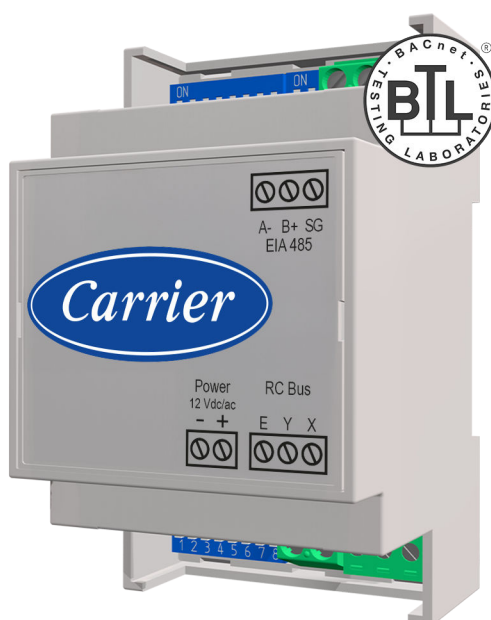


CAR-DMS-BAC-001 GATEWAY

Carrier Commercial and VRF Systems to BACnet MS/TP

USER MANUAL
Version 1.0.0
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1. Description and Order Codes

BACnet MS/TP Server Gateway for Carrier Air Conditioning Systems.

Compatible with commercial and VRF air conditioning systems commercialized by Carrier.

ORDER CODE	LEGACY ORDER CODE
CAR-DMS-BAC-001	-

2. General Information

2.1. Intended Use of the User Manual

This manual contains the main features of this Carrier 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.

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.

All wires (for communication and power supply, if needed) must only be connected to networks with indoor wiring. All communication ports are considered for indoor use and must only be connected to SELV circuits.

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

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

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

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

This Intesis gateway is designed for installation in an enclosure. When the device is mounted outside an enclosure, precautions should be taken to avoid electrostatic discharges to the unit in environments with static levels above 4 kV. When working in an enclosure (e.g., making adjustments, setting switches, etc.), typical anti-static precautions should be observed before touching the unit.

Binary inputs, if present, are potential-free contact. 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. Quickstart Guide for the Gateway

**CAUTION**

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

1. Mount the gateway in the desired installation site. This gateway can be mounted over a DIN rail or a wall. See details in [Mounting \(page 7\)](#).

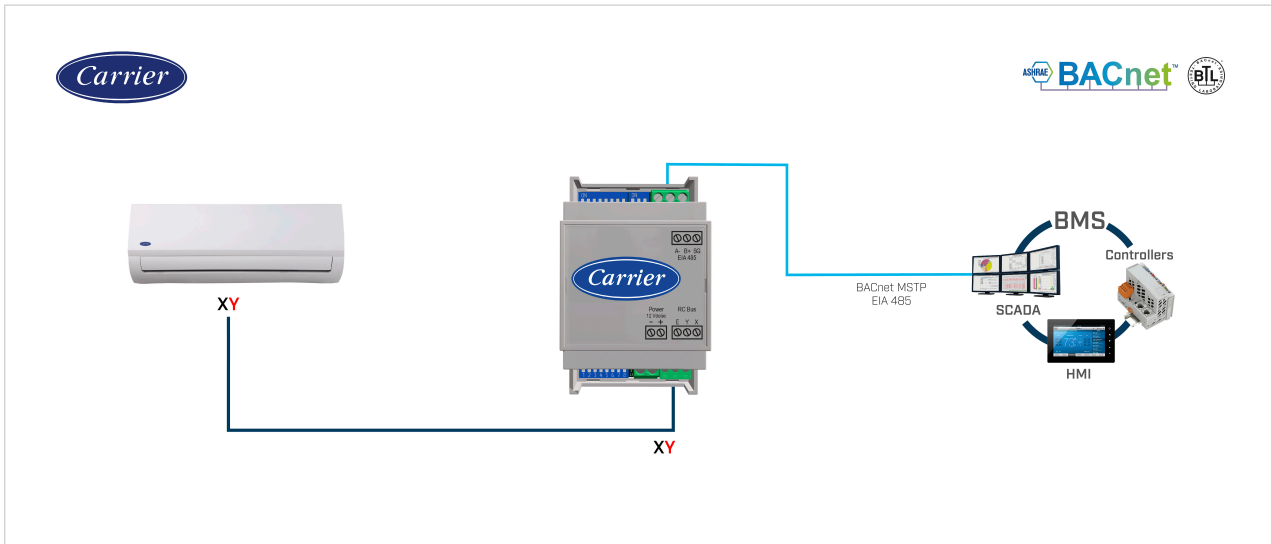
**NOTE**

DIN rail mounting inside a grounded cabinet or metal enclosure is recommended.

2. Configure the gateway using the built-in DIP switches SW1, SW2, and SW3. See details in [DIP Switches \(page 8\)](#).
3. Connect the gateway to the Carrier EYX bus via its **RC Bus EYX** port. See details in [Connection Procedure \(page 11\)](#).
4. Connect the gateway to the BACnet network via its **EIA-485** port.
5. Connect a power supply to the gateway's **Power** port (12 VDC/AC, min. 200 mA).
6. Check the list of BACnet objects you can integrate into your BACnet project. See details in [Objects and Properties \(page 19\)](#).
7. Check the communication performance between the BACnet bus and the AC system through the gateway's LED indicators. See details in [LED Indicators \(page 13\)](#).
8. The Intesis gateway is ready to be used in your system.

4. Overview

Figure 1. Integration of Carrier AC systems into a BACnet installation using the CAR-DMS-BAC-001 gateway



NOTE

This document assumes that the user is familiar with BACnet and Carrier technologies and their technical terms.

4.1. Inside the Package

- CAR-DMS-BAC-001 gateway.
- Installation guide.

4.2. Main Features

- Full interoperability with BACnet devices.
- Configuration with onboard DIP switches.
- Quick and easy installation: Set the DIP switches, plug, and play.
- Reduced dimensions (HxWxD): 93 x 53 x 58 mm / 3.7 x 2.1 x 2.3".
- Mountable on DIN rail or wall.
- Total control and monitoring of the AC unit from the BACnet system, including the AC unit's internal variables, running hours counter (for filter maintenance control), and error indication, among many other functions.
- Significant reduction of the HVAC system energy consumption.
- Three-year warranty.

4.3. Gateway Capacity

This Intesis gateway can integrate one single Carrier AC indoor unit and its associated elements.

4.4. General Functionality

Once connected, the CAR-DMS-BAC-001 gateway continuously monitors the AC system bus, keeping track of the status of all signals from the Carrier indoor unit. When the Building Management System (BMS) requests information, the gateway retrieves and sends this data. Conversely, it also relays commands from the BMS to the indoor unit.

The gateway integrates all necessary communication objects, ensuring that each signal from the Carrier unit corresponds to the appropriate BACnet object.

5. Hardware

5.1. Mounting

Mount the gateway over a wall or a DIN rail.



IMPORTANT

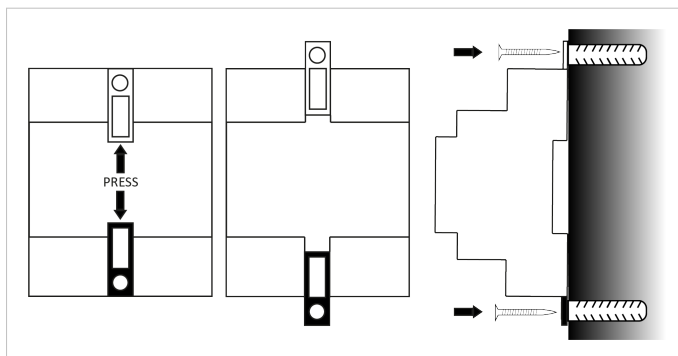
Do not mount the gateway in air-handling units or conduits.



