



HVAC Controller

UC711

BACnet Object List

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Chapter 1. Preface

Readers

This guide provides the BACnet object list for the HVAC controller. It is intended for BMS system integrators, gateway/platform engineers, and project commissioning teams who need to read device status or write supported configuration parameters through BACnet objects.

This document does not describe physical installation, HVAC wiring, and configuration steps in detail. Please use it together with the related documents.

Related Document

Document	Description
UC711 User Guide	Provides introductions, compatibility check, wirings, installation and configuration steps.
UC711 Payload Protocol (HEX)	Provides the raw HEX payload format for uplink data and downlink commands.

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Revision History

Release Date	Version	Revision Content
July 31, 2026	V1.0	Initial version.

Chapter 2. Overview

Introduction

When the device is integrated into a BACnet system through a Milesight gateway with the BACnet feature enabled, the BMS can read device status and write supported parameters via BACnet objects.

This document lists the supported BACnet objects, object types, default values, value ranges, engineering units, and remarks for UC711 HVAC controllers.

Prerequisites

Before using the BACnet objects listed in this guide, ensure that the following prerequisites are met:

- The controller has been installed, powered on, and configured according to the user guide.
- The controller has been added to a Milesight LoRaWAN[®] gateway and has joined the network.
- The Milesight gateway has updated the payload codec to the latest version.
- The Milesight gateway network server and BACnet features are enabled and configured correctly.
- The BMS can communicate with the Milesight gateway through BACnet/IP.
- The required BACnet objects have been enabled or added on the gateway BACnet object page.



Important:

The controller does not connect directly to a BACnet network by itself. BACnet integration is implemented through a Milesight LoRaWAN[®] gateway with the BACnet feature enabled.

Object Reference Columns

Column	Description
Object Name	Name of the BACnet object displayed or configured in the gateway/BMS.
Object Type	BACnet object type. See BACnet Object Type below.
Default Value	Default value of the object after the device is reset or initialized.
Range Value	Supported value range or enumerated values for writable objects. For objects with enumerated values, the BMS should write the numeric value rather than the text label.
Unit	Engineering unit. The number in brackets indicates the BACnet engineering unit identifier used by the gateway, such as °C (62).
Remark	Additional description, functional note, or related parameter name.

Object Types and Access Modes

The following BACnet object type abbreviations and corresponding access modes are used in this guide.

Abbreviation	BACnet Object Type	Access Mode
AI	Analog Input	R
AO	Analog Output	W
AV	Analog Value	RW
BI	Binary Input	R
BO	Binary Output	W
BV	Binary Value	RW
CSV	Character String Value	R
MSI	Multi-state Input	R
MSO	Multi-state Output	W
MSV	Multi-state Value	RW

Access Mode	Description
R	Read-only. The BMS can read the object value.
W	Write-only. The BMS can write a value to trigger an action or configure a parameter.
RW	Read/Write. The BMS can read the current value and write a supported value.



Note:

Write operations may change HVAC operation. Verify the target object, value range, and engineering unit before writing any value from the BMS.

Chapter 3. Monitoring Objects

The objects in this section are used by the BMS to monitor device identity, environmental measurements, HVAC operating status, alarms and relay status.

Device Information

Object ID	Object Type	Range Value	Unit	Remark
device_status	BI	1=On	– (95)	–
version.hardware_version	CSV	4 characters		–
version.firmware_version	CSV	12 characters		–
tsl_version	CSV	4 characters		–
oem_id	CSV	4 characters		–
product_sn	CSV	16 characters		Serial Number
lorawan_configuration_settings.mode	MSI	2=Class C		–

Environmental and Operating Status

Object ID	Object Type	Range Value	Unit	Remark
celsius_temperature	AI	-20-60	°C(62)	–
fahrenheit_temperature	AI	-40-140	°F(64)	–
humidity	AI	0–100	%RH (29)	–
system_switch	BV	0=Off, 1=On	– (95)	–
temperature_control_info.status	MSI	0=Standby, 1=Stage-1 heat, 2=Stage-2 heat, 7=Stage-1 cool	– (95)	–
fan_control_info.status	MSI	0=Off, 1=On, 2=Low, 3=Medium, 4=High	– (95)	–

Alarm Status

Object ID	Object Type	Range Value	Unit	Remark
anti_freeze_protection_status	BI	0=Normal, 1=Alarm	— (95)	—

Relay Change Status

Object ID	Object Type	Range Value	Unit	Remark
enabled_relay	CSV	1-22 characters	— (95)	—

Chapter 4. Writable Configuration Objects

The objects in this section allow the BMS to change supported UC711 settings or trigger an action.

