



IntesisBox[®]

BACnet MS/TP Server

Daikin Air Conditioning

Compatible with Domestic line air conditioners commercialized by Daikin

User Manual

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Gateway for the integration of a Daikin air conditioning unit in BACnet MSTP enabled monitoring and control systems.

Compatible with Domestic line air conditioners commercialized by Daikin.

Order Code:
IBBACDAI001I100

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1 Description

1.1 Introduction

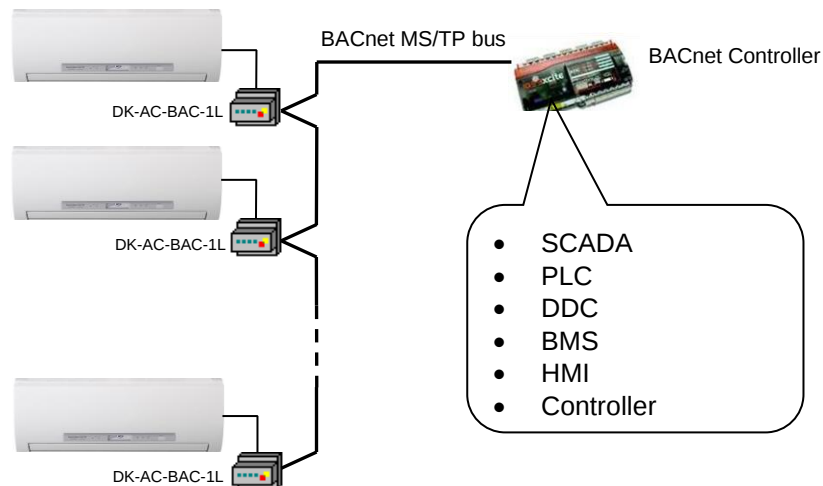
This document describes the integration of Daikin air conditioning systems into BACnet MS/TP compatible devices and systems using gateway *DK-AC-BAC-1L*.

The aim of this integration is to monitor and control your Daikin air conditioning system, remotely, from your Control Center using any commercial SCADA or monitoring software that includes a BACnet driver or connect it to other BACnet devices to do any automation. To do it so, IntesisBox allows BACnet communication allowing polling or subscription requests (COV).

IntesisBox makes available the Daikin air conditioning system indoor units through independent BACnet objects.

Abstraction of Daikin air conditioning system properties and functionalities as fixed BACnet Objects. IntesisBox allows fixed BACnet object IDs mapping. Simple configuration is needed: just select the appropriate communication parameters (MAC address, baud rate...).

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



BACnet MS/TP installation sketch

1.2 Functionality

IntesisBox continuously read the Daikin AC unit and keeps the updated status of all objects in its memory, ready to be served when requested from the BACnet side.

The role of IntesisBox consists in associate the elements of the Daikin AC unit with BACnet objects.

The control of the indoor units through the DK-AC-BAC-1L is permitted, so commands toward the Daikin AC unit are permitted too.

The indoor unit is offered in a set of BACnet objects and extra functionality.

1.3 Capacity of IntesisBox

IntesisBox is capable of integrate one single Daikin AC unit and its associated elements.

Element	Max.	Notes
Number of indoor units	1	Number of indoor units that can be controlled through IntesisBox
Number of Objects	32	Number of Daikin AC signals available as objects into IntesisBox.

1.4 Quick Setup

1. Install IntesisBox in the desired installation site (DIN rail mounting inside a metallic industrial cabinet connected to ground is recommended).
2. Connect the communication cables. Details in section [6 CONNECTIONS AND SWITCHES](#).
3. Check the BACnet objects list for its integration to your BACnet project. Details in section [5.3 OBJECTS AND PROPERTIES](#).
4. Check if there is communication between BACnet and AC system through device LED. Details in section [7.3 LED STATUS](#).
5. The IntesisBox is ready to be used in your system.

2 Protocol Implementation Conformance Statement

BACnet Protocol Implementation Conformance Statement (PICS)

Date: 2015-04-01

Vendor Name: Intesis Software SLU

Product Name: DK-AC-BAC-1L

Product Model Number: DK-AC-BAC-1L

Application Software Version: 1.0

Firmware Revision: 1.0.0.0

BACnet Protocol Revision: 12

Product Description:

Daikin domestic air conditioning system – BACnet MS/TP

Abstraction of Daikin air conditioning system properties and functionalities as BACnet Objects.

2.1 BACnet Standardized Device Profile (Annex L):

- ☐ BACnet Operator Workstation (B-OWS)
- ☐ BACnet Building Controller (B-BC)
- ☐ BACnet Advanced Application Controller (B-AAC)
- ☒ BACnet Application Specific Controller (B-ASC)
- ☐ BACnet Smart Sensor (B-SS)
- ☐ BACnet Smart Actuator (B-SA)

Additional BACnet Interoperability Building Blocks Supported (Annex K):
Reference of BIBBs List

2.2 Segmentation Capability:

Segmented request supported	☐ No	☒ Yes	Window Size <u>16</u>
Segmented responses supported	☐ No	☒ Yes	Window Size <u>16</u>

2.3 Data Link Layer Options:

- ☐ BACnet IP, (Annex J)
- ☐ BACnet IP, (Annex J), Foreign Device
- ☐ ISO 8802-3, Ethernet (Clause 7)
- ☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
- ☒ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
- ☐ MS/TP slave (Clause 9), baud rate(s): _____
- ☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
- ☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
- ☐ LonTalk, (Clause 11), medium: _____
- ☐ Other: _____

2.4 Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.) ☐ Yes ☒ No

2.5 Networking Options:

- ☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- ☐ Annex H, BACnet Tunneling Router over IP
- ☐ BACnet/IP Broadcast Management Device (BBMD)
Does the BBMD support registrations by Foreign Devices? ☐ Yes ☐ No

2.6 Character Sets Supported

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- ☒ ANSI X3.4
- ☐ IBM™/Microsoft™ DBCS
- ☐ JIS C 6226
- ☐ ISO 10646 (UCS-4)
- ☐ ISO 10646 (UCS-2)
- ☐ ISO 8859-1

2.7 Gateway

If this product is a communication gateway, describe the types of non-BACnet equipment/network(s) that the gateway supports:

Daikin Air Conditioning Units compatible with Domestic line air conditioners.

3 BACnet Interoperability Building Blocks Supported (BIBBs)

3.1 Data Sharing BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
DS-RP-A	Data Sharing-ReadProperty–A	☐	ReadProperty	☒	☐
DS-RP-B	Data Sharing-ReadProperty–B	☒	ReadProperty	☐	☒
DS-RPM-A	Data Sharing-ReadPropertyMultiple–A	☐	ReadPropertyMultiple	☒	☐
DS-RPM-B	Data Sharing-ReadPropertyMultiple–B	☒	ReadPropertyMultiple	☐	☒
DS-RPC-A	Data Sharing-ReadPropertyConditional–A	☐	ReadPropertyConditional	☒	☐
DS-RPC-B	Data Sharing-ReadPropertyConditional–B	☐	ReadPropertyConditional	☐	☒
DS-WP-A	Data Sharing-WriteProperty–A	☐	WriteProperty	☒	☐
DS-WP-B	Data Sharing-WriteProperty–B	☒	WriteProperty	☐	☒
DS-WPM-A	Data Sharing-WritePropertyMultiple–A	☐	WritePropertyMultiple	☒	☐
DS-WPM-B	Data Sharing-WritePropertyMultiple–B	☒	WritePropertyMultiple	☐	☒
DS-COV-A	Data Sharing-COV–A	☐	SubscribeCOV	☒	☐
		☐	ConfirmedCOVNotification	☐	☒
		☐	UnconfirmedCOVNotification	☐	☒
DS-COV-B	Data Sharing-COV–B	☒	SubscribeCOV	☐	☒
		☒	ConfirmedCOVNotification	☒	☐
		☒	UnconfirmedCOVNotification	☒	☐
DS-COVP-A	Data Sharing-COVP–A	☐	SubscribeCOV	☒	☐
		☐	ConfirmedCOVNotification	☐	☒
		☐	UnconfirmedCOVNotification	☐	☒
DS-COVP-B	Data Sharing-COVP–B	☐	SubscribeCOV	☐	☒
		☐	ConfirmedCOVNotification	☒	☐
		☐	UnconfirmedCOVNotification	☒	☐
DS-COVU-A	Data Sharing-COV-Unsolicited–A	☐	UnconfirmedCOVNotification	☐	☒
DS-COVU-B	Data Sharing-COV-Unsolicited–B	☐	UnconfirmedCOVNotification	☒	☐