NOTE

DIN rail mounting inside a grounded metallic cabinet is recommended.

WALL MOUNTING



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

DIN RAIL MOUNTING

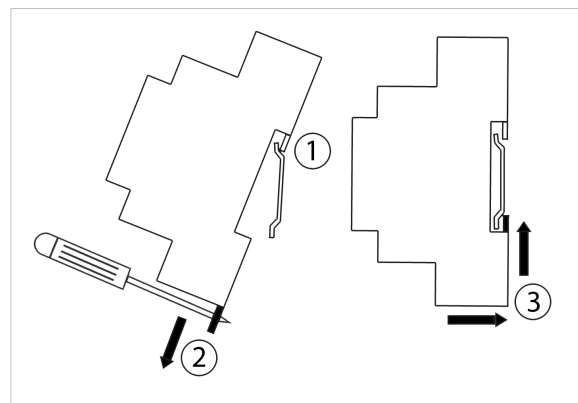
Keep the clips in its original position.

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



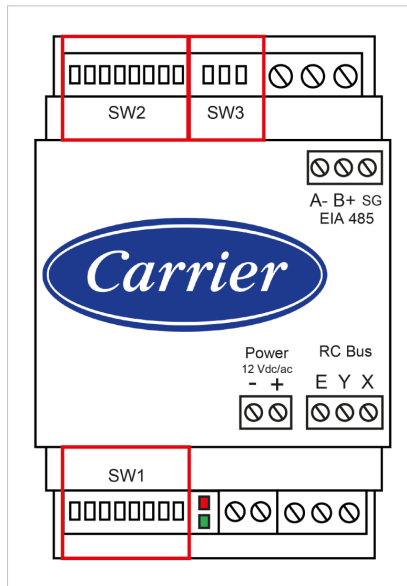
NOTE

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



5.2. DIP Switches

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



IMPORTANT

Set each DIP switch according to your needs before wiring and powering the gateway.



NOTE

Observe the **ON** indicator on each DIP switch as a reference.

SW1 (positions 1 .. 5) - Gateway configuration:

Binary value b0 .. b7	Position								Description
	1	2	3	4	5	6	7	8	
00XXXXXX	OFF	OFF	X	X	X	X	X	X	Carrier V4/V6 Autodetection (default)
01XXXXXX	OFF	ON	X	X	X	X	X	X	Reserved
10XXXXXX	ON	OFF	X	X	X	X	X	X	Force Carrier V4
11XXXXXX	ON	ON	X	X	X	X	X	X	Force Carrier V6
XX0XXXXX	X	X	OFF	X	X	X	X	X	-
XX1XXXXX	X	X	ON	X	X	X	X	X	-
XXX0XXXX	X	X	X	OFF	X	X	X	X	-
XXX1XXXX	X	X	X	ON	X	X	X	X	-
XXXX0XXX	X	X	X	X	OFF	X	X	X	Low power mode ¹
XXXX1XXX	X	X	X	X	ON	X	X	X	High performance mode (default) ¹



IMPORTANT

¹ SW1-5 (DIP switch 1, position 5) determines the performance and consumption of the gateway, which are proportional. If you need to decrease the gateway's consumption, change it to low power mode.

SW1 (positions 6 .. 8) - Baud rate:

Binary value	Position								Description
b0 .. b7	1	2	3	4	5	6	7	8	
XXXXXX000	X	X	X	X	X	OFF	OFF	OFF	Autobaud rate (default) ²
XXXXXX100	X	X	X	X	X	ON	OFF	OFF	9600 bps
XXXXXX010	X	X	X	X	X	OFF	ON	OFF	19200 bps
XXXXXX110	X	X	X	X	X	ON	ON	OFF	38400 bps
XXXXXX001	X	X	X	X	X	OFF	OFF	ON	57600 bps
XXXXXX101	X	X	X	X	X	ON	OFF	ON	76800 bps
XXXXXX011	X	X	X	X	X	OFF	ON	ON	115200 bps
XXXXXX111	X	X	X	X	X	ON	ON	ON	Autobaud rate ²

**NOTE**

² When selecting the Autobaud rate mode, the gateway will scan the network to look for another BACnet MS/TP device with a fixed baud rate to match its value. Once detected, the baud rate will not be modified until the gateway is restored to its factory settings.

SW2 - MAC address (positions 1 .. 7) and temperature unit Celsius/Fahrenheit (position 8):

Binary value	Position								MAC address ³	Description
b0 .. b7	1	2	3	4	5	6	7	8		
0000000X	OFF	OFF	OFF	OFF	OFF	OFF	OFF	X	0	-
1000000X	ON	OFF	OFF	OFF	OFF	OFF	OFF	X	1	-
0100000X	OFF	ON	OFF	OFF	OFF	OFF	OFF	X	2	-
1100000X	ON	ON	OFF	OFF	OFF	OFF	OFF	X	3	-
...	...								...	-
1011111X	ON	OFF	ON	ON	ON	ON	ON	X	125	-
0111111X	OFF	ON	ON	ON	ON	ON	ON	X	126	-
1111111X	ON	ON	ON	ON	ON	ON	ON	X	127	-
XXXXXXX0	X	X	X	X	X	X	X	OFF	-	Temperature in Celsius (default)
XXXXXXX1	X	X	X	X	X	X	X	ON	-	Temperature in Fahrenheit

**IMPORTANT**

³ Regarding the MAC address:

The device instance for the gateway can be assigned automatically or manually:

- **Automatic addressing (default):** Under this mode, the gateway's device instance will be composed of the selected MAC address number from SW2 and a base address of 246000.
- **Manual addressing:** You can write the device instance from BACnet using the Object Identifier property of the Device object. When doing so, the SW2 configuration (positions 1 to 7) is not considered.

To know more, see [Midea AC Gateway \(Device Object Type\) \(page 19\)](#).

SW3 - EIA 485 bus termination resistor (position 1) and polarization (positions 2 and 3):

Binary value b0 .. b2	Position			Description
	1	2	3	
0 X X	OFF	X	X	120 Ω termination resistor inactive. ⁴
1 X X	ON	X	X	120 Ω termination resistor active. ⁴
X 0 0	X	OFF	OFF	No bus polarization (default value)
X 1 1	X	ON	ON	Bus polarization active

**IMPORTANT**

⁴ The EIA-485 bus requires a 120Ω termination resistor at each end of the bus to avoid signal reflections.

In order to prevent fail status detections by the receivers, which are "listening" to the bus, when all the transmitters' outputs are in three-state (high impedance), a fail-safe biasing mechanism is required. This mechanism provides a safe status (a correct voltage level) in the bus when all the transmitters' outputs are in three-state.

The CAR-DMS-BAC-001 gateway includes a built-in termination resistor of 120Ω that can be activated using the DIP switch SW3.

SW3, Position 1:

- **ON:** 120 Ω termination active.
- **OFF:** 120 Ω termination inactive (default position).

Some BACnet MS/TP EIA-485 client devices can provide an internal 120Ω termination resistor and/or fail-safe biasing. Consult the technical documentation of the client device connected to the EIA-485 network in each case.

If the termination resistor is enabled and you install the gateway at one end of the bus, do not install an additional termination resistor at that end.

**IMPORTANT**

The DIP switches configuration will only take effect after rebooting the gateway.