Communication Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
reporting_interval.ble_lo ra.minutes_of_time	AV	10	1–1440	min (72)	Reporting Interval for BLE+LoRa mode

Installation Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
install_configuration.rev ersing_valve.mode	MSV	1	0=Energize on Heat, 1=Energize on Cool	– (95)	
install_configura tion.fan.owner	MSV	0	0=Thermostat, 1=HVAC System	– (95)	Fan Control during Heating
anti_freezing.enable	BV	0	0=Disable, 1=Enable	– (95)	Freeze Protection Enable
anti_freezing.celsius_t arget_temperature	AV	3	1–5	°C (62)	–
anti_freezing.fahrenheit _target_temperature	AV	37.4	33.8–41	°F (64)	–

Temperature and Fan Control

Object ID	Object Type	Default Value	Range Value	Unit	Remark
system_switch	BV	0	0=Off, 1=On	– (95)	–
temperature_control _mode.ctrl_mode	MSV	0	0=Heat, 2=Cool, 3=Auto	– (95)	–
target_temperature_set tings.celsius_cool	AV	28	5–35	°C (62)	Cool Target Temperature

Object ID	Object Type	Default Value	Range Value	Unit	Remark
target_temperature_settings.fahrenheit_cool	AV	82.4	41–95	°F (64)	
target_temperature_settings.celsius_heat	AV	17	5–35	°C (62)	Heat Target Temperature
target_temperature_settings.fahrenheit_heat	AV	62.6	41–95	°F (64)	
target_temperature_tolerance.celsius_cool_value	AV	1	0.1–5	K (121)	Cool Target Temperature Tolerance
target_temperature_tolerance.fahrenheit_cool_value	AV	1.8	0.18–9	ΔT°F (120)	
target_temperature_tolerance.celsius_heat_value	AV	1	0.1–5	K (121)	Heat Target Temperature Tolerance
target_temperature_tolerance.fahrenheit_heat_value	AV	1.8	0.18–9	ΔT°F (120)	
target_temperature_range.cool.celsius_max	AV	35	5–35	°C (62)	Cool Target Temperature Regulation Range
target_temperature_range.cool.celsius_min	AV	23	5–35	°C (62)	
target_temperature_range.cool.fahrenheit_max	AV	95	41–95	°F (64)	
target_temperature_range.cool.fahrenheit_min	AV	73.4	41–95	°F (64)	
target_temperature_range.heat.celsius_max	AV	19	5–35	°C (62)	Heat Target Temperature Regulation Range
target_temperature_range.heat.celsius_min	AV	10	5–35	°C (62)	
target_temperature_range.heat.fahrenheit_max	AV	66.2	41–95	°F (64)	
target_temperature_range.heat.fahrenheit_min	AV	50	41–95	°F (64)	

Object ID	Object Type	Default Value	Range Value	Unit	Remark
dehumidify_settings.humidify_high_threshold	AV	80	0–100	%RH (29)	Target Humidity Range
dehumidify_settings.humidify_low_threshold	AV	40	0–100	%RH (29)	
fan_settings.fan_mode	MSV	0	0=Auto, 1=Circulate, 2=On, 3=Low, 4=Medium, 5=High	— (95)	—
fan_settings.work_time	AV	30	5–55	min (72)	Fan Circulate Time
fan_settings.adjust_humidity_enable	BV	0	0=Disable, 1=Enable	— (95)	Fan Regulate Humidity
fan_settings.adjust_period	AV	30	5–55	min (72)	Fan Regulate Interval
fan_delay_settings.enable	BV	1	0=Disable, 1=Enable	— (95)	—
fan_delay_settings.delay_time	AV	60	30–3600	s (73)	—

Energy-saving Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
energy_saving_enable	BV	0	0=Disable, 1=Enable	— (95)	—
energy_saving.level_1.enable	BV	0	0=Disable, 1=Enable	— (95)	—
energy_saving.level_1.free_time	AV	480	1–1440	min (72)	Level 1 Vacant Duration
	AV	2	0.1–5	K (121)	—

Object ID	Object Type	Default Value	Range Value	Unit	Remark
energy_saving.level_1.celsius_target_temp_tolerance					
energy_saving.level_1.fahrenheit_target_temp_tolerance	AV	3.6	0.18–9	$\Delta T^{\circ}\text{F}$ (120)	—
energy_saving.level_2.enable	BV	0	0=Disable, 1=Enable	— (95)	—
energy_saving.level_2.free_time	AV	720	1–1440	min (72)	Level 2 Vacant Duration
energy_saving.level_2.celsius_target_temp_tolerance	AV	4	0.1–5	K (121)	—
energy_saving.level_2.fahrenheit_target_temp_tolerance	AV	7.2	0.18–9	$\Delta T^{\circ}\text{F}$ (120)	—

Unilateral Tolerance

Object ID	Object Type	Default Value	Range Value	Unit	Remark
unilateral_tolerance_enable	BV	0	0=Disable, 1=Enable	— (95)	—

Control Stage Switching

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_control_level_switch.celsius_threshold_t1	AV	3	0–10	K (121)	Temperature Delta 1 (ΔT_1)
temperature_control_level_switch.fahrenheit_threshold_t1	AV	5.4	0–18	$\Delta T^{\circ}\text{F}$ (120)	

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_control_level_switch.celsius_threshold_t2	AV	5	0–10	K (121)	Temperature Delta 2 (ΔT_2)
temperature_control_level_switch.fahrenheit_threshold_t2	AV	9	0–18	$\Delta T^\circ\text{F}$ (120)	

General Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_unit	MSV	0	0=°C, 1=°F	— (95)	—
synchronize_time	AO	—	0–255	— (95)	—

Chapter 5. Services

Milesight provides customers with timely and comprehensive technical support services. End-users can contact their local dealer to obtain technical support. Distributors and resellers can contact Milesight directly for technical support.

Technical Support Mailbox: iot.support@milesight.com

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