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Integration Manual

DZK-4

ASHRAE BACnet™

DZK
DAIKIN ZONING KIT

INDEX

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OVERVIEW

OUTLINE AND FEATURES

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The DZK BACnet Interface allows a Building Management System to control all variables of the DZK systems. The DZK BACnet Interface uses a standard open protocol based on ASHRAE Standard 135, and its objects are:

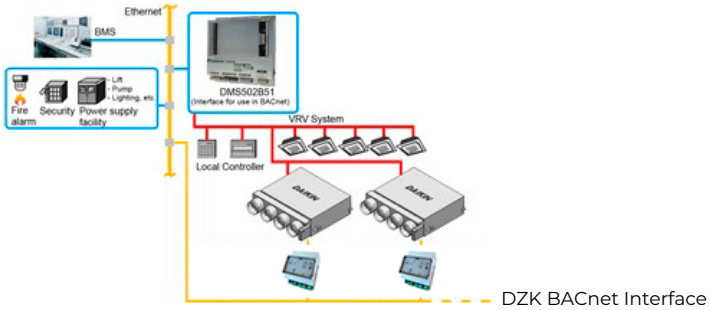
- Compatible with BACnet (ANSI /ASHRAE-135)
- Compatible with BACnet/IP (ISO16484-5)

The DZK BACnet Interface is a device for DZK, and it allows for control and monitoring of the following variables:

- One DZK-BACnet Interface per installation.
- On/Off of each zone.
- Set-point temperature control of each zone.
- Operating mode status.
- State and UI fan speed.

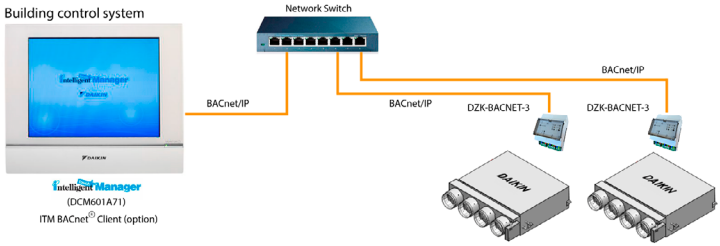
SYSTEM OUTLINE

BACnet typical layouts is as follows:



Typical VRV installation controlled through BACnet

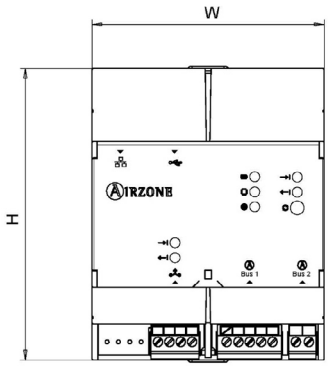
ITM with BACnet client typical layouts is as follows:

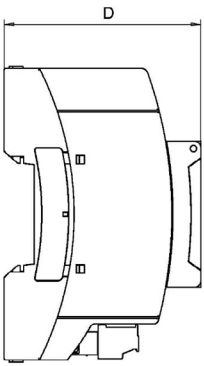


Typical VRV installation controlled through BACnet

Note: One DZK BACnet Interface for each DZK system.

Power supply and consumption	
Type of power supply	Vdc
V max	12 V supplied from Main Control Board
I max	0.5 mA
Maximum consumption	1.3 W
Ethernet	
Type of cable	UTP cat 5
Standard	100BASE-TX
IP address by default	DHCP
Wi-Fi	
Protocol	Wi-Fi CERTIFIED ™ 802.11a/b/g/n/ac
Frequency	2.4 GHz (max. 150 Mbps) 5 GHz (max. 433 Mbps)
Maximum power	19.5 dBm
Maximum distance	100 m (328 ft)
IP address by default	DHCP
Communication wires	
Shielded twisted pair	2x AWG 20 (2 x 0.5 mm2)
Communications protocol	BACnet MS-TP
Maximum distance	100 m (328 ft)
Operative temperatures	
Storage	-4 to 158°F (-20 to 70 °C)
Operation	32 to 113°F (0 to 45°C)
Operating humidity range	5 to 90% (non-condensing)
Mechanical aspects	
Dimensions (WxHxD)	28.18x35.31x23.89inch (71.6x89.7x60.7mm)





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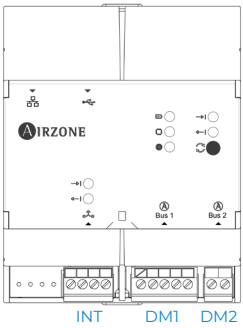

LED Status			
	Power	Fixed	Red
	Microprocessor activity	Blinking	Green
	Connected to the Internet	Blinking	Green
	Data reception from DMx bus	Blinking	Green
	Data transmission from DMx bus	Blinking	Red
	Data reception from INT bus	Blinking	Green
	Data transmission from INT bus	Blinking	Red

FUNCTIONAL SPECIFICATIONS

INTRODUCTION

When the DZK BACnet Interface is used in a BACnet network, it operates as a BACnet interpreter using the services defined by the BACnet to return the status of the Daikin Zoning Kit (DZK). It also sends configuration commands to them, in response to requests from a BACnet building management system (BMS) (i.e., BACnet client) which support the BACnet (ISO16484-5, ANSI/ASHRAE135) protocol.