5.3. Connection Procedure


CAUTION

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

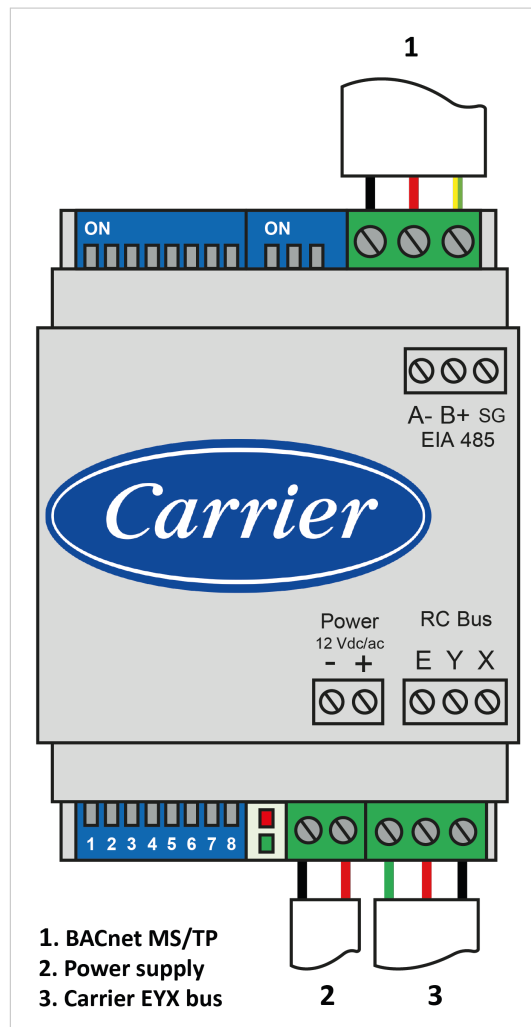

IMPORTANT

Keep communication cables as far away as possible from power and ground cables. Never bundle them together.


NOTE

Mount the gateway in the desired place and set the DIP switches according to your needs before starting the wiring procedure.

Figure 2. Wiring diagram



1. Connect the Carrier air conditioning network bus (EYX) to the gateway's **RC Bus EYX** port.

**IMPORTANT**

Observe polarity.

**NOTICE**

The maximum length for the XYE bus is 1,200 meters (4000 feet).

2. Connect the BACnet MS/TP bus to the gateway's **EIA-485** port.

**IMPORTANT**

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

The maximum length for the EIA-485 bus is 1,200 meters (4000 feet).

The EIA-485 bus doesn't allow loop or star topologies.

**IMPORTANT**

The EIA-485 bus requires a 120Ω termination resistor at each end of the bus to avoid signal reflections.

In order to prevent fail status detections by the receivers, which are "listening" to the bus, when all the transmitters' outputs are in three-state (high impedance), a fail-safe biasing mechanism is required. This mechanism provides a safe status (a correct voltage level) in the bus when all the transmitters' outputs are in three-state.

The CAR-DMS-BAC-001 gateway includes a built-in termination resistor of 120Ω that can be activated using the DIP switch SW3.

SW3, Position 1:

- **ON:** 120 Ω termination active.
- **OFF:** 120 Ω termination inactive (default position).

Some BACnet MS/TP EIA-485 client devices can provide an internal 120Ω termination resistor and/or fail-safe biasing. Consult the technical documentation of the client device connected to the EIA-485 network in each case.

If the termination resistor is enabled and you install the gateway at one end of the bus, do not install an additional termination resistor at that end.

3. Connect the power supply to the gateway's **Power** port.

**IMPORTANT**

Observe polarity.

Supply the correct voltage and power: 12 VDC/AC, 0.2 A.

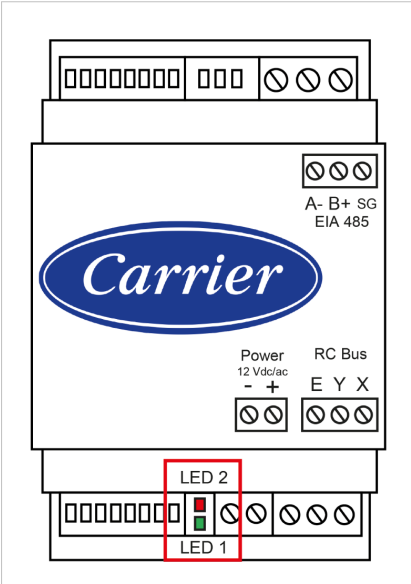
Use a SELV, NEC class 2, or Limited Power Source (LPS) power supply.

The maximum distance between the gateway and the power source is three meters (9.84 feet).

4. Connect all systems to power.

5.4. LED Indicators

There are two LEDs at the lower side of the gateway, between the DIP switch block SW1 and the **Power** connector.



When powering the gateway up, both LEDs blink once and then turn off. After that, LEDs will behave as described in the table below:

LED	Pattern	Description
L2 (Red)	Steady ON	BACnet MS/TP link performed
	Blinking	Activity on the BACnet MS/TP bus
	OFF	BACnet MS/TP link not performed
L1 (Green)	Steady ON	AC communication error
	Blinking	AC unit error
	Flashing	AC communication OK

5.5. Technical Specifications

Housing	Plastic, type PC (UL 94 V-0) Net dimensions (HxWxD): 93 x 53 x 58 mm / 3.7 x 2.1 x 2.3" Color: Light grey. RAL 7035
Weight	85 g (3 oz)
Terminal wiring	Wire cross-section/gauge per terminal: One core: 0.2 .. 2.5 mm ² (24 .. 11 AWG) Two cores: 0.2 .. 1.5mm ² (24 .. 15 AWG) Three cores: Not permitted Use solid or stranded wires (twisted or with ferrule).
Power supply	SELV-rated NEC class 2 or limited power source (LPS) power supply 12 VDC/AC; 0.2 A Max. distance to the power supply: 3 m (9.8 ft)
Mounting	Wall or DIN rail
EIA-485 port for BACnet MS/TP	1 x pluggable terminal block (3 poles: A-, B+, and SG)
AC unit port	1 x RC5 or serial EIA-485 pluggable terminal block (3 poles: EYX)
LED indicators	2 x Communication status
DIP switches	SW1: Gateway and baud rate configuration SW2: MAC address and temperature unit SW3: Bus polarization and termination: - Position 1: - On: 120 Ω termination active - Off: 120 Ω termination inactive (default) - Positions 2 and 3: - On: Polarization active - Off: Polarization inactive (default)
Operational and storage temperature	Operational: 0 .. 60°C (32 .. 140°F) Storage: -20 .. 85°C (-4 .. 185°F)
Operational and storage humidity	Operational: 5% to 95% RH non-condensing Storage: <95% RH non-condensing
Isolation Voltage	1500 VDC between EIA-485 and RC5 buses
Isolation resistance	1000 MΩ

5.6. Dimensions

Net dimensions (HxWxD):

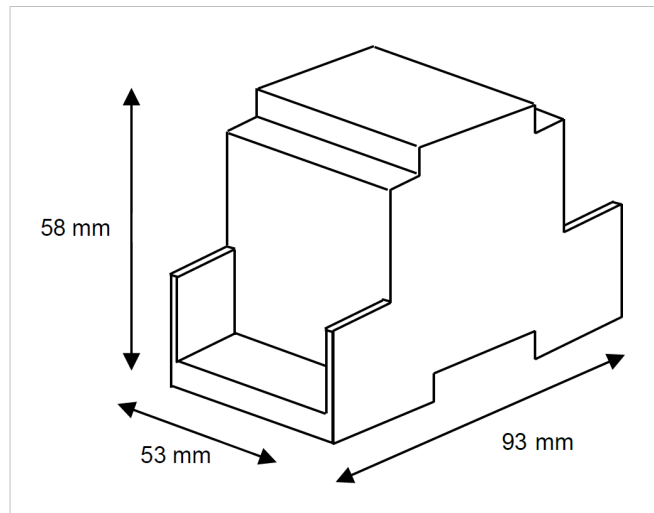
Millimeters: 93 x 53 x 58 mm

Inches: 3.66 x 2.08 x 2.28"



IMPORTANT

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



6. Restore the Factory Settings

To restore the gateway to its factory settings, proceed as follows:

1. Set all switches from DIP switches SW1 and SW2 to **ON**.
2. Reboot the gateway:
 - a. Power it OFF.
 - b. Power it ON.