3.2 Alarm and Event Management BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
AE-N-A	Alarm and Event-Notification–A	☐	ConfirmedEventNotification	☐	☒
		☐	UnconfirmedEventNotification	☐	☒
AE-N-I-B	Alarm and Event-Notification Internal–B	☐	ConfirmedEventNotification	☒	☐
		☐	UnconfirmedEventNotification	☒	☐
AE-N-E-B	Alarm and Event-Notification External–B	☐	ConfirmedEventNotification	☒	☐
		☐	UnconfirmedEventNotification	☒	☐
AE-ACK-A	Alarm and Event-ACK–A	☐	AcknowledgeAlarm	☒	☐
AE-ACK-B	Alarm and Event-ACK–B	☐	AcknowledgeAlarm	☐	☒
AE-ASUM-A	Alarm and Event-Summary–A	☐	GetAlarmSummary	☒	☐
AE-ASUM-B	Alarm and Event-Summary–B	☐	GetAlarmSummary	☐	☒
AE-ESUM-A	Event-Summary–A	☐	GetEnrollmentSummary	☒	☐
AE-ESUM-B	Event-Summary–B	☐	GetEnrollmentSummary	☐	☒
AE-INFO-A	Alarm and Event-Information–A	☐	GetEventInformation	☒	☐
AE-INFO-B	Alarm and Event-Information–B	☐	GetEventInformation	☐	☒
AE-LS-A	Alarm and Event-LifeSafety–A	☐	LifeSafetyOperation	☒	☐
AE-LS-B	Alarm and Event-LifeSafety–B	☐	LifeSafetyOperation	☐	☒

3.3 Scheduling BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
SCHED-A	Scheduling–A (must support DS-RP-A and DS-WP-A)	☐			
		☐			
SCHED-I-B	Scheduling-Internal–B (shall support DS-RP-B and DS-WP-B) (shall also support ether DM-TS-B or DS-UTC-B)	☐			
		☐			
SCHED-E-B	Scheduling-External–B (shall support SCHED-I-B and DS-WP-A)	☐			
		☐			
T-VMT-A	Trending - Viewing and Modifying Trends–A	☐	ReadRange	☐	☒
T-VMT-I-B	Trending - Viewing and Modifying Trends Internal–B	☐	ReadRange	☐	☒
T-VMT-E-B	Trending - Viewing and Modifying Trends External–B	☐	ReadRange	☐	☒
T-ATR-A	Trending - Automated Trend Retrieval–A	☐	ConfirmedEventNotification	☐	☒
		☐	ReadRange	☒	☐
T-ATR-B	Trending - Automated Trend Retrieval–B	☐	ConfirmedEventNotification	☒	☐
		☐	ReadRange	☐	☒

3.4 Trending BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
T-VMT-A	Trending - Viewing and Modifying Trends–A	☐	ReadRange	☒	☐
T-VMT-I-B	Trending - Viewing and Modifying Trends Internal–B	☐	ReadRange	☐	☒
T-VMT-E-B	Trending - Viewing and Modifying Trends External–B	☐	ReadRange	☐	☒
T-ATR-A	Trending - Automated Trend Retrieval–A	☐	ConfirmedEventNotification	☐	☒
		☐	ReadRange	☒	☐
T-ATR-B	Trending - Automated Trend Retrieval–B	☐	ConfirmedEventNotification	☒	☐
		☐	ReadRange	☐	☒

3.5 Network Management BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
NM-CE-A	Network Management - Connection Establishment–A	☐	Establish-Connection-To-Network	☒	☐
		☐	Disconnect-Connection-To-Network	☒	☐
NM-CE-B	Network Management - Connection Establishment– B	☐	Establish-Connection-To-Network	☐	☒
		☐	Disconnect-Connection-To-Network	☐	☒
NM-RC-A	Network Management - Router Configuration–A	☐	Who-Is-Router-To-Network	☒	☐
		☐	I-Am-Router-To-Network	☐	☒
		☐	I-Could-Be-Router-To-Network	☐	☒
		☐	Initialize-Routing-Table	☒	☐
		☐	Initialize-Routing-Table-Ack	☐	☒
NM-RC-B	Network Management - Router Configuration–B	☐	Who-Is-Router-To-Network	☒	☒
		☐	I-Am-Router-To-Network	☒	☒
		☐	Initialize-Routing-Table	☐	☒
		☐	Initialize-Routing-Table-Ack	☒	☐

3.6 Device Management BIBBs

BIBB Type		Active	BACnet Service	Initiate	Execute
DM-DDB-A	Device Management - Dynamic Device Binding–A	☐	Who-Is	☒	☐
		☐	I-Am	☐	☒
DM-DDB-B	Device Management - Dynamic Device Binding–B	☒	Who-Is	☐	☒
		☒	I-Am	☒	☐
DM-DOB-A	Device Management - Dynamic Object Binding–A	☐	Who-Has	☒	☐
		☐	I-Have	☐	☒
DM-DOB-B	Device Management - Dynamic Object Binding–B	☒	Who-Has	☐	☒
		☒	I-Have	☒	☐
DM-DCC-A	Device Management - DeviceCommunicationControl–A	☐	DeviceCommunicationControl	☒	☐
DM-DCC-B	Device Management - DeviceCommunicationControl–B	☒	DeviceCommunicationControl	☐	☒
DM-PT-A	Device Management - PrivateTransfer–A	☐	ConfirmedPrivateTransfer	☒	☐
		☐	UnconfirmedPrivateTransfer	☒	☐
DM-PT-B	Device Management - PrivateTransfer–B	☐	ConfirmedPrivateTransfer	☐	☒
		☐	UnconfirmedPrivateTransfer	☐	☒
DM-TM-A	Device Management - Text Message–A	☐	ConfirmedTextMessage	☒	☐
		☐	UnconfirmedTextMessage	☒	☐
DM-TM-B	Device Management - Text Message–B	☐	ConfirmedTextMessage	☐	☒
		☐	UnconfirmedTextMessage	☐	☒
DM-TS-A	Device Management - TimeSynchronization–A	☐	TimeSynchronization	☒	☐
DM-TS-B	Device Management - TimeSynchronization–B	☐	TimeSynchronization	☐	☒
DM-UTC-A	Device Management - UTCTimeSynchronization–A	☐	UTCTimeSynchronization	☒	☐
DM-UTC-B	Device Management - UTCTimeSynchronization–B	☐	UTCTimeSynchronization	☐	☒
DM-RD-A	Device Management - ReinitializeDevice–A	☐	ReinitializeDevice	☒	☐
DM-RD-B	Device Management - ReinitializeDevice–B	☒	ReinitializeDevice	☐	☒
DM-BR-A	Device Management - Backup and Restore–A	☐	AtomicReadFile	☒	☐
		☐	AtomicWriteFile	☒	☐
		☐	CreateObject	☒	☐
		☐	ReinitializeDevice	☒	☐
DM-BR-B	Device Management - Backup and Restore–B	☐	AtomicReadFile	☐	☒
		☐	AtomicWriteFile	☐	☒
		☐	ReinitializeDevice	☐	☒
DM-R-A	Device Management - Restart–A	☐	UnconfirmedCOVNotification	☐	☒
DM-R-B	Device Management - Restart–B	☐	UnconfirmedCOVNotification	☒	☐
DM-LM-A	Device Management - List Manipulation–A	☐	AddListElement	☒	☐
		☐	RemoveListElement	☒	☐
DM-LM-B	Device Management - List Manipulation–B	☐	AddListElement	☐	☒
		☐	RemoveListElement	☐	☒
DM-OCD-A	Device Management - Object Creation and Deletion–A	☐	CreateObject	☒	☐
		☐	DeleteObject	☒	☐
DM-OCD-B	Device Management - Object Creation and Deletion–B	☐	CreateObject	☐	☒
		☐	DeleteObject	☐	☒
DM-VT-A	Device Management - Virtual Terminal–A	☐	VT-Open	☒	☐
		☐	VT-Close	☒	☒
		☐	VT-Data	☒	☒
DM-VT-B	Device Management - Virtual Terminal–B	☐	VT-Open	☐	☒
		☐	VT-Close	☒	☒
		☐	VT-Data	☒	☒

