan unit and the actual room temperature in the living area.

To compensate for that difference, the INKNXMIT001A200 gateway allows you to use the temperature obtained through third-party thermistors connected to the KNX system to establish the reference temperature for the Ecodan climate system.

REQUISITES TO USE THE VIRTUAL TEMPERATURE FUNCTION

- The Ecodan system includes at least one climate zone (heating/cooling).
- The living area where you intend to apply this function has a third-party thermistor connected to the KNX system.

WHEN TO USE THE VIRTUAL TEMPERATURE FUNCTION

Use this function when there is a mismatch between the ambient temperature of the living area and the temperature delivered by the system.

IMPORTANT

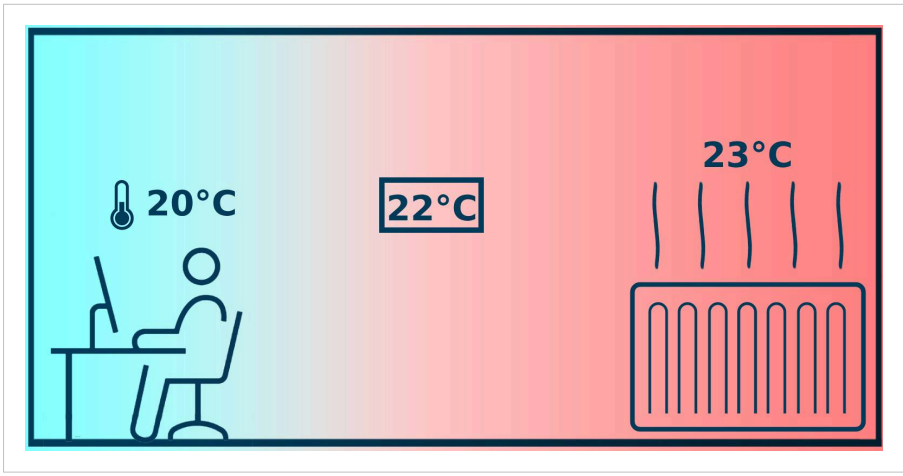
Before using the Virtual Temperature function, you should check if the reason behind the mismatch is related to a system misconfiguration, such as an error in assigning remote controllers to the system's zones, and correct it.

The Virtual Temperature function is not a substitute for a properly configured Ecodan system.

The Ecodan system itself incorporates highly advanced technology that offers multiple options to adjust the system in the most efficient manner while keeping the comfort in the living areas.

USAGE EXAMPLE

In the following image, the target temperature requested by the user is 23°C. However, the remote controller is placed at some distance from the heat emitter, and its thermistor is perceiving a temperature of 22°C. Additionally, the living area is even further away, and the actual temperature there is 20°C.



Given this case, you can place a third-party thermistor in the living area, connect it to the KNX system, and use the gateway's Virtual Temperature function to offset the difference between the temperature delivered by the system and the temperature perceived in the living area.

HOW THE VIRTUAL TEMPERATURE FUNCTION WORKS

When the Virtual Temperature function is active, the gateway is constantly applying the following formula:

$S_{AC} = T_{AC} – (T_{BMS} – S_{BMS})$

Where:

- S_{AC}: Recalculated temperature setpoint sent to the Ecodan system after the gateway applies the formula.
- T_{AC}: Ecodan system's reference temperature. This is the temperature perceived by the thermistor in the remote controller, which is used to report the room temperature.
- T_{BMS}: Ambient temperature reported by the thermistor placed in the living area and connected to the KNX system.
- S_{BMS}: Temperature setpoint requested from the KNX system for that zone. This is the target temperature that the user wants in the living area.

Given the case of the image, the values used by the Virtual Temperature function are as follows:

$S_{AC} = 22 - (20 - 23)$

When resolving the equation, we get the following result:

$S_{AC} = 22 - (-3)$

$S_{AC} = 22 + 3$

$S_{AC} = 25$

This means that the gateway is sending a setpoint temperature of 25°C, thereby achieving the desired temperature of 23°C that the user specified.