NOTE

To turn the gateway OFF, disconnect it from the AC unit and from the power supply, if there is one. To turn the gateway ON, reestablish those connections.

3. After the reboot, LEDs will blink with the SOS Morse sequence:
 - a. Three short blinks
 - b. Three longer blinks
 - c. Three short blinks
4. Set all switches from DIP switches SW1 and SW2 to **OFF** within 30 seconds.



IMPORTANT

If you take longer than 30 seconds, all LEDs will turn off, meaning that the procedure has failed. To retry it, go to step 1 and begin the procedure again.

After this procedure, the LED will flash red, meaning that the gateway has been restored to the factory settings.

To continue working with the gateway, proceed as usual:

1. Set the DIP switches again depending on the desired configuration.
2. Reboot the gateway to make the DIP switches configuration take effect:
 - a. Power it OFF.
 - b. Power it ON.
3. ...

7. Objects

7.1. Supported Object Types

Object type	ID
Analog-Input	0
Analog-Output	1
Analog-Value	2
Binary-Input	3
Binary-Output	4
Binary-Value	5
Device	8
Multistate-Input	13
Multistate-Output	14
Multistate-Value	19

7.2. Supported Service Types

Service type	Service name	Supported
Alarm and Event Services	AcknowledgeAlarm	☐
	ConfirmedCOVNotification	☐
	ConfirmedEventNotification	☐
	GetAlarmSummary	☐
	GetEnrollmentSummary	☐
	SubscribeCOV	☒
File Access Services	AtomicReadFile	☐
	AtomicWriteFile	☐
Object Access Services	AddListElement	☐
	RemoveListElement	☐
	CreateObject	☐
	DeleteObject	☐
	ReadProperty	☒
	ReadPropertyConditional	☐
	ReadPropertyMultiple	☒
	ReadRange	☐
	WriteProperty	☒
	WritePropertyMultiple	☒
Remote Device Management Services	DeviceCommunicationControl	☐
	ConfirmedPrivateTransfer	☐
	ConfirmedTextMessage	☐

Service type	Service name	Supported
	ReinitializeDevice	☒
Virtual Terminal Services	VtOpen	☐
	VtClose	☐
	VtData	☐
Security Services	Authenticate	☐
	RequestKey	☐
Unconfirmed Services	I-Am	☒
	I-Have	☒
	UnconfirmedCOVNotification	☐
	UnconfirmedEventNotification	☐
	UnconfirmedPrivateTransfer	☐
	UnconfirmedTextMessage	☐
	TimeSynchronization	☐
	UtcTimeSynchronization	☐
	Who-Has	☒
	Who-Is	☒
	LifeSafetyOperation	☐
	SubscribeCOVProperty	☒
	GetEventInformation	☐

7.3. Type: Gateway

Object name	Description	Object type	Object instance
INBACMID001I100	Midea AC gateway	8: Device	246000 (default)

7.4. Type: Indoor Unit

Object name	Object type	Object instance
OnOff_status	BI	0
OnOff_command	BO	0
Mode_status	MI	0
Mode_command	MO	0
SetPoint_status	AI	0
Setpoint_command	AO	0
FanSpeed_status	MI	1
FanSpeed_command	MO	1
AirDirectionUD_status	MI	2
AirDirectionUD_command	MO	2
RoomTemperature_status	AI	1

Object name	Object type	Object instance
RoomTemperature_command	AO	1
ErrorCode	AI	2
ErrorCodeM	MI	4
ErrorActive	BI	1
OnTimeCounter	AV	0
Occupancy	MV	0
OccupiedCoolSetpoint	AV	1
OccupiedHeatSetpoint	AV	2
UnoccupiedCoolSetpoint	AV	3
UnoccupiedHeatSetpoint	AV	4
OccupancyContinuousCheck	BV	0
UnoccupiedDeadBandAction	BV	1
RemoteControllerProhibit_status	MI	6
RemoteControllerProhibit_command	MO	5
DIP_SW_S1_status	AI	9
DIP_SW_S2_status	AI	10
SerialNumber	AI	11
AC_IU_address	MV	1
Midea_setting	MI	11

7.5. Objects and Properties

7.5.1. Midea AC Gateway (Device Object Type)

Object_Identifier: The device instance for the gateway can be assigned either automatically or manually:

- **Automatic addressing (default):** Under this mode, the gateway's device instance will be composed of the selected MAC address number from SW2 and a base address of 246000.
- **Manual addressing:** You can write the device instance from BACnet using the Object Identifier property of the Device object.



IMPORTANT

When using manual addressing, that is, overwriting the Object Identifier property from BACnet, the [DIP switch SW2 configuration \(positions 1 to 7\) \(page 8\)](#) is not considered for device instance calculation until the gateway is [restored to its factory settings \(page 16\)](#).

Object_Name: in the **Device Object**, it is configurable by writing on this property's value.

Description: in the **Device Object**, it is configurable by writing on this property's value. Max. length is 63 chars.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	Device, 246000 (default value)* <i>* See the information above regarding the automatic and manual addressing of the device instance.</i>	R	W
Object_Name	CharacterString	INBACMID001I100	R	W
Object_Type	BACnetObjectType	DEVICE (8) (Device Object Type)	R	R
System_Status	BACnetDeviceStatus	OPERATIONAL (0)	R	R
Vendor_Name	CharacterString	HMS Industrial Networks SLU	R	R
Vendor_Identifier	Unsigned16	246	R	R
Model_Name	CharacterString	INBACMID001I100	R	R
Firmware_Revision	CharacterString	1.0.0.0	R	R
Application_Software_Version	CharacterString	1.0.0.0	R	R
Location	CharacterString	""	O	-
Description	CharacterString	Midea AC interface	O	W
Protocol_Version	Unsigned	1	R	R
Protocol_Revision	Unsigned	12	R	R
Protocol_Services_Supported	BACnetServiceSupported	Refer to section Supported Service Types (page 17)	R	R
Protocol_Object_Types_Supported	BACnetObjectTypes Supported	Refer to section Supported Object Types (page 17)	R	R
Object_List	BACnetArray[N] of BACnetObjectIdentifier	BACnetARRAY[N]	R	R
Structured_Object_List	BACnetArray[N] of BACnetObjectIdentifier	-	O	-
Max_APDU_Length_Accepted	Unsigned	480	R	R
Segmentation_Supported	BACnetSegmentation	SEGMENTED-BOTH (0)	R	R
Max_Segments_accepted	Unsigned	16	O	R
VT_Classes_Supported	List of BACnetVTClass	-	O	-
Active_VT_Sessions	List of BACnetVTSession	-	O	-
Local_Date	Date	-	O	-
Local_Time	Time	-	O	-
UTC_Offset	INTEGER	-	O	-
Daylight_Savings_Status	BOOLEAN	-	O	-
APDU_Segment_Timeout	Unsigned	3000	R	R
APDU_Timeout	Unsigned	3000	R	R
Number_of_APDU_Retries	Unsigned	3	R	R