4 Service Types

Service type	Service name	Supported	Remarks
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	☐	
	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	☐	

5 Objects

5.1 Supported Object Types

The objects supported are shown in the table below.

Object Type	ID	Supported	Management Point
Analog-Input	0	☒	SetPoint_status Room Temperature_status ErrorCode OutdoorTemp_status DIP_SW_S1_status DIP_SW_S2_status SerialNumber
Analog-Output	1	☒	SetPoint_command
Analog-Value	2	☒	OnTimeCounter OccupiedCoolSetPoint OccupiedHeatSetPoint UnoccupiedCoolSetPoint UnoccupiedHeatSetPoint
Averaging	18	☐	
Binary-Input	3	☒	OnOff_status ErrorActive
Binary-Output	4	☒	OnOff_command
Binary-Value	5	☒	OccupancyContinousCheck UnoccupiedDeadBandAction LockRemoteControl
Calendar	6	☐	
Command	7	☐	
Device	8	☒	DK-AC-BAC-1L
Event-Enrollment	9	☐	
File	10	☐	
Group	11	☐	
Life-Safety-Point	21	☐	
Life-Safety-Zone	22	☐	
Loop	12	☐	
Multistate-Input	13	☒	Mode_status FanSpeed_status AirDirectionUD_status AirDirectionLR_status ErrorCodeM Humidification_status
Multistate-Output	14	☒	Mode_command FanSpeed_command AirDirectionUD_command AirDirectionLR_command Humidification_command
Multistate-Value	19	☒	Occupancy
Notification-Class	15	☐	
Program	16	☐	
Schedule	17	☐	
Trend-Log	20	☐	

5.2 Member objects

5.2.1 Type: Gateway

Object-name	Description	Object-type	Object-instance
DK-AC-BAC-1L	Daikin AC Interface	Device	246000*

* This is the default value.

5.2.2 Type: Indoor Unit

Object-name	Description	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
AirDirectionLR_status		MI	3
AirDirectionLR_command		MO	3
RoomTemperature_status		AI	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
LockRemoteControl		BV	2
Humidification_status		MI	8
Humidification_command		MO	6
OutdoorTemp_status		AI	8
DIP_SW_S1_status		AI	9
DIP_SW_S2_status		AI	10
SerialNumber		AI	11

5.3 Objects and properties

5.3.1 Daikin AC Gateway (Device Object Type)

Below you can find relevant information about the properties of the object type.

Object_Identifier: identifying the device in the BACnet MSTP network can be done automatically or manually:

- Automatic addressing. This is the device factory mode. Automatic addressing is based on using a base address of 246000 and adding to this number the address selected in SW2 P1..P7.
- Manual addressing. Device will switch into manual addressing mode once a value is received from BACnet side in this property. During manual addressing mode, SW2 P1..P7 address is not considered.

⚠ Important: If **Object_Identifier** is overwritten from BACnet, SW2 configuration will not be considered for device instance calculation until a **Restore factory Settings** reset is performed.

Object_Name: In the **Device Object**, is configurable writing directly on this property.

Description: In the **Device Object**, is configurable writing directly on the property, length maximum 63 chars.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Device, 246000*)	R	W
Object_Name	CharacterString	"DK-AC-BAC-1L"	R	W
Object_Type	BACnetObjectType	DEVICE (8) (Device Object Type)	R	R
System_Status	BACnetDeviceStatus	OPERATIONAL (0)	R	R
Vendor_Name	CharacterString	"Intesis Software SL"	R	R
Vendor_Identifier	Unsigned16	246	R	R
Model_Name	CharacterString	"DK-AC-BAC-1L"	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	"Daikin AC interface"	O	W
Protocol_Version	Unsigned	1	R	R
Protocol_Revision	Unsigned	12	R	R
Protocol_Services_Supported	BACnetServiceSupported	Refer to section 4 [Service Types]	R	R
Protocol_Object_Types_Supported	BACnetObjectTypesSupported	Refer to section 5.1 [Object Types]	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	-

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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
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	-

* This is the default value.

5.3.2 OnOff_status (Binary Input Object Type)

It indicates if the indoor unit is in On or Off status.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-

5.3.3 OnOff_command (Binary Output Object Type)

It sets the indoor unit to On or Off.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-

5.3.4 Mode_status (Multistate Input Object Type)

It indicates the active mode for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state 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	<i>Check Mode Status setting table below.</i>	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	-

Mode status setting table

Mode status interpretation is possible using the value in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto
6	AutoHeat
7	AutoCool

5.3.5 Mode_command (Multistate Output Object Type)

It allows control over the indoor unit's mode.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state 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 Mode Command setting 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	-

Mode Command setting table

Mode commands can be set using the values in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Heat
2	Cool
3	Fan
4	Dry
5	Auto

5.3.6 Setpoint_status (Analog Input Object Type)

It indicates the current setpoint temperature in the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	16...31 °C // 61...89 °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	R	R
Update_Interval	Unsigned	-	O	-
Units *	BACnetEngineeringUnits	Degrees Celsius (62), Degrees Fahrenheit (64)	R	R
Min_Pres_Value *	REAL	16 // 61	O	R
Max_Pres_Value *	REAL	31 // 89	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	-

* Use of Celsius or Fahrenheit units can be selected through the switch configuration. Check section 6.1 for more information.

5.3.7 Setpoint_command (Analog Output Object Type)

It sets the desired temperature in the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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...31 °C	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	-	O	-
Units *	BACnetEngineeringUnits	Degrees Celsius (62), Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	16	O	R
Max_Pres_Value	REAL	31	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	-

* Use of Celsius or Fahrenheits units can be selected throught the switch configuration. Check section 6.1 for more information.