IMPORTANT
When the Virtual Temperature is active, the setpoint temperature reported by the Ecodan remote controller will differ from the actual temperature delivered by the system.

Once activated, the Virtual Temperature function recalculates the setpoint whenever any of these values change, either from the Ecodan system itself (through its remote control, for example) or from the KNX system.

HOW TO ACTIVATE THE VIRTUAL TEMPERATURE FUNCTION

Follow this procedure:

1. In the ETS project, enter the specific zone menu (either **ZONE 1** or **ZONE 2**) and set the **Control type** parameter to **Room Thermostat Ambient Temperature** as explained in ZONE 1 (page 17) and ZONE 2 (page 18).

   NOTICE
   This will activate the objects needed for the Virtual Temperature function.

   The rest of the procedure is performed from the KNX system once the project is downloaded into the gateway.

2. From the KNX system control interface, write the desired setpoint temperature using the dedicated signal. There is a specific signal for each zone:
   - Zone 1: Temperature: Setpoint (Control)
   - Zone 2: Temperature: Setpoint (Control)
3. Write the temperature value reported by the thermistor connected to the KNX system using the dedicated signal.
   There is a specific signal for each zone:
   - Zone 1: Temperature: KNX Room Thermostat Ambient Reference (Control)
   - Zone 2: Temperature: KNX Room Thermostat Ambient Reference (Control)
4. Once each of these objects receives valid values, the Virtual Temperature function is automatically activated. The object **Zone 1/Zone 2: Virtual Temperature active (Status)** will report a value of **1**.

HOW TO DEACTIVATE THE VIRTUAL TEMPERATURE FUNCTION

Write a value of 0x8000 (32768) in the dedicated object **Zone 1/Zone 2: Temperature: KNX Room Thermostat Ambient Reference (Control)**.

8. Error Codes

8.1. Gateway Error Codes

NOTE
These error codes are related to the gateway and will not appear in the Ecodan unit's screen or in its wired remote control.

Error Code in KNX	Error Description
0	No active error
-1	Communication error between the Ecodan unit and the gateway

8.2. Mitsubishi Electric Ecodan Error Codes

Error codes are reported by the Ecodan unit's screen or wired remote control using a two-digit alphanumeric code. This code is converted to a four-digit hexadecimal value using the following equivalences when reported through the BMS:

Ecodan 1st digit	BMS
A	00
b	01
E	02
F	03
J	04
L	05
P	06
U	07

Ecodan 2nd digit	BMS
1 .. 9	01 .. 09
A .. F	10 .. 15
O	16
H	17
J	18
L	19
P	20
U	21

NOTICE
For example, if the Ecodan unit reports the error code P1, the BMS will report it as 0601.

If the BMS is set to report values in decimal format instead, just convert that value: 0x0601 = 1537.

The BMS reports the error code through the object **Error: Code (Status)** and the error description through the object **Error: Description (Status)**.

Error code in the Ecodan system	Error code in the KNX BMS (in 0x)	KNX Description	Error description
L3	503	CIRC OVERHEAT	Circulation water temperature overheat protection
L4	504	TANK OVERHEAT	Tank water temperature overheat protection
L5	505	INDOOR THW	Indoor unit thermistor failure (THW1, THW2, THW5, THW5A, THW5B, THW6, THW7, THW8, THW9)
L6	506	CIRC FREEZE	Circulation water freeze protection
L8	508	HEAT OP ERROR	Heating operation error
L9	509	LOW FLOW RATE	Low flow rate detected by the flow sensor in the primary circuit (heat source side)
			Low flow rate detected by the flow switch in the primary circuit (Zone 1 side) Low flow rate detected by the flow switch in the primary circuit (Zone 2 side)
LA	510	PRESS SENSOR	Pressure sensor failure
Lb	511	HIGH PRESSURE	High pressure protection
LC	512	BOILEOVERHEAT	Boiler circulation water temperature overheat protection
LD	513	BOILE THWB	Boiler flow water thermistor failure (THWB1, THWB2)
LE	514	BOILE OP	Boiler operation error
LF	515	FLOW SENSOR	Flow sensor failure
LH	517	BOILE FREEZE	Boiler circulation water freeze protection
LJ	518	DHW OPERATION	DHW operation error
LL	519	SET DIPSWITCH	Setting errors of DIP switches on the FTC control board
P1	601	ROOMTH	Room temperature thermistor failure (TH1A, TH1B)
P2	602	LIQUID FAIL	Liquid temperature thermistor failure (TH2)
P6	606	ANTI FREEZE	Anti-freeze protection of plate heat exchanger
PE	614	INLET TEMP	Inlet water temperature abnormality
E1/E2	0201/0202	MAINBOARD	Main remote controller control board failure
E3/E5	0203/0205	MAIN TX ERROR	Main remote controller communication failure (Transmission error)
E4	204	MAIN RX ERROR	Main remote controller communication failure (Reception error)
E6	206	IN/OUT RX	Indoor/outdoor communication failure (Signal receiving error)