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
List_Of_Session_Keys	List of BACnetSessionKey	-	O	-
Time_Synchronization_Recipients	List of BACnetRecipient	-	O	-
Max_Master	Unsigned	32	R	W
Max_Info_Frames	Unsigned	1	O	R
Device_Address_Binding	List of BACnetAddressBinding	NULL (empty)	R	R
Database_Revision	Unsigned	0	R	R
Configuration_Files	BACnetArray[N] of BACnetObjectIdentifier	-	O	-
Last_Restore_Time	BACnetTimeStamp	-	O	-
Backup_Failure_Timeout	Unsigned16	-	O	-
Active_COV_Subscriptions	List of BACnetCOVSubscription	List of BACnetCOVSubscription	O	R
Slave_Proxy_Enable	BACnetArray[N] of BOOLEAN	-	O	-
Manual_Slave_Address_Binding	List of BACnetAddressBinding	-	O	-
Auto_Slave_Discovery	BACnetArray[N] of BOOLEAN	-	O	-
Slave_Address_Binding	BACnetAddressBinding	-	O	-
Last_Restart_Reason	BACnetRestartReason	-	O	-
Time_Of_Device_Restart	BACnetTimeStamp	-	O	-
Restart_Notification_Recipients	List of BACnetRecipient	-	O	-
UTC_Time_Synchronization_Recipients	List of BACnetRecipient	-	O	-
Time_Synchronization_Interval	Unsigned	-	O	-
Align_Intervals	BOOLEAN	-	O	-
Interval_Offset	Unsigned	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.2. OnOff_status (Binary Input Object Type)

It indicates if the indoor unit is turned on or off.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Binary Input, 0)	R	R
Object_Name	CharacterString	OnOff_status	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	Off	O	R
Active_Text	CharacterString	On	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.3. OnOff_command (Binary Output Object Type)

It turns the indoor unit on or off.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Binary Output, 0)	R	R
Object_Name	CharacterString	OnOff_command	R	R
Object_Type	BACnetObjectType	BINARY_OUTPUT (4)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	Off	O	R
Active_Text	CharacterString	On	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	R
Time Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Feedback_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.4. Mode_status (Multistate Input Object Type)

It indicates the indoor unit's current mode.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Input, 0)	R	R
Object_Name	CharacterString	Mode_status	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 .. 5	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER(7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	5	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Mode status table below.	O	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Values	List of Unsigned	-	O	-
Fault_Values	List of Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 1. Mode status

Present_Value	State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

7.5.5. Mode_command (Multistate Output Object Type)

It sets the AC indoor unit's mode.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Output,0)	R	R
Object_Name	CharacterString	Mode_command	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 .. 5	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	5	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Mode command table below	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Feedback_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 2. Mode command

Present_Value	State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

7.5.6. Setpoint_status (Analog Input Object Type)

It reports the temperature setpoint requested to the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 0)	R	R
Object_Name	CharacterString	SetPoint_status	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL		R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Celsius degrees (62) Fahrenheit degrees (64)	R	R
Min_Pres_Value	REAL	16°C / 61°F	O	R
Max_Pres_Value	REAL	32°C / 90°F	O	R
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit via the DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.7. Setpoint_command (Analog Output Object Type)

It is used to request a temperature setpoint from the BACnet side.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Output, 0)	R	R
Object_Name	CharacterString	SetPoint_command	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	16 .. 32°C / 61 .. 90°F	W	W
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Celsius degrees (62) Fahrenheit degrees (64)	R	R
Min_Pres_Value	REAL	16°C / 61°F	O	R
Max_Pres_Value	REAL	32°C / 90°F	O	R
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	22	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit via the DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.8. FanSpeed_status (Multistate Input Object Type)

It indicates the indoor unit's fan speed.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Input, 1)	R	R
Object_Name	CharacterString	FanSpeed_status	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 .. 4	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE/TRUE	R	R
Number_Of_States	Unsigned	4	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Fan speed status table below.	O	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Values	List of Unsigned	-	O	-
Fault_Values	List of Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 3. Fan speed status

Present_Value	State_Text
1	Auto
2	Fan Speed 1
3	Fan Speed 2
4	Fan Speed 3

7.5.9. FanSpeed_command (Multistate Output Object Type)

It sets the indoor unit's fan speed.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Output, 1)	R	R
Object_Name	CharacterString	FanSpeed_command	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 .. 4	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	4	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Fan speed command table below	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Feedback_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 4. Fan speed command

Present_Value	State_Text
1	Auto
2	Fan Speed 1
3	Fan Speed 2
4	Fan Speed 3

7.5.10. AirDirectionUD_status (Multistate Input Object Type)

It indicates the indoor unit's vertical air direction (up-down) status.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Input, 2)	R	R
Object_Name	CharacterString	AirDirectionUD_status	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT(13)	R	R
Present_Value	Unsigned	1 .. 2	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE/TRUE	R	R
Number_Of_States	Unsigned	2	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Air direction status table below.	O	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Values	List of Unsigned	-	O	-
Fault_Values	List of Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 5. Air direction up-down status

Present_Value	State_Text
1	Stop
2	Swing

7.5.11. AirDirectionUD_command (Multistate Output Object Type)

It sets the indoor unit's vertical air direction (up-down).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Output, 2)	R	R
Object_Name	CharacterString	AirDirectionUD_command	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 .. 2	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	2	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Air direction command table below	O	R
Priority_Array	BACnetPriorityArray	-	R	R
Relinquish_Default	Unsigned	-	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Feedback_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 6. Air direction up-down command

Present_Value	State_Text
1	Stop
2	Swing

7.5.12. RoomTemperature_status (Analog Input Object Type)

It reports the ambient temperature measured by the sensor from the AC system side.



NOTE

To know more, see [Virtual Temperature Functionality and Temperature Signals \(page 50\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 1)	R	R
Object_Name	CharacterString	RoomTemperature_status	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-20 .. 100°C / -4 .. 212°F	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER (7)	O	R
Out_Of_Service	BOOLEAN	FALSE/TRUE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Celsius degrees (62) Fahrenheit degrees (64)	R	R
Min_Pres_Value	REAL	-20°C / -4°F	O	-
Max_Pres_Value	REAL	100°C / 212°F	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.13. RoomTemperature_command (Analog Output Object Type)

It is used to write the ambient temperature measured by a sensor from the BACnet side.



NOTE

To know more, see [Virtual Temperature Functionality and Temperature Signals \(page 50\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Output, 1)	R	R
Object_Name	CharacterString	RoomTemperature_command	R	R
Object_Type	BACnetObjectType	ANALOG_OUTPUT (1)	R	R
Present_Value	REAL	-20 .. 100°C / -4 .. 212°F	R	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Celsius degrees (62) Fahrenheit degrees (64)	R	R
Min_Pres_Value	REAL	-20°C / -4°F	O	-
Max_Pres_Value	REAL	100°C / 212°F	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	22	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.14. ErrorCode (Analog Input Object Type)

It indicates the AC system's current error.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 2)	R	R
Object_Name	CharacterString	ErrorCode	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	-1 .. 6846	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	300	O	-
Units	BACnetEngineeringUnits	NO_UNITS (95)	R	R
Min_Pres_Value	REAL	-1	O	-
Max_Pres_Value	REAL	6846	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTICE

For more information on each error code, see [Error Codes \(page 55\)](#).

7.5.15. ErrorCodeM (Multistate Input Object Type)

It indicates the AC system's current error.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Input, 4)	R	R
Object_Name	CharacterString	ErrorCodeM	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT(13)	R	R
Present_Value	Unsigned	1 .. 33	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	33	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Error codes table below	O	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Values	List of Unsigned	-	O	-
Fault_Values	List of Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 7. Error codes

Present_Value	State_Text	Present_Value	State_Text	Present_Value	State_Text
1	-	12	E9	23	P5
2	CommError	13	EA	24	P6
3	E0	14	EB	25	P7
4	E1	15	EC	26	P8
5	E2	16	ED	27	P9
6	E3	17	EE	28	PA
7	E4	18	EF	29	PB
8	E5	19	P1	30	PC
9	E6	20	P2	31	PD
10	E7	21	P3	32	PE
11	E8	22	P4	33	PF

7.5.16. ErrorActive (Binary Input Object Type)

It indicates if there is an active error in the AC system.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Binary Input, 1)	R	R
Object_Name	CharacterString	ErrorActive	R	R
Object_Type	BACnetObjectType	BINARY_INPUT (3)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	No	O	R
Active_Text	CharacterString	Error	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.17. OnTimeCounter (Analog Value Object Type)