5.3.8 FanSpeed_status (Multistate Input Object Type)

It indicates the fan speed status of the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, 1)	R	R
Object_Name	CharacterString	"FanSpeed_status"	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT (13)	R	R
Present_Value	Unsigned	1 ~ 6	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	6	R	R
State_Text	BACnetArray[N] of CharacterString	<i>Check Fan Speed status setting table below.</i>	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	-

Fan Speed status setting table

Fan speed interpretation is possible using the value in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Auto
2	Fan Speed 1
3	Fan Speed 2
4	Fan Speed 3
5	Fan Speed 4
6	Fan Speed 5

5.3.9 FanSpeed_command (Multistate Output Object Type)

It allows control over the fan speed for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 1)	R	R
Object_Name	CharacterString	"FanSpeed_command"	R	R
Object_Type	BACnetObjectType	MULTISTATE_OUTPUT (14)	R	R
Present_Value	Unsigned	1 ~ 6	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	6	R	R
State_Text	BACnetArray[N] of CharacterString	<i>Check Fan Speed command setting table below</i>	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	-

Fan Speed command setting table

Fan speed interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Auto
2	Fan Speed 1
3	Fan Speed 2
4	Fan Speed 3
5	Fan Speed 4
6	Fan Speed 5

5.3.10 AirDirectionUD_status (Multistate Input Object Type)

It indicates the status of the vertical vane (Up/Down) for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state 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	<i>Check Air Direction Status setting table below.</i>	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	-

Air direction Up/Down status setting table

Air direction interpretation is possible using the value in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Stop
2	Swing

5.3.11 AirDirectionUD_command (Multistate Output Object Type)

It allows control over the vertical air direction (Up/Down) for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state 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	<i>Check Air Direction Command setting table below</i>	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	-

Air direction Up/Down Command setting table

Air direction commands can be set using the values in the following correspondence table.

Pesent_Value	Contents displayed in State_Text
1	Stop
2	Swing

5.3.12 AirDirectionLR_status (Multistate Input Object Type)

It indicates the status of the horizontal vane (Left/right) for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, 3)	R	R
Object_Name	CharacterString	"AirDirectionLR_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	<i>Check Air Direction Status setting table below.</i>	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	-

Air direction Left/Right status setting table

Air direction interpretation is possible using the value in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Stop
2	Swing

5.3.13 AirDirectionLR_command (Multistate Output Object Type)

It allows control over the horizontal air direction (Left/Right) for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 3)	R	R
Object_Name	CharacterString	"AirDirectionLR_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	<i>Check Air Direction Command setting table below</i>	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	-

Air direction Left/Right Command setting table

Air direction commands can be set using the values in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Stop
2	Swing

5.3.14 RoomTemperature_status (Analog Input Object Type)

It indicates the room temperature from the sensor in the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	10...38°C // 50...89,6 °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	Degrees Celsius (62) Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.15 ErrorCode (Analog Input Object Type)

It indicates the current error present in the AC system.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.16 ErrorCodeM (Multistate Input Object Type)

It indicates the current error present in the AC system.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, 2)	R	R
Object_Name	CharacterString	"ErrorCodeM"	R	R
Object_Type	BACnetObjectType	MULTISTATE_INPUT(13)	R	R
Present_Value	Unsigned	1 ~ 156	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	156	R	R
State_Text	BACnetArray[N] of CharacterString	Check Error Code 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	-

Error Code table

In the table below you will find the error correspondence value.

Pesent_Value	Contents displayed in State_Text	Pesent_Value	Contents displayed in State_Text	Pesent_Value	Contents displayed in State_Text
1	–	55	H8	109	U4
2	CommError	56	H9	110	U5
3	A0	57	HA	111	U6
4	A1	58	HH	112	U7
5	A2	59	HC	113	U8
6	A3	60	HE	114	U9
7	A4	61	HF	115	UA
8	A5	62	F0	116	UH
9	A6	63	F1	117	UC
10	A7	64	F2	118	UJ
11	A8	65	F3	119	UE
12	A9	66	F6	120	UF
13	AA	67	FA	121	60
14	AH	68	FH	122	61
15	AJ	69	FC	123	62
16	AE	70	FE	124	63
17	AF	71	FF	125	64
18	C0	72	J0	126	65
19	C3	73	J1	127	68
20	C4	74	J2	128	6A
21	C5	75	J3	129	6H
22	C6	76	J4	130	6C
23	C7	77	J5	131	6J
24	C8	78	J6	132	6E
25	C9	79	J7	133	6F
26	CA	80	J8	134	51
27	CH	81	J9	135	52
28	CC	82	JA	136	53
29	CJ	83	JH	137	54
30	CE	84	JC	138	40
31	CF	85	JE	139	41
32	E0	86	JF	140	42
33	E1	87	L0	141	43
34	E3	88	L3	142	44
35	E4	89	L4	143	31
36	E5	90	L5	144	32
37	E6	91	L6	145	33
38	E7	92	L7	146	34
39	E8	93	L8	147	35
40	E9	94	L9	148	36
41	EA	95	LA	149	3A
42	EH	96	LC	150	3H
43	EC	97	P0	151	3C
44	EJ	98	P1	152	M2
45	EE	99	P3	153	M8
46	EF	100	P4	154	MA
47	H0	101	P5	155	MC
48	H1	102	P6	156	UNKOWN
49	H2	103	P7		
50	H3	104	PJ		
51	H4	105	U0		
52	H5	106	U1		
53	H6	107	U2		
54	H7	108	U3		

5.3.17 ErrorActive (Binary Input Object Type)

It indicates if there is an error active in the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-

5.3.18 OnTimeCounter (Analog Value Object Type)

It indicates the current Setpoint when Cool mode is selected and Occupancy is enabled.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.19 Occupancy (Multistate Value Object Type)

It indicates the use or not of the occupancy function.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 0)	R	R
Object_Name	CharacterString	"Occupancy"	R	R
Object_Type	BACnetObjectType	MULTISTATE_VALUE (19)	R	R
Present_Value	Unsigned	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	<i>Check Occupancy setting table below</i>	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	-

Occupancy values table

Check possible Occupancy values in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Occupied
2	Unoccupied
3	Disabled

5.3.20 OccupiedCoolSetPoint (Analog Value Object Type)

It indicates the current Setpoint when Cool mode is selected and Occupancy is enabled and the room is occupied.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.21 OccupiedHeatSetPoint (Analog Value Object Type)

It indicates the current Setpoint when Heat mode is selected and Occupancy is enabled and the room is occupied.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.22 UnoccupiedCoolSetPoint (Analog Value Object Type)

It indicates the current Setpoint when Cool mode is selected, Occupancy is enabled and the room is unoccupied.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.23 UnoccupiedHeatSetPoint (Analog Value Object Type)

It indicates the current Setpoint when Heat mode is selected and Occupancy is enabled and the room is unoccupied.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Value, 4)	R	R
Object_Name	CharacterString	"UnoccupiedHeatSetPoint"	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)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.24 OccupancyContinuousCheck (Binary Value Object Type)

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

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-

5.3.25 UnoccupiedDeadbandAction (Binary Value Object Type)

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

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	-

5.3.26 LockRemoteControl (Binary Value Object Type)

It indicates if control from the remote controller is locked or not.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Binary Value, 2)	R	R
Object_Name	CharacterString	"LockRemoteControl"	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	"Unlocked"	O	R
Active_Text	CharacterString	"Locked"	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	-

5.3.27 Humidification_status (Multistate Input Object Type)

It indicates the status of the humidification function for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Input, 8)	R	R
Object_Name	CharacterString	"Humidification_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/TRUE	R	R
Number_Of_States	Unsigned	5	R	R
State_Text	BACnetArray[N] of CharacterString	Check Humidification Status 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	-

Humidification status setting table

Humidification interpretation is possible using the value in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Off
2	Low
3	Mid
4	High
5	Continuous

5.3.28 Humidification_command (Multistate Output Object Type)

It allows control over the humidification function for the indoor unit.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Multi-state Output, 6)	R	R
Object_Name	CharacterString	"Humidification_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	<i>Check Humidification Status setting table below</i>	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	-

Humidification status setting table

Humidification commands can be set using the values in the following correspondence table.