Error code in the Ecodan system	Error code in the KNX BMS (in 0x)	KNX Description	Error description
E7	207	IN/OUT TX	Indoor/outdoor communication failure (Transmission error)
E8	208	OUT SIGNAL RX	Interface unit/Flow temp. controller-outdoor unit communication error (Signal receiving error) (Outdoor unit)
E9	209	OUT SIGNAL TX	Interface unit/Flow temp. controller-outdoor unit communication error (Transmitting error) (Outdoor unit)
EA	210	MISWIRING CON	Miswiring of the interface unit/Flow temp. controller-outdoor unit connecting wire
Eb	211	REVERSE WIRE	Miswiring of the interface unit/Flow temp. controller-outdoor unit connecting wire (reverse wiring or disconnection)
EC	212	START TIME	Startup time over
Ed	213	SERIAL COMM	Serial communication error
EE	214	COMBI OUTDOOR	Combination error between FTC and outdoor unit
EF	215	NON DEF CODE	Non-defined check code
J1 .. J8	0401 .. 0408	WIRELESS COMM	Wireless remote controller/wireless receiver communication error
F3	303	63L CON OPEN	63L connector open
F5	305	63H CON OPEN	63H connector open
F9	309	63L&H OPEN	63L and 63H connector open
U1	701	HIGH PRESSURE	High pressure (High pressure switch 63H operated)
U2	702	HIGH DIS TEMP	High discharge temperature
			High compressor surface temperature
U3	703	O/S CIRC TH4	Open/short circuit of discharge thermistor (TH4)
U4	704	O/S CIRC THW	Open/short circuit of outdoor unit thermistors (TH3, TH6, TH7, TH8)
U5	705	ABNORMAL TEMP	Abnormal temperature of heat sink (TH8)
U6	706	POWER MODULE	Power module failure
U7	707	LOW SUPERHEAT	Too low superheat due to low discharge temperature
U8	708	OUT FAN MOTOR	Outdoor fan motor failure
U9	709	VOLTAGE ERROR	Overvoltage error Undervoltage error
			Input current sensor error/L1-phase open error Abnormal power synchronous signal
			PFC error (Overvoltage/Undervoltage/ Overcurrent)
			PFC/IGBT error (Undervoltage)
Ud	713	OVERHEAT PROT	Overheat protection

Error code in the Ecodan system	Error code in the KNX BMS (in 0x)	KNX Description	Error description
UE	714	ABNORMAL PRES	Abnormal pressure detected by the pressure sensor (63HS)
UF	715	COMP O/ INTER	Compressor overcurrent interruption (When compressor locked)
UH	717	INPUT CURRENT	Current sensor error or input current error
UL	719	LOW PRESSURE	Low pressure (63L operated)
UP	720	COMP O/ INTER	Compressor overcurrent interruption

NOTICE

These error codes may differ depending on the specific Ecodan unit model.

Refer to the Ecodan system's original documentation to obtain a complete list of error codes.

If you detect an unknown error code, please contact the Mitsubishi Electric support department.

IMPORTANT

If the Ecodan unit is connected to a Mitsubishi Electric centralized controller, it may report errors using a different set of codes. Refer to the original documentation to determine the necessary conversions.