It indicates the AC unit running time.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 0)	R	R
Object_Name	CharacterString	OnTimeCounter	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	0 .. 65535	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Hours (71)	R	R
Min_Pres_Value	REAL	0	O	-
Max_Pres_Value	REAL	65535	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.18. Occupancy (Multistate Value Object Type)

It indicates the current occupancy status.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Value, 0)	R	R
Object_Name	CharacterString	Occupancy	R	R
Object_Type	BACnetObjectType	MULTISTATE_VALUE (19)	R	R
Present_Value	BACnetBinaryPV	1 .. 3	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	3	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Occupancy values table below	O	R
Priority_Array	BACnetPriorityArray	-	R	-
Relinquish_Default	Unsigned	-	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	Unsigned	-	O	-
Fault_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 8. Occupancy values

Present_Value	State_Text
1	Occupied
2	Unoccupied
3	Disabled

7.5.19. OccupiedCoolSetPoint (Analog Value Object Type)

It indicates the temperature setpoint when the room is occupied, the cool mode is selected, and the occupancy object is enabled.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 1)	R	R
Object_Name	CharacterString	OccupiedCoolSetPoint	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	0 .. 65535	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	0	O	-
Max_Pres_Value	REAL	65535	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.20. OccupiedHeatSetPoint (Analog Value Object Type)

It indicates the temperature setpoint when the room is occupied, the heat mode is selected, and the occupancy object is enabled.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 2)	R	R
Object_Name	CharacterString	OccupiedHeatSetPoint	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	0 .. 65535	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	0	O	-
Max_Pres_Value	REAL	65535	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.21. UnoccupiedCoolSetPoint (Analog Value Object Type)

It indicates the setpoint when the room is unoccupied, the cool mode is selected, and the occupancy object is enabled.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 3)	R	R
Object_Name	CharacterString	UnoccupiedCoolSetPoint	R	R
Object_Type	BACnetObjectType	ANALOG_VALUE (2)	R	R
Present_Value	REAL	0 .. 65535	R	R
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Update_Interval	Unsigned	-	O	-
Units	BACnetEngineeringUnits	Degrees Celsius (62) Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	0	O	-
Max_Pres_Value	REAL	65535	O	-
Resolution	REAL	-	O	-
COV_Increment	REAL	0	O	W
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
High_Limit	REAL	-	O	-
Low_Limit	REAL	-	O	-
Deadband	REAL	-	O	-
Limit_Enable	BACnetLimitEnable	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-



NOTE

You can set the temperature scale in Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#).

7.5.22. OccupancyContinuousCheck (Binary Value Object Type)

It indicates if the system is continuously checking the setpoint and occupancy conditions.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Binary Value, 0)	R	R
Object_Name	CharacterString	OccupancyContinuousCheck	R	R
Object_Type	BACnetObjectType	BINARY_VALUE (5)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Inactive_Text	CharacterString	Disabled	O	R
Active_Text	CharacterString	Enabled	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	-
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.23. UnoccupiedDeadbandAction (Binary Value Object Type)

It indicates the action to be performed when Unoccupancy is enabled, and Room Temperature is within the deadband.



NOTE

To know more, see [Occupancy Function \(page 53\)](#).

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Binary Value, 1)	R	R
Object_Name	CharacterString	UnoccupiedDeadbandAction	R	R
Object_Type	BACnetObjectType	BINARY_VALUE (5)	R	R
Present_Value	BACnetBinaryPV	INACTIVE (0) / ACTIVE (1)	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Inactive_Text	CharacterString	Off	O	R
Active_Text	CharacterString	CurrentMode	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Minimum_Off_Time	Unsigned32	-	O	-
Minimum_On_Time	Unsigned32	-	O	-
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	-
Relinquish_Default	BACnetBinaryPV	INACTIVE (0)	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

7.5.24. RemoteControllerProhibit_command (Multistate Output Object Type)

It allows control over the indoor unit's Remote Controller.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Output,5)	R	R
Object_Name	CharacterString	RemoteControllerProhibit__command	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 .. 2	W	W
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	2	R	R
State_Text	BACnetArray[N] of CharacterString	Check the Remote Controller Prohibit Command table below	O	R
Priority_Array	BACnetPriorityArray	BACnetPriorityArray	R	R
Relinquish_Default	Unsigned	1	R	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Feedback_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 9. RemoteControllerProhibit_Command

Present_Value	State_Text
1	Unlocked
2	Locked

7.5.25. DIP_SW_S1_status (Analog Input Object Type)

It indicates the status of the DIP switch block SW1 in decimal value. To get the status of each individual switch of SW1, just convert it to binary. The gateway reads this value only when booting up.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 9)	R	R
Object_Name	CharacterString	DIP_SW_S1_status	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	BACnetBinaryPV	0 .. 255	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE / TRUE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_text	CharacterString	-	O	R
Active_text	CharacterString	-	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-
Units	BACnetEngineeringUnits	No units (95)	R	R
COV_Increment	REAL	0	O	W

7.5.26. DIP_SW_S2_status (Analog Input Object Type)

It indicates the status of the DIP switch block SW2 in decimal value. To get the status of each individual switch of SW2, just convert it to binary. The gateway reads this value only when booting up.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 10)	R	R
Object_Name	CharacterString	DIP_SW_S2_status	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	BACnetBinaryPV	0 .. 255	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE / TRUE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	-	O	R
Active_Text	CharacterString	-	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-
Units	BACnetEngineeringUnits	No units (95)	R	R
COV_Increment	REAL	0	O	W

7.5.27. SerialNumber (Analog Input Object Type)

It indicates the gateway's serial number: **000EXXXXX**

- 000E is a constant value and it's not included in the Present_Value property.
- XXXXX is a unique value for each gateway. This is the information the Present_Value provides.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 11)	R	R
Object_Name	CharacterString	SerialNumber	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	00000 .. 99999	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Polarity	BACnetPolarity	NORMAL (0)	R	R
Inactive_Text	CharacterString	-	O	R
Active_Text	CharacterString	-	O	R
Change_Of_State_Time	BACnetDatetime	-	O	-
Change_Of_State_Count	Unsigned	-	O	-
Time_Of_State_Count_Reset	BACnetDatetime	-	O	-
Elapsed_Active_Time	Unsigned	-	O	-
Time_Of_Active_Time_Reset	BACnetDatetime	-	O	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	BACnetBinaryPV	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] ofBACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-
Units	BACnetEngineeringUnits	No units (95)	R	R
COV_Increment	REAL	0	O	W

7.5.28. AC IU address (Multistate Value Object Type)

It indicates the address of the indoor unit in the AC system.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Output, 1)	R	R
Object_Name	CharacterString	AC IU address	R	R
Object_Type	BACnetObjectType	MULTISTATE_VALUE (19)	R	R
Present_Value	Unsigned	1 .. 64	W	W
Description	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0)	O	R
Out_Of_Service	BOOLEAN	FALSE	R	R
Number_Of_States	Unsigned	64	R	R
State_Text	BACnetArray[N] of CharacterString	Check address settings table below	O	R
Priority_Array	BACnetPriorityArray	-	R	-
Relinquish_Default	Unsigned	-	R	-
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Value	Unsigned	-	O	-
Fault_Value	Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Table 10. AC IU address Values Table

Present_Value	State_Text	AC IU address
1	0	0
2	1	1
3	2	2
...	...	...
63	62	62
64	63	63

7.5.29. Midea_DIP_SW_setting (Multistate Input Object Type)

It indicates the DIP-SW-setting for the Carrier system.