Present_Value	Contents displayed in State_Text
1	Off
2	Low
3	Mid
4	High
5	Continuous

5.3.29 OutdoorTemp_status (Analog Input Object Type)

It indicates the current outdoor temperature, obtained from the outdoor unit sensor.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 8)	R	R
Object_Name	CharacterString	"OutdoorTemp_status"	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	REAL	°C // °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	Degrees Celsius (62) Degrees Fahrenheit (64)	R	R
Min_Pres_Value	REAL	-	O	-
Max_Pres_Value	REAL	-	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	-

5.3.30 DIP_SW_S1_status (Analog Input Object Type)

It indicates the status of the DIP switch 1 in decimal value. To get the micro-switch position, just translate the value into binary. It is only read after booting the device.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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

5.3.31 DIP_SW_S2_status (Analog Input Object Type)

It indicates the status of the DIP switch 2 in decimal value. To get the micro-switch position, just translate the value into binary. It is only read after booting the device.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
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	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

5.3.32 SerialNumber (Analog Input Object Type)

It indicates the serial number of the device. Serial number follows the next rule **000KXXXXXX**, where:

- **000K** is constant and no included in Present Value property.
- **XXXXXX** is the unique serial number of the device. It is the information provided through the Present Value.

Property Identifier	Property Datatype	Value	ASHRAE	IBOX
Object_Identifier	BACnetObjectIdentifier	(Analog Input, 11)	R	R
Object_Name	CharacterString	SerialNumber	R	R
Object_Type	BACnetObjectType	ANALOG_INPUT (0)	R	R
Present_Value	BACnetBinaryPV	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] of BACnetTimeStamp	-	O	-
Profile_Name	CharacterString	-	O	-
Units	BACnetEngineeringUnits	No units (95)	R	R
COV_Increment	REAL	0	O	W

5.4 Considerations on Temperature Objects

- **Setpoint_command (Analog Output Object Type)**

This is the adjustable temperature setpoint value that must be required by the user.

Present value can be read or written.

A remote controller connected to the Daikin indoor unit will report the same temperature setpoint value set in this object. This will apply when no AC unit's external reference temperature is provided from DK-AC-BAC-1L (see details below).

- **RoomTemperature (Analog Input Object Type)**

This object reports the temperature that is currently used by the Daikin indoor unit as the reference of its own control loop. Depending on the configuration of the indoor unit, this value can be the temperature reported by the sensor on the return path of the Daikin indoor unit or the sensor of its remote controller.

Present value can be read only.

- **RoomTemperature_command (Analog Output Object Type)**

This object allows us to provide an external temperature's sensor from the BACnet side. Daikin indoor unit does not allow, on devices like DK-AC-BAC-1L, to provide directly a temperature to be used as a reference of the control loop of the AC indoor unit. To overcome this limitation and enable the usage of an external temperature sensor, DK-AC-BAC-1L applies the following mechanism called "Virtual Temperature":

- After receiving **RoomTemperature_command** and **Setpoint_command**, DK-AC-BAC-1L is going to estimate the appropriate temperature setpoint.

Example. If a **Setpoint_command** = 22°C, and **RoomTemperature_command** = 20°C are received, DK-AC-BAC-1L will assume that the user is demanding a +2°C increase in temperature.

- By knowing at any time, the reference temperature currently used by the indoor unit (the return temperature), DK-AC-BAC-1L can calculate the required temperature setpoint needed to apply the decrease/increase on the real temperature and reach the temperature chosen by the user.

Following the example above, if DK-AC-BAC-1L reads a **RoomTemperature_command** = 24°C in the indoor unit, it will apply a final setpoint of 24°C + 2°C = 26°C.

- At this moment, every time that DK-AC-BAC-1L detects a change on the ambient temperature reported by the indoor unit, it will also change the required setpoint to keep the temperature required by the user at any time.

If we follow the example, if DK-AC-BAC-1L receives a new temperature value coming from the indoor unit of 25°C, DK-AC-BAC-1L will automatically adjust the temperature setpoint required of the AC indoor unit to 25°C + 2°C = 27°C.

- In general, DK-AC-BAC-1L is constantly applying the "Virtual Temperature" formula:

$$S_{AC} = S_u - (T_u - T_{AC})$$

Where:

S_{AC} - setpoint value currently applied to the indoor unit

S_u - setpoint value

T_u - external temperature reference written at BACnet side

T_{AC} - ambient temperature that the indoor unit is using as the reference of its own control loop

When DK-AC-BAC-1L detects a change in any of the values of $\{S_u, T_u, T_{AC}\}$, it will send the new setpoint (S_{AC}) to the indoor unit.

- After a device booting, Present value for **RoomTemperature_command** has a value 0 and the property "Reliability" is displayed as *Unreliable Other (7)*. This "Reliability" status means that no external

temperature reference has being provided to the object, so the system is not applying the Virtual temperature function. However, after receiving the first value, “Realibility” wil change into *Nofault Detected (0)*. After that, any value can be used in the temperature range, including 0.

- **Setpoint_status (Analog Input Object Type)**

This register will show the real temperature sent to the indoor unit. Its behavior depends on virtual temperature function:

- If virtual temperature in not in use, its value will be the same that **Setpoint_command**.
- If virtual temperature is being used, the value will be the real setpoint modified by this function according to the formula explained above.

Present value can be read only.

Moreover, notice that temperature's values of all these four objects are expressed according to the temperature's format configured through its onboard DIP-Switches (See 6 Connections and switches). The following formats are possible:

- **Celsius value:** Value in BACnet object is the temperature value in Celsius (i.e. a value “22” in the BACnet object must be interpreted as 22°C).
- **Fahrenheit value:** Value in BACnet object is the temperature value in Fahrenheit (i.e. a value “72” in the BACnet object must be interpreted as 72°F (~22°C).

6 Connections and switches

6.1 Connect to the AC indoor unit interface

The interface includes a 1,5 meters cable for direct connection to the internal control board of the AC indoor unit.

Disconnect mains power from the AC unit. Open the front cover of the indoor unit to have access to the internal control board. In the control board locate the socket connector marked as **S21**

Using the cable that comes with the interface, insert one of its connectors, the one installed in the shortest uncovered part, into the socket of the DK-AC-BAC-1L marked as **AC Unit**, and the other connector, the one in the largest uncovered part, into the socket **S21** of the AC unit's control board. Fix the DK-AC-BAC-1L outside the AC indoor; remember that DK-AC-BAC-1L must be also connected to the BACnet network. Close the AC indoor unit's front cover again.

⚠ **Important:** Do not modify the length of the cable supplied with the interface, it may affect to the correct operation of the interface.

⚠ **Important:** Remember that switch changes only apply after an IntesisBox power cycle.