The DZK BACnet Interface is a plug and play device, which, when connected to the DZK main control board and to a BACnet network, it configures itself and configures the main board to work with the BACnet network. The installer can modify the IP address and BACnet device ID.

AVAILABLE SERVICES

The available services for the DZK BACnet Interface are:

- Read Property.
- Read Property Multiple.
- Write Property.
- Write Property Multiple.
- COV (Change of Value).
- Dynamic Device Binding (who-is, i-am, who-has, i-have).
- DCC (Device Communication Control).

Note: The values of the parameters are updated every second.

INSTALLATION AND CONFIGURATION

INSTALLATION ON THE CONTROL BOARD

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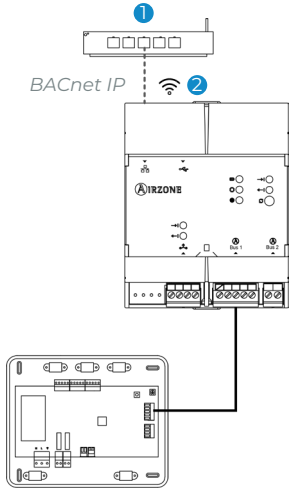
For both BACnet IP and BACnet MS/TP configurations is required one DZK BACnet interface per each DZK control board installed. The DZK BACnet Interface is connected to the DZK Main Control Board as shown in the following figures:

BACnet IP

The Ethernet cable should be connected to the DZK BACnet Interface gently. Once the control board has the interface connected, it will auto-detect the presence of the DZK BACnet Interface and automatically set the parameters to enable the BACnet operation (see BACnet configuration).

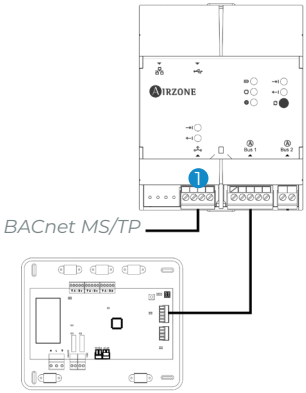


Connection throught:

- Ethernet cable.
- Wi-Fi.

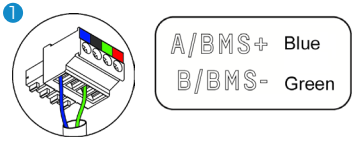
BACnet MS/TP

The communication cable should be connected to the DZK BACnet Interface gently. Once the control board has the interface connected, DZK BACnet Interface need to be set as BACnet MS/TP port vía app (see BACnet configuration).



Connection throught:

- Communication cable.



BACnet MS/TP.

- **Frame lenght:** 8 bits.
- **Parity:** None.
- **Stop bits:** 1.

Note: Up to 32 Webserver HUB can be daisy chained using the BACnet MS/TP connection.

Note: The device will only connect to internet if the "Remote assistance" option is enabled. Keep in mind: For proper operation, DZK systems must be powered up before the indoor unit.

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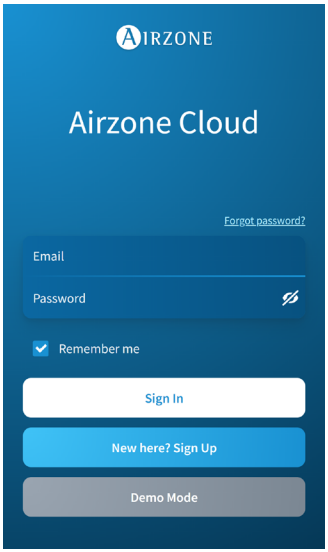
CONFIGURATION



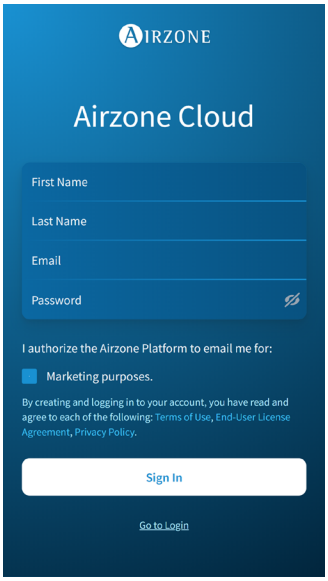
You can control your DZK system with your Android or iOS device via the Airzone Cloud app or via your browser at airzonecloud.com.

The Airzone Cloud app is available for download from the Google Play Store for Android devices and the Apple App Store for iOS devices. To download the app, enter "Airzone Cloud" in the search field of your device's app store.

Once you have installed the application, you need to associate it with your DZK system device.

Login

If you are already an Airzone Cloud user, enter your login details (email and password).

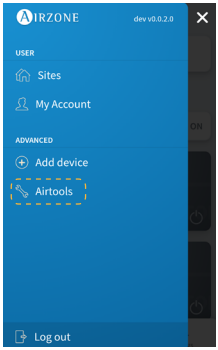