Property Identifier	Property Datatype	Value	ASHRAE	Gateway
Object_Identifier	BACnetObjectIdentifier	(Multistate Input, 11)	R	R
Object_Name	CharacterString	Midea_DIP_SW_setting	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 .. 5	R	R
Description	CharacterString	-	O	-
Device_Type	CharacterString	-	O	-
Status_Flags	BACnetStatusFlags	{FALSE, FALSE/TRUE, FALSE, FALSE}	R	R
Event_State	BACnetEventState	STATE_NORMAL (0)	R	R
Reliability	BACnetReliability	NO_FAULT_DETECTED (0), UNRELIABLE_OTHER(7)	O	R
Out_Of_Service	BOOLEAN	FALSE/TRUE	R	R
Number_Of_States	Unsigned	5	R	R
State_Text	BACnetArray[N] of CharacterString	Check Midea_DIP_SW_setting table below.	O	R
Time_Delay	Unsigned	-	O	-
Notification_Class	Unsigned	-	O	-
Alarm_Values	List of Unsigned	-	O	-
Fault_Values	List of Unsigned	-	O	-
Event_Enable	BACnetEventTransitionBits	-	O	-
Acked_Transitions	BACnetEventTransitionBits	-	O	-
Notify_Type	BACnetNotifyType	-	O	-
Event_Time_Stamps	BACnetArray[N] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-

Midea DIP SW setting table interpretation is possible using the value in the following correspondence table.

Table 11. Midea_DIP_SW_settingSetting Table.

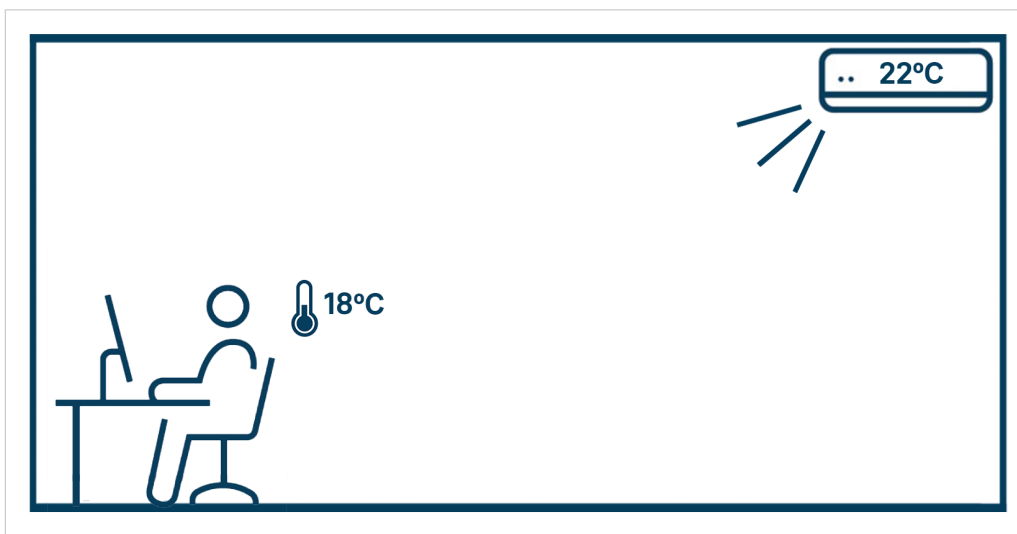
Present_Value	State_Text
1	Auto (detecting)
2	Auto V4
3	Auto V6
4	V4
5	V6

8. Virtual Temperature Functionality and Temperature Signals

VIRTUAL TEMPERATURE FUNCTIONALITY

In certain scenarios, a room temperature sensor connected to the BMS can provide a more accurate temperature reading than the sensor in the indoor unit itself. This is especially true when the indoor unit is positioned away from room occupants, such as on a high ceiling or a distant wall. In such cases, there may be a few degrees of difference between the value reported by the BMS sensor near the occupants and the indoor unit's sensor placed farther away.

Figure 3. In this example, the room temperature is four degrees Celsius lower than the temperature perceived by the indoor unit's sensor.



Even when the best procedure is to directly overwrite the temperature perceived by the indoor unit's sensor with the temperature reported by the BMS sensor, Carrier AC units don't allow this procedure. To overcome this situation, the gateway implements the Virtual Temperature functionality.

With the Virtual Temperature functionality, the gateway can calculate the difference between these two temperature readings and adjust the setpoint to achieve the needed temperature. To do so, when the Virtual Temperature functionality 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 indoor unit after the gateway applies the formula.
- T_{AC} : Indoor unit's reference temperature.
- T_{BMS} : BMS side ambient temperature.
- S_{BMS} : Temperature setpoint requested from the BMS side.

Once activated, the Virtual Temperature functionality recalculates the setpoint when any of these values changes.

How to activate the Virtual Temperature functionality

Follow this procedure:

1. Write the desired setpoint temperature in the **Setpoint_command** BACnet object.
2. Read the temperature value reported by a temperature sensor from the BMS side.
3. Write this value in the **RoomTemperature_command** BACnet object.

The Virtual Temperature functionality is automatically activated once the gateway receives valid values for these objects.



NOTE

Consider these particularities on the **RoomTemperature_command** object, which is the dedicated object to write the ambient temperature perceived from the BMS side:

- When starting up the gateway, this object reports a value of -32768 (0x8000).
- When starting up the gateway, the Present_Value property of this object is 0, and the Reliability property displays **UNRELIABLE_OTHER (7)**. This means that no external temperature reference has been provided to the object, so the system is not applying the Virtual Temperature functionality. However, after receiving the first value, the Reliability property changes to **NO_FAULT_DETECTED (0)**. After that, any value can be used in the temperature range, including 0.

TEMPERATURE SIGNALS



NOTE

You can set the temperature signals on a Celsius or Fahrenheit scale via DIP switches. More information in [DIP Switches \(page 8\)](#)

Table 12. Objects dedicated to temperature signals and to the Virtual Temperature functionality

BACnet object	Function when the Virtual Temperature function is inactive	Function when the Virtual Temperature function is active
Setpoint_status (Analog Input)	It indicates the temperature setpoint sent to the indoor unit. It will report the same value as the value introduced in the Setpoint_command object.	It indicates the recalculated temperature setpoint sent to the indoor unit after the gateway applies the $S_{AC} = T_{AC} - (T_{BMS} - S_{BMS})$ formula. It may report a value different from that introduced in the Setpoint_command object.
Setpoint_command (Analog Output)	It is used to request the temperature setpoint from the BMS side. It will report the same value as a wired remote controller connected to the indoor unit (if available).	It is used to request the temperature setpoint from the BMS side. It may report a value different from that reported by a wired remote controller connected to the indoor unit (if available).
RoomTemperature_status (Analog Input)	It indicates the ambient temperature perceived by the sensor from the AC system side (the sensor inside the indoor unit or inside the wired remote controller, if available).	It indicates the ambient temperature perceived by the sensor from the AC system side (the sensor inside the indoor unit or inside the wired remote controller, if available).

BACnet object	Function when the Virtual Temperature function is inactive	Function when the Virtual Temperature function is active
RoomTemperature_command (Analog Output)	It is used to activate the Virtual Temperature function by writing the value reported from a BMS side sensor.	It indicates the temperature reported from a BMS side sensor.
VirtualTemperatureActive (Binary Input)	It reports a value of 0	It reports a value of 1
UserSetpoint_status (Analog Input)	It indicates the temperature setpoint requested from the BMS side.	It indicates the original temperature setpoint requested from the BMS side.

**NOTE**

As explained in this topic, and due to the Virtual Temperature functionality, Carrier cannot guarantee that the value reported by the **RoomTemperature_command** object consistently equals the actual room temperature.

VIRTUAL TEMPERATURE FUNCTIONALITY EXAMPLE CASE

Imagine a very cold room with a temperature of 10°C. An AC indoor unit is mounted high in the ceiling.

The technician responsible for the BMS wants to raise the room temperature to 20°C. To achieve this, she accesses the console and sets this value in the BACnet object **Setpoint_command (Analog Output)**. The same value of “20” is also reflected in the BACnet object **Setpoint_status (Analog Input)**.