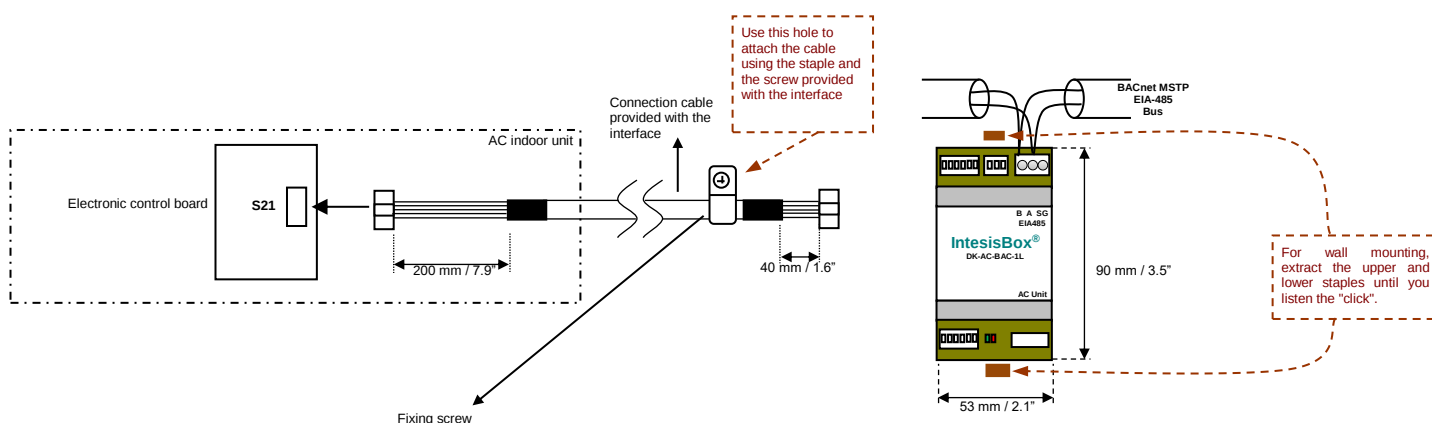


Figure 2.2 Connection diagram

SW1 – Device settings

Binary value $b_5...b_4$	Switches 1 2 3 4 5 6 7 8	Description
xxxx0xxx	x x x x ↓ x x x	Low Power Mode
xxxx1xxx	x x x x ↑ x x x	High Performance mode (Default value)

⚠ **Important:** This switch determines the performance and consumption of the device. Running in **High Performance Mode** means maximum consumption and maximum device performance. However, in very specific installations (AC bus shared with a wired remote controller together with wiring distances from AC to devices and low supply allowed by some AC in connection port) AC port consumption may be exceeded. In this case, it is possible to decrease device consumption by changing into **Low Power Mode**.

SW2 – Temperature magnitude (°C/°F)

Binary value $b_0...b_1$	Switches 1 2 3 4 5 6 7 8	Description
xxxxxxx0	x x x x x x x ↓	Temperature values in Bacnet are represented in Celsius degrees (Default value)
xxxxxxx1	x x x x x x x ↑	Temperature values in Bacnet are represented in Fahrenheit degrees

6.2 Connect to BACnet MS/TP

Connect the EIA485 bus wires to the plug-in terminal block (EIA485) of DK-AC-BAC-1L; respect the polarity on this connection (A+ and B-).

Connect the ground signal to the plug-in terminal block (SG).

Respect the maximum distance of 1.200 meters for the bus, no loop or star topologies are allowed for EIA485 bus.

Remember that a terminator resistor of 120 Ω must be present at each end of the bus to avoid signal reflections and a polarization mechanism. Please, use switch **SW3** to configure these parameters.

Binary value $b_2...b_0$	Switches 1 2 3	Description
0xx	↓ x x	EIA485 bus without termination resistor. The gateway is not at one end of the EIA485 bus (default value)
1xx	↑ x x	120 Ω termination resistor active. The gateway is at one end of the EIA485 bus
x00	x ↓ ↓	No bus polarization (Default value)
x11	x ↑ ↑	Bus polarization active

Please, check configuration on **SW2** and **SW3** before connecting to BACnet MS/TP.

6.2.1 MS/TP MAC address switch configuration

MAC address can be configured using switch **SW2**

Binary value $b_0...b_7$	Switches 1 2 3 4 5 6 7 8	MAC address
0000000x	↓ ↓ ↓ ↓ ↓ ↓ ↓ x	0 (Default value)
1000000x	↑ ↓ ↓ ↓ ↓ ↓ ↓ x	1
0100000x	↓ ↑ ↓ ↓ ↓ ↓ ↓ x	2
1100000x	↑ ↑ ↓ ↓ ↓ ↓ ↓ x	3
....		...
1011111x	↑ ↓ ↑ ↑ ↑ ↑ ↑ x	125
0111111x	↓ ↑ ↑ ↑ ↑ ↑ ↑ x	126
1111111x	↑ ↑ ↑ ↑ ↑ ↑ ↑ x	127

6.2.2 BACnet MS/TP baudrate

Select the right baudrate for BACnet MS/TP communication using switch **SW1**.

Binary value $b_5...b_4$	Switches 1 2 3 4 5 6 7 8	Description
xxxxx000	x x x x x ↓ ↓ ↓	Autobaudrate (default value) *
xxxxx100	x x x x x ↑ ↓ ↓	9600 bps
xxxxx010	x x x x x ↓ ↑ ↓	192000 bps
xxxxx110	x x x x x ↑ ↑ ↓	38400 bps
xxxxx001	x x x x x ↓ ↓ ↑	57600 bps
xxxxx101	x x x x x ↑ ↓ ↑	76800 bps
xxxxx011	x x x x x ↓ ↑ ↑	115200 bps
xxxxx111	x x x x x ↑ ↑ ↑	Autobaudrate *

* Note: If Autobaudrate is selected, the DK-AC-BAC-1L will look for another BACnet MS/TP device with a fixed baudrate to match this value. Once detected, the baudrate will not be modified until a device reset is produced.

7 Set-up process and troubleshooting

7.1 Pre-requisites

For a BACnet MS/TP integration, it is necessary to have the BACnet MS/TP Master device operative and well connected to the BACnet MS/TP port of the DK-AC-BAC-1L.

Items supplied by Intesis Software for this integration are:

- IntesisBox DK-AC-BAC-1L interface with Daikin AC external protocol firmware loaded.
- Specific connection cable to connect Daikin AC unit with DK-AC-BAC-1L gateway.
- Product documentation.

7.2 Physical checking

First point to look at to make sure that gateway is working properly is to check physical connections:

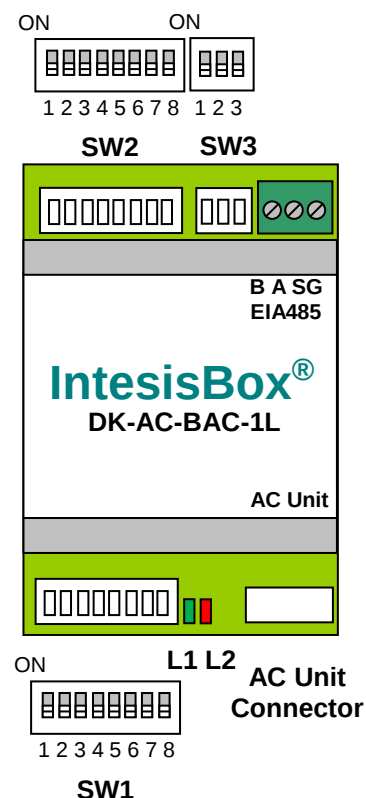
- 1.- Make sure that the supplied cable is correctly connected between the AC unit and the gateway.
- 2.- Check that the AC unit is connected to mains.
- 3.- Check the EIA485 connection from the gateway to the BACnet MS/TP. Remember to verify polarity and terminal resistors configuration.

7.3 LED status

There are two led at the bottom of the device. On start up, all leds blink once and then turn off. After that booting, LED status will be updated.

Please, check the table below for more information:

LED	Status	Description
L1 (green)	ON Steady	Communication error
	Blinking	AC Error
	Flashing	Communication OK
L2 (red)	ON Steady	BACnet MS/TP link
	Blinking	Activity on the BACnet MS/TP bus
	OFF	BACnet MS/TP link not performed



7.4 Occupancy

Each indoor unit has its own occupancy signal. Remember that this signal needs to be feed by an external sensor which indicates if there is presense or not (occupancy). This signal is processed directly in the DK-AC-BAC-1L.

