



Smart AC Controller

UC701

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 and configuration steps in detail. Please use it together with the related documents.

Related Document

Document	Description
UC701 User Guide	Provides introductions, compatibility check, installation and configuration steps.
UC701 Payload Protocol (HEX)	Provides the raw HEX payload format for uplink data and downlink commands.
UC701 Payload Protocol (JSON)	Provides the decoded JSON format for uplink data and downlink commands when using the codec provided by Milesight.

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Revision History

Release Date	Version	Revision Content
Sept. 30, 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 UC701 AC 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 AC 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 status, environmental measurements and operating parameters.

Device Information

Object ID	Object Type	Range Value	Unit	Remark
product_sn	CSV	16 characters	- (95)	-
tsl_version	CSV	4 characters	- (95)	-
version.firmware_version	CSV	12 characters	- (95)	-
version.hardware_version	CSV	4 characters	- (95)	-

Environmental and Operating Status

Object ID	Object Type	Range Value	Unit	Remark
battery	AI	0-100	% (98)	Only used when the device is connected to battery compartment
celsius_external_temp	AI	-20-60	°C (62)	-
celsius_internal_temp	AI	-20-60	°C (62)	-
fahrenheit_external_temp	AI	-4-140	°F (64)	-
fahrenheit_internal_temp	AI	-4-140	°F (64)	-
humidity	AI	0-100	%RH (29)	-
infrared_cmd_status.cmd.air_volume	MSI	0=Auto, 3=Low, 4=Medium, 5=High, 255=Disabled	- (95)	-
infrared_cmd_status.cmd.mode	MSI	0=Heat, 2=Cool, 3=Auto, 4=Dehumidify, 5=Ventilation	- (95)	-
infrared_cmd_status.cmd.switch	MSI	0=Switch Off, 1=Switch On	- (95)	-

Object ID	Object Type	Range Value	Unit	Remark
infrared_cmd_status.celsius_target_temp	AI	16-30	°C (62)	-
infrared_cmd_status.fahrenheit_target_temp	AI	60.8-86	°F (64)	-
infrared_learn.package_status	MSI	0=No infrared format packet, 1=Infrared format package already exists	- (95)	-
running_state.current_transformer.current	AI	0-30	A (3)	-
running_state.data_source	MSI	0=Infrared Command, 1=Current Transformer	- (95)	-
running_state.infrared_cmd.switch_state	MSI	0=Switch Off, 1=Switch On	- (95)	-

Alarm Status

Object ID	Object Type	Range Value	Unit	Remark
low_battery_alarm.value	AI	0-100	% (98)	-
cmd_temp_limit.type	MSI	0= Below Alarm, 1= Above Alarm	- (95)	-
filter_clean_remind.usage_time	AI	-	- (95)	-
cmd_temp_limit.lower_range_alarm_trigger.celsius_ambient_temp	AI	-20-60	°C (62)	-
cmd_temp_limit.lower_range_alarm_trigger.celsius_high_threshold	AI	5-35	°C (62)	-
cmd_temp_limit.lower_range_alarm_trigger.celsius_low_threshold	AI	5-35	°C (62)	-
cmd_temp_limit.lower_range_alarm_trigger.fahrenheit_ambient_temp	AI	-4-140	°F (64)	-

Object ID	Object Type	Range Value	Unit	Remark
cmd_temp_limit.lower_range_alarm_trigger.fahrenheit_high_threshold	AI	41-95	°F (64)	-
cmd_temp_limit.lower_range_alarm_trigger.fahrenheit_low_threshold	AI	41-95	°F (64)	-
cmd_temp_limit.lower_range_alarm_trigger.source	MSI	0=Internal, 2=External NTC	- (95)	-
cmd_temp_limit.over_range_alarm_trigger.celsius_ambient_temp	AI	-20-60	°C (62)	-
cmd_temp_limit.over_range_alarm_trigger.celsius_high_threshold	AI	5-35	°C (62)	-
cmd_temp_limit.over_range_alarm_trigger.celsius_low_threshold	AI	5-35	°C (62)	-
cmd_temp_limit.over_range_alarm_trigger.fahrenheit_ambient_temp	AI	-4-140	°F (64)	-
cmd_temp_limit.over_range_alarm_trigger.fahrenheit_high_threshold	AI	41-95	°F (64)	-
cmd_temp_limit.over_range_alarm_trigger.fahrenheit_low_threshold	AI	41-95	°F (64)	-
cmd_temp_limit.over_range_alarm_trigger.source	MSI	0=Internal, 2=External NTC	- (95)	-
local_temp_limit.type	MSI	0=Below Alarm, 1=Above Alarm	- (95)	-
local_temp_limit.lower_range_alarm_trigger.celsius_ambient_temp	AI	-20-60	°C (62)	-
local_temp_limit.lower_range_alarm_trigger.celsius_high_threshold	AI	5-35	°C (62)	-
local_temp_limit.lower_range_alarm_trigger.celsius_low_threshold	AI	5-35	°C (62)	-