A few minutes later, the technician checks the BACnet object **RoomTemperature_status (Analog Input)** to determine the temperature reported by the indoor unit’s sensor, which reads 17°C. However, the BMS sensor in the room reports a temperature of 13°C. The technician knows that the BMS sensor is better positioned than the indoor unit’s sensor. Unfortunately, the indoor unit does not allow the gateway to directly overwrite the value reported by its temperature sensor. To address this, the technician activates the Virtual Temperature functionality.

To activate it, she writes the temperature currently measured by the BMS sensor (13°C) into the BACnet object **RoomTemperature_command (Analog Output)**. As soon as she inputs “13” into that object, the BACnet object **VirtualTemperatureActive (Binary Input)** transitions from “0” to “1.” This indicates that the Virtual Temperature functionality is now active, and the formula will continuously be applied to recalculate the setpoint temperature sent to the indoor unit.

At this moment, the formula values are: $17 - (13 - 20) = 24$. Therefore, the Virtual Temperature functionality is currently sending a setpoint of 24°C to the indoor unit, and this value is reflected in the BACnet object **Setpoint_status (Analog Input)**.

After a few minutes, the technician checks the BACnet object **RoomTemperature_command (Analog Output)** to find the temperature measured by the BMS sensor: 19°C. Then, she looks at the BACnet object **RoomTemperature_status (Analog Input)**, which reports the temperature detected by the indoor unit: 24°C.

At this point, the formula used by the Virtual Temperature functionality is based on the following calculation: $24 - (19 - 20) = 25$. The technician observes the BACnet object **Setpoint_status (Analog Input)** and realizes that the Virtual Temperature functionality has set the setpoint at 25°C, compensating for the difference between the temperature measured by the indoor unit and the BMS thermistors.

9. Occupancy Function

The Occupancy function determines the AC unit's behavior depending on the presence or absence of people in the room. This signal is processed directly in the Intesis gateway and has the capacity to modify three parameters of the AC system: Setpoint, Mode, and On/Off.



IMPORTANT

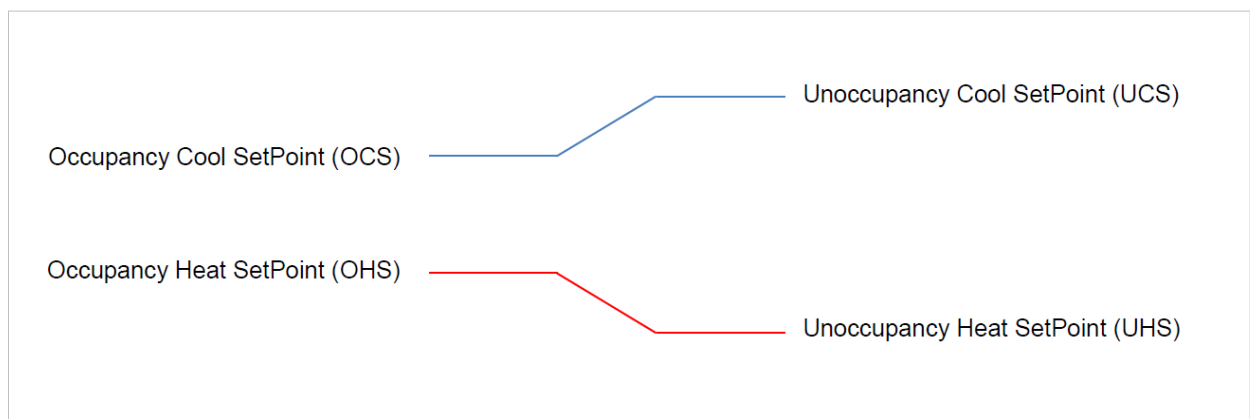
This function requires a presence sensor on the control system (BMS) side, which determines the state of the **Occupancy** object:

- **Occupied:** Someone is in the room.
- **Unoccupied:** No one is in the room.
- **Disabled:** The function is disabled

Besides the Occupancy object, and to adjust the settings of the Occupancy function, the gateway offers these BACnet objects:

- **Occupancy Cool Setpoint (OCS):** Setpoint temperature when the AC unit is in cool mode and someone is present in the room.
- **Unoccupancy Cool SetPoint (UCS):** Setpoint temperature when the AC unit is in cool mode and no one is in the room.
- **Occupancy Heat Setpoint (OHS):** Setpoint temperature when the AC unit is in heat mode and someone is present in the room.
- **Unoccupancy Heat SetPoint (UHS):** Setpoint temperature when the AC unit is in heat mode and no one is in the room.

Figure 4. Temperature setpoint objects related to the room's occupancy status and the AC unit's mode



NOTICE

The minimum difference between Cool and Heat setpoints must be 2°C / 4°F.

- **Occupancy Continuous check:** It determines when the gateway checks the room occupancy:
 - If this object's value is 1 (active), the gateway checks the occupancy when the occupancy status and the room temperature change.

- If this object's value is 0 (inactive), the gateway only checks the occupancy when the occupancy status changes.
- **Unoccupied Deadband Action:** It determines the AC unit's behavior when the room is unoccupied and the ambient temperature is within the deadband.
 - If this object's value is 1 (active), the indoor unit will remain on.
 - If this object's value is 0 (inactive), the indoor unit will turn off.

When there is presence in the room, and according to the current room temperature, the AC unit's **mode**, **setpoint**, and **on/off** will be set to:

Condition	Setpoint	Mode	On/Off
Room temperature > OCS	Current OCS value	Cool	On
Room temperature < OHS	Current OCS value	Heat	On
OCS < Room temperature < OHS	OCS/OHS depending on the current mode (If Fan or Dry mode is active, no setpoint is sent)	Current mode	On

When there is no presence in the room, and according to the current room temperature, the AC unit's **mode**, **setpoint** and **on/off** will be set to:

Condition	Setpoint	Mode	On/Off
Room temperature > OCS	Current UCS value	Cool	On
Room temperature < OHS	Current UHS value	Heat	On
OCS < Room temperature < OHS	UCS/UHS depending on the current mode (If Fan or Dry mode is active, no setpoint is sent)	Current mode	On (Deadband action=1)
			Off (Deadband action=0)



NOTICE

Any local change (for example with the remote control) in the Setpoint, Mode, or the On/Off signal will disable the Occupancy function.

10. Error Codes

List of error codes for Carrier air conditioning systems.

ErrorCode	Error in Remote Controller	Error description
0	N/A	No active error
1	E0	Phase error or error in the phase sequence
2	E1	Communication error
3	E2	T1 sensor error
4	E3	T2A sensor error
5	E4	T2B sensor error
6	E5	T3 temperature and T4 temperature Compressor discharge temperature sensors error
7	E6	Zero cross error detection
8	E7	EEPROM memory error
9	E8	Indoor fan speeds out of control
10	E9	Communication error between the main panel and the visualization panel
11	EA	Compressor's current overload error (4 times)
12	EB	Inverter module protection
13	EC	Cooling error
14	ED	Outdoor unit fault protection
15	EE	Water level fault detection
16	EF	Other errors
17	P0	Vaporizer temperature protection
18	P1	Thawing or cold air protection
19	P2	Condenser high temperatures protection
20	P3	Compressor temperature protection
21	P4	Evacuation duct temperature protection
22	P5	Discharge high pressure protection
23	P6	Discharge low pressure protection
24	P7	Current overload or under load protection
25	P8	Compressor's current overload protection
26	P9	Reserved
27	PA	Reserved
28	PB	Reserved
29	PC	Reserved
30	PD	Reserved
31	PE	Reserved
32	PF	Other protection measures

**IMPORTANT**

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

**NOTE**

If you detect a non-listed error code, please contact the AC manufacturer's technical support.