When occupancy mode is active, according to current room temperature it will set the mode, setpoint and on/off, for example:

- Room Temperature > OCS: Setpoint = OCS, Mode = Cool, On/Off = On
- Room Temperature < OHS: Setpoint = OHS, Mode = Heat, On/Off = On
- OCS < Room Temperature > OHS: Setpoint = OCS/OHS depending on current mode (if Fan or Dry mode is active => no setpoint is sent), On/Off = On

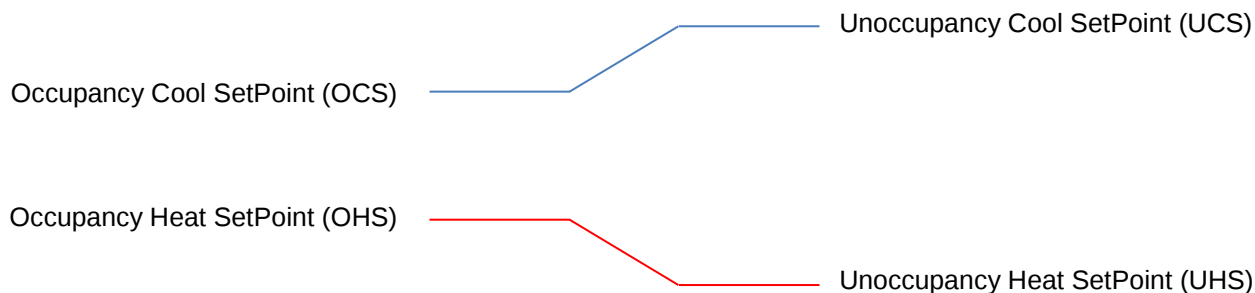
When unoccupancy mode is active, according to current room temperature it will set the mode, setpoint and on/off, for example:

- Room Temperature > UCS: Setpoint = UCS, Mode = Cool, On/Off = On
- Room Temperature < UHS: Setpoint = UHS, Mode = Heat, On/Off = On
- UCS < Room Temperature > UHS: Setpoint = UCS/UHS depending on current mode (if Fan or Dry mode is active => no setpoint is sent), On/Off = On (if Unoccupancy Deadband Action is = 1)

These checks will be done each time the indoor unit occupancy status is changed, and if **check continuously** checkbox is checked, also each time the room temperature changes.

The configuration set on the occupany signals is applied from the very first moment the occupancy signal is enabled until the user changes the setpoint, mode or the On/Off signal, which disables occupancy functionality.

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



8 Restore factory Settings

8.1 Restore factory Settings

To restore device factory settings, it is necessary to complete the following process:

1. Set **SW1** and **SW2** DIP switches to ON position.
2. Reset the device performing a POWER OFF and a POWER ON.
3. After booting, both leds (green+red) should be blinking in S.O.S morse sequence.
4. At this moment, a 30 seconds countdown will start to set all SW1 and SW2 switches to OFF position.
5. By completing these previous steps, the device will be restored to Factory Settings.

To continue working with the device, remember to proceed as usual:

1. Set again switches to reach user desired configuration
2. Reset the device (POWER OFF + POWER ON).

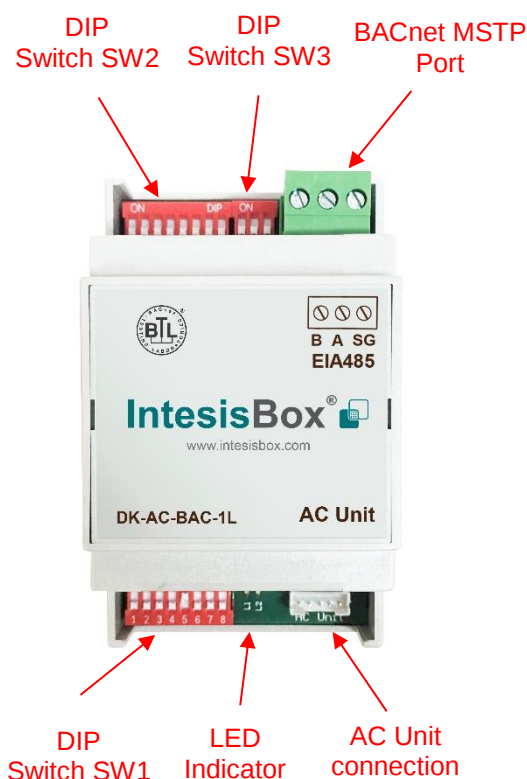
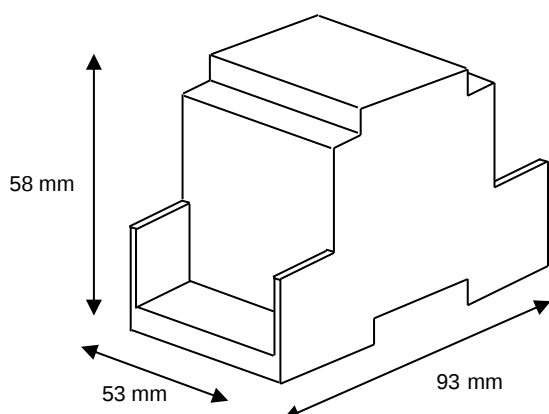
9 AC Unit Types compatibility

Please, check compatibility list at to know which Daikin units are compatible with our gateway.

http://www.intesis.com/pdf/IntesisBox_DK-AC-xxx-1_AC_Compatibility.pdf

10 Mechanical & electrical characteristics

Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 93 x 53 x 58 mm / 3.7" x 2.1" x 2.3" Color: Light Grey. RAL 7035	Operation Temperature	0°C to +70°C
Weight	85 g.	Stock Temperature	-20°C to +85°C
Mounting	Wall DIN rail EN60715 TH35.	Operational Humidity	<95% RH, non-condensing
Terminal Wiring (for low-voltage signals)	For terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm ² ... 2.5mm ² 2 cores: 0.5mm ² ... 1.5mm ² 3 cores: not permitted	Stock Humidity	<95% RH, non-condensing
BACnet MS/TP port	1 x EIA485 Plug-in screw terminal block (2 poles + GND) with 120 Ω resistor termination and polatization selectable by switch.	Isolation voltage	1500 VDC
AC unit port	1 x Specific connector Specific cable included	Isolation resistance	1000 MΩ
Switch 1 (SW1)	1 x DIP-Switch for Air Conditioner Unit + Bacnet baud rate	Protection	IP20
Switch 3 (SW3)	1 x DIP-Switch for Bacnet MAC address + temperature magnitude (°C/°F).	LED indicators	2 x Onboard LED - Operational status



11 Error codes

Below you can find a list of error codes from Daikin air conditioning system.

Error Code	Error CodeM	Error in Remote Controller	Error Category	Error Description
-1	ComError	N/A	Indoor Unit	Communication Error between AC unit and DK-AC-BAC-1
17	A0	A0		External protection devices activated
18	A1	A1		Indoor unit PCB assembly failure
19	A2	A2		Interlock error for fan
20	A3	A3		Drain level system error
21	A4	A4		Temperature of heat exchanger (1) error
22	A5	A5		Temperature of heat exchanger (2) error
23	A6	A6		Fan motor locked, overload, over current
24	A7	A7		Swing flap motor error
25	A8	A8		Overcurrent of AC input
26	A9	A9		Electronic expansion valve drive error
27	AA	AA		Heater overheat
28	AH	AH		Dust collector error / No-maintenance filter error
30	AJ	AJ		Capacity setting error (indoor)
31	AE	AE		Shortage of water supply
32	AF	AF		Malfunctions of a humidifier system (water leaking)
33	C0	C0		Malfunctions in a sensor system
36	C3	C3		Sensor system of drain water error
37	C4	C4		Heat exchanger (1) (Liquid pipe) thermistor system error
38	C5	C5		Heat exchanger (1) (Gas pipe) thermistor system error
39	C6	C6		Sensor system error of fan motor locked, overload
40	C7	C7		Sensor system of swing flap motor error
41	C8	C8		Sensor system of over-current of AC input
42	C9	C9		Suction air thermistor error
43	CA	CA		Discharge air thermistor system error
44	CH	CH		Contamination sensor error
45	CC	CC		Humidity sensor error
46	CJ	CJ		Remote control thermistor error
47	CE	CE		Radiation sensor error
48	CF	CF		High pressure switch sensor
49	E0	E0	Outdoor Unit	Protection devices activated
50	E1	E1		Outdoor unit PCB assembly failure
52	E3	E3		High pressure switch (HPS) activated
53	E4	E4		Low pressure switch (LPS) activated
54	E5	E5		Overload of inverter compressor motor
55	E6	E6		Over current of STD compressor motor
56	E7	E7		Overload of fan motor / Over current of fan motor
57	E8	E8		Over current of AC input
58	E9	E9		Electronic expansion valve drive error
59	EA	EA		Four-way valve error
60	EH	EH		Pump motor over current
61	EC	EC		Water temperature abnormal
62	EJ	EJ		(Site installed) Protection device activated