Object ID	Object Type	Range Value	Unit	Remark
local_temp_limit.lower_range_alarm_trigger.fahrenheit_ambient_temp	AI	-4-140	°F (64)	-
local_temp_limit.lower_range_alarm_trigger.fahrenheit_high_threshold	AI	41-95	°F (64)	-
local_temp_limit.lower_range_alarm_trigger.fahrenheit_low_threshold	AI	41-95	°F (64)	-
local_temp_limit.lower_range_alarm_trigger.source	MSI	0=Internal, 2=External NTC	- (95)	-
local_temp_limit.over_range_alarm_trigger.celsius_ambient_temp	AI	-20-60	°C (62)	-
local_temp_limit.over_range_alarm_trigger.celsius_high_threshold	AI	5-35	°C (62)	-
local_temp_limit.over_range_alarm_trigger.celsius_low_threshold	AI	5-35	°C (62)	-
local_temp_limit.over_range_alarm_trigger.fahrenheit_ambient_temp	AI	-4-140	°F (64)	-
local_temp_limit.over_range_alarm_trigger.fahrenheit_high_threshold	AI	41-95	°F (64)	-
local_temp_limit.over_range_alarm_trigger.fahrenheit_low_threshold	AI	41-95	°F (64)	-
local_temp_limit.over_range_alarm_trigger.source	MSI	0=Internal, 2=External NTC	- (95)	-
temperature_alarm.window_status_detection_deactivation.celsius_temperature	AI	-20-60	°C (62)	-
temperature_alarm.window_status_detection_deactivation.fahrenheit_temperature	AI	-4-140	°F (64)	-
temperature_alarm.window_status_detection_deactivation.source	MSI	0=Internal, 2=External NTC	- (95)	-
temperature_alarm.window_status_detection_trigger.celsius_temperature	AI	-20-60	°C (62)	-

Object ID	Object Type	Range Value	Unit	Remark
temperature_alarm.window_status_detection_trigger.fahrenheit_temperature	AI	-4-140	°F (64)	-
temperature_alarm.window_status_detection_trigger.source	MSI	0=Internal, 2=External NTC	- (95)	-

Thermostat Data Packet

Object ID	Object Type	Range Value	Unit	Remark
data_transparent.res_cmd 1.battery_event.type	MSI	0=Battery Normal, 1=Low Battery	- (95)	-

Chapter 4. Writable Configuration Objects

The objects in this section allow the BMS to change supported UC701 settings or trigger an action.

IR Code Learning

Object ID	Object Type	Default Value	Range Value	Unit	Remark
infrared_format_code_divide.0.format_code	CSV	-	18 characters	- (95)	These objects must be written together
infrared_format_code_divide.0.index	AV	0	0-20	- (95)	
infrared_learn.preamble.define_brand	MSV	0	0=NONE, 1=XIAOMI/TCL, 2=SHINCO/SAMSUNG/ELECTROLUX, 3=WHIRLPOOL/BOSCH/AIRWELL, 4=FUJITSU/McQUAY, 5=TRUMA	- (95)	-

Air Conditioner System Control

Object ID	Object Type	Default Value	Range Value	Unit	Remark
system_switch	BV	0	0=Switch Off, 1=Switch On	- (95)	-
temperature_control_mode_enable.auto	BV	1	0=disable, 1=enable	- (95)	-
temperature_control_mode_enable.cool	BV	1	0=disable, 1=enable	- (95)	-
temperature_control_mode_enable.dehumidify	BV	1	0=disable, 1=enable	- (95)	-
temperature_control_mode_enable.heat	BV	1	0=disable, 1=enable	- (95)	-
temperature_control_mode_enable.ventilate	BV	1	0=disable, 1=enable	- (95)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_control_mode.ctrl_mode	MSV	2	0=Heat, 2=Cool, 3=Auto, 4=Dehumidify, 5=Ventilation	- (95)	-
target_temperature_settings.celsius_auto	AV	23	16-30	°C (62)	-
target_temperature_settings.celsius_cool	AV	28	16-30	°C (62)	-
target_temperature_settings.celsius_heat	AV	17	16-30	°C (62)	-
target_temperature_settings.fahrenheit_auto	AV	73.4	60.8-86	°F (64)	-
target_temperature_settings.fahrenheit_cool	AV	82.4	60.8-86	°F (64)	-
target_temperature_settings.fahrenheit_heat	AV	62.6	60.8-86	°F (64)	-
fan_settings.fan_mode	MSV	0	0=Auto, 3=Low, 4=Medium, 5=High	- (95)	-