Error Code	Error CodeM	Error in Remote Controller	Error Category	Error Description
63	EE	EE	Outdoor unit	Malfunctions in a drain water
64	EF	EF		Ice thermal storage unit error
65	H0	H0		Malfunctions in a sensor system
66	H1	H1		Air temperature thermistor error
67	H2	H2		Sensor system of power supply error
68	H3	H3		High Pressure switch is faulty
69	H4	H4		Low pressure switch is faulty
70	H5	H5		Compressor motor overload sensor is abnormal
71	H6	H6		Compressor motor over current sensor is abnormal
72	H7	H7		Overload or over current sensor of fan motor is abnormal
73	H8	H8		Sensor system of over-current of AC input
74	H9	H9		Outdoor air thermistor system error
75	HA	HA		Discharge air thermistor system error
76	HH	HH		Pump motor sensor system of over current is abnormal
77	HC	HC		Water temperature sensor system error
79	HE	HE		Sensor system of drain water is abnormal
80	HF	HF		Ice thermal storage unit error (alarm)
81	F0	F0		No.1 and No.2 common protection device operates.
82	F1	F1		No.1 protection device operates.
83	F2	F2		No.2 protection device operates
84	F3	F3		Discharge pipe temperature is abnormal
87	F6	F6		Temperature of heat exchanger(1) abnormal
91	FA	FA		Discharge pressure abnormal
92	FH	FH		Oil temperature is abnormally high
93	FC	FC		Suction pressure abnormal
95	FE	FE		Oil pressure abnormal
96	FF	FF		Oil level abnormal
97	J0	J0		Sensor system error of refrigerant temperature
98	J1	J1		Pressure sensor error
99	J2	J2		Current sensor error
100	J3	J3		Discharge pipe thermistor system error
101	J4	J4		Low pressure equivalent saturated temperature sensor system error
102	J5	J5		Suction pipe thermistor system error
103	J6	J6		Heat exchanger(1) thermistor system error
104	J7	J7		Heat exchanger(2) thermistor system error
105	J8	J8		Oil equalizer pipe or liquid pipe thermistor system error
106	J9	J9		Double tube heat exchanger outlet or gas pipe thermistor system error
107	JA	JA		Discharge pipe pressure sensor error
108	JH	JH		Oil temperature sensor error
109	JC	JC		Suction pipe pressure sensor error
111	JE	JE		Oil pressure sensor error
112	JF	JF		Oil level sensor error
113	L0	L0		Inverter system error
116	L3	L3		Temperature rise in a switch box
117	L4	L4		Radiation fin (power transistor) temperature is too high
118	L5	L5		Compressor motor grounded or short circuit, inverter PCB fault

Error Code	Error CodeM	Error in Remote Controller	Error Category	Error Description
119	L6	L6	Outdoor unit	Compressor motor grounded or short circuit, inverter PCB fault
120	L7	L7		Over current of all inputs
121	L8	L8		Compressor over current, compressor motor wire cut
122	L9	L9		Stall prevention error (start-up error) Compressor locked, etc.
123	LA	LA		Power transistor error
125	LC	LC		Communication error between inverter and outdoor control unit
129	P0	P0		Shortage of refrigerant (thermal storage unit)
130	P1	P1		Power voltage imbalance, open phase
132	P3	P3		Sensor error of temperature rise in a switch box
133	P4	P4		Radiation fin temperature sensor error
134	P5	P5		DC current sensor system error
135	P6	P6		AC or DC output current sensor system error
136	P7	P7		Total input current sensor error
142	PJ	PJ		Capacity setting error (outdoor)
145	U0	U0	System	Low pressure drop due to insufficient refrigerant or electronic expansion valve error, etc.
146	U1	U1		Reverse phase, Open phase
147	U2	U2		Power voltage failure / Instantaneous power failure
148	U3	U3		Failure to carry out check operation, transmission error
149	U4	U4		Communication error between indoor unit and outdoor unit, communication error between outdoor unit and BS unit
150	U5	U5		Communication error between remote control and indoor unit / Remote control board failure or setting error for remote control
151	U6	U6		Communication error between indoor units
152	U7	U7		Communication error between outdoor units / Communication error between outdoor unit and ice thermal storage unit
153	U8	U8		Communication error between main and sub remote controllers (sub remote control error) / Combination error of other indoor unit / remote control in the same system (model)
154	U9	U9		Communication error between other indoor unit and outdoor unit in the same system / Communication error between other BS unit and indoor/outdoor unit
155	UA	UA		Combination error of indoor/BS/outdoor unit (model, quantity, etc.), setting error of spare parts PCB when replaced
156	UH	UH		Improper connection of transmission wiring between outdoor and outdoor unit outside control adaptor
157	UC	UC		Centralized address duplicated
158	UJ	UJ		Attached equipment transmission error
159	UE	UE		Communication error between indoor unit and centralized control device
160	UF	UF		Failure to carry out check operation Indoor-outdoor, outdoor-outdoor communication error, etc.
209	60	60	Others	All system error
210	61	61		PC board error
211	62	62		Ozone density abnormal
212	63	63		Contamination sensor error
213	64	64		Indoor air thermistor system error
214	65	65		Outdoor air thermistor system error
217	68	68		HVU error (Ventiair dust-collecting unit)
219	6A	6A		Dumper system error
220	6H	6H		Door switch error
221	6C	6C		Replace the humidity element
222	6J	6J		Replace the high efficiency filter

Error Code	Error CodeM	Error in Remote Controller	Error Category	Error Description
223	6E	6E	Others	Replace the deodorization catalyst
224	6F	6F		Simplified remote controller error
226	51	51		Fan motor of supply air over current or overload
227	52	52		Fan motor of return air over current / Fan motor of return air overload
228	53	53		Inverter system error (supply air side)
229	54	54		Inverter system error (return air side)
241	40	40		Humidifying valve error
242	41	41		Chilled water valve error
243	42	42		Hot water valve error
244	43	43		Heat exchanger of chilled water error
245	44	44		Heat exchanger of hot water error
258	31	31		The humidity sensor of return air sensor
259	32	32		Outdoor air humidity sensor error
260	33	33		Supply air temperature sensor error
261	34	34		Return air temperature sensor error
262	35	35		Outdoor air temperature sensor error
263	36	36		Remote controller temperature sensor error
267	3A	3A		Water leakage sensor 1 error
268	3H	3H		Water leakage sensor 2 error
269	3C	3C		Dew condensation error
339	M2	M2		Centralized remote controller PCB error
345	M8	M8		Communication error between centralized remote control devices
347	MA	MA		Centralized remote control devices inappropriate combination
349	MC	MC		Centralized remote controller address setting error

In case you detect an error code not listed, contact your nearest Daikin technical support service for more information on the error meaning.