Open Window Detection & Filter Clean Alarm

Object ID	Object Type	Default Value	Range Value	Unit	Remark
window_opening_detection_settings.enable	BV	0	0=Disable, 1=Enable	- (95)	-
window_opening_detection_settings.celsius_difference_in_temperature	AV	3	1-10	K (121)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
window_opening_detection_settings.fahrenheit_difference_in_temperature	AV	5.4	1.8-18	$\Delta T^{\circ}\text{F}$ (120)	-
window_opening_detection_settings.stop_time	AV	30	1-1440	min (72)	-
open_window_alarm.mode	MSO	0	0=clean alarm, 1=report alarm	-(95)	-
filter_clean_settings.enable	BV	0	0=Disable, 1=Enable	-(95)	-
filter_clean_settings.reminder_period	AV	90	1-730	d (70)	-
filter_clean_alarm.mode	MSO	0	0=clean alarm, 1=report alarm	-(95)	-

Temperature Limit Mode

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_limit_task_settings.0.enable	BV	0	0=Disable, 1=Enable	-(95)	-
temperature_limit_task_settings.0.celsius_high_threshold	AV	30	16-30	$^{\circ}\text{C}$ (62)	-
temperature_limit_task_settings.0.celsius_low_threshold	AV	16	16-30	$^{\circ}\text{C}$ (62)	-
temperature_limit_task_settings.0.fahrenheit_high_threshold	AV	86	60.8-86	$^{\circ}\text{F}$ (64)	-
temperature_limit_task_settings.0.fahrenheit_low_threshold	AV	60.8	60.8-86	$^{\circ}\text{F}$ (64)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_limit_task_settings.0.task_date_settings.start_mon	AV	1	1-12	Mon (68)	-
temperature_limit_task_settings.0.task_date_settings.start_day	AV	1	1-31	d (70)	-
temperature_limit_task_settings.0.task_date_settings.end_mon	AV	12	1-12	Mon (68)	-
temperature_limit_task_settings.0.task_date_settings.end_day	AV	31	1-31	d (70)	-
temperature_limit_task_settings.0.execute_period.start_minute	CSV	-	4 characters	- (95)	These objects must be written together
temperature_limit_task_settings.0.execute_period.end_minute	CSV	-	4 characters	- (95)	
temperature_limit_task_settings.0.cycle_settings.execution_day_mon	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_tues	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_wed	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_thu	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_fri	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_sat	BV	0	0=Disable, 1=Enable	- (95)	-
temperature_limit_task_settings.0.cycle_settings.execution_day_sun	BV	0	0=Disable, 1=Enable	- (95)	-

Communication & Network Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
reporting_interval.ble_lora.minutes_of_time	AV	10	1-1440	min (72)	-
ble_adv_time_settings.enable	BV	1	0=Disable, 1=Enable	- (95)	-
ble_adv_time_settings.duration	AV	1	1-10	min (72)	-
ble_configuration_settings.local_name_first	CSV	-	8 characters	- (95)	-
ble_configuration_settings.local_name_last	CSV	-	5 characters	- (95)	-
lorawan_configuration_settings.mode	MSV	2	1=ClassB, 2=ClassC	- (95)	-
lorawan_configuration_settings.version	MSV	2	1=1.0.2, 2=1.0.3	- (95)	-

General Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
temperature_unit	MSV	0	0=°C, 1=°F	- (95)	-
temperature_data_source.source	MSV	4	0=External, 4=Internal	- (95)	-
enhanced_infrared_emission_power_enable	BV	0	0=Disable, 1=Enable	- (95)	-
battery_enable	BV	0	0=Disable, 1=Enable	- (95)	-
dormant_settings.0.enable	BV	0	0=Disable, 1=Enable	- (95)	Sleep Duration
dormant_settings.0.heating_date_settings.start_mon	AV	1	1-12	Mon (68)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
dormant_settings.0.heating_date_settings.start_day	AV	1	1-31	d (70)	-
dormant_settings.0.heating_date_settings.end_mon	AV	12	1-12	Mon (68)	-
dormant_settings.0.heating_date_settings.end_day	AV	31	1-31	d (70)	-
dormant_settings.1.enable	BV	0	0=Disable, 1=Enable	- (95)	-
dormant_settings.1.heating_date_settings.start_mon	AV	1	1-12	Mon (68)	-
dormant_settings.1.heating_date_settings.start_day	AV	1	1-31	d (70)	-
dormant_settings.1.heating_date_settings.end_mon	AV	12	1-12	Mon (68)	-
dormant_settings.1.heating_date_settings.end_day	AV	31	1-31	d (70)	-
air_power_settings.heating_power	AV	0	0-60000	W (47)	-
air_power_settings.refrigeration_power	AV	0	0-60000	W (47)	-
indicator_light_disable_settings.enable	MSV	1	0=disable, 1=enable	- (95)	-
indicator_light_disable_settings.time	AV	600	600-3600	s (73)	-
daylight_saving_time.daylight_saving_time_offset	AV	60	1-120	min (72)	-
daylight_saving_time.enable	BV	0	0=Disable, 1=Enable	- (95)	-
daylight_saving_time.end_hour_min	MSV	0	0=00:00, 60=01:00, 120=02:00,	min (72)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
			180=03:00, 240=04:00, 300=05:00, 360=06:00, 420=07:00, 480=08:00, 540=09:00, 600=10:00, 660=11:00, 720=12:00, 780=13:00, 840=14:00, 900=15:00, 960=16:00, 1020=17:00, 1080=18:00, 1140=19:00, 1200=20:00, 1260=21:00, 1320=22:00, 1380=23:00		
daylight_saving_time.end_month	MSV	11	1-12	- (95)	-
daylight_saving_time.end_week_day	MSV	1	1=Mon., 2=Tues., 3=Wed., 4=Thurs., 5=Fri., 6=Sat., 7=Sun.	- (95)	-
daylight_saving_time.end_week_num	MSV	1	1=1st, 2=2nd, 3=3rd, 4=4th, 5=last	- (95)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
daylight_saving_time.start_hour_min	MSV	0	0=00:00, 60=01:00, 120=02:00, 180=03:00, 240=04:00, 300=05:00, 360=06:00, 420=07:00, 480=08:00, 540=09:00, 600=10:00, 660=11:00, 720=12:00, 780=13:00, 840=14:00, 900=15:00, 960=16:00, 1020=17:00, 1080=18:00, 1140=19:00, 1200=20:00, 1260=21:00, 1320=22:00, 1380=23:00	min (72)	-
daylight_saving_time.start_month	MSV	3	1-12	- (95)	-
daylight_saving_time.start_week_day	MSV	7	1=Mon., 2=Tues., 3=Wed., 4=Thurs., 5=Fri., 6=Sat., 7=Sun.	- (95)	-
daylight_saving_time.start_week_num	MSV	2	1=1st, 2=2nd,	- (95)	-

Object ID	Object Type	Default Value	Range Value	Unit	Remark
			3=3rd, 4=4th, 5=last		
time_zone	MSV	0	see Time Zone Values	- (95)	-

Sensor Parameters

Object ID	Object Type	Default Value	Range Value	Unit	Remark
internal_sensor_settings.name1	CSV	built-	6 characters	- (95)	-
internal_sensor_settings.name2	CSV	in sen	6 characters	- (95)	-
internal_sensor_settings.name3	CSV	sor	6 characters	- (95)	-
external_sensor_settings.enable	BV	0	0=Disable, 1=Enable	- (95)	-
external_sensor_settings.name1	CSV	extern	6 characters	- (95)	-
external_sensor_settings.name2	CSV	al sen	6 characters	- (95)	-
external_sensor_settings.name3	CSV	sor	6 characters	- (95)	-
internal_sensor_settings.collect_period	AV	30	30-3600	s (73)	-
ct_sensor_settings.connected	BV	0	0=Disconnected, 1=Connected	- (95)	-
ct_sensor_settings.collect_period	AV	5	1-128	s (73)	-

Time Zone Values

Value (min)	UTC Offset
-720	UTC-12
-660	UTC-11
-600	UTC-10

Value (min)	UTC Offset
-570	UTC-9:30
-540	UTC-9
-480	UTC-8
-420	UTC-7
-360	UTC-6
-300	UTC-5
-240	UTC-4
-210	UTC-3:30
-180	UTC-3
-120	UTC-2
-60	UTC-1
0	UTC
60	UTC+1
120	UTC+2
180	UTC+3
210	UTC+3:30
240	UTC+4
270	UTC+4:30
300	UTC+5
330	UTC+5:30
345	UTC+5:45
360	UTC+6
390	UTC+6:30
420	UTC+7
480	UTC+8
540	UTC+9

Value (min)	UTC Offset
570	UTC+9:30
600	UTC+10
630	UTC+10:30
660	UTC+11
720	UTC+12
765	UTC+12:45
780	UTC+13
840	UTC+14

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

Online Support Portal: <https://support.milesight-iot.com>

Resource Download Center: <https://www.milesight.com/iot/resources/download-center/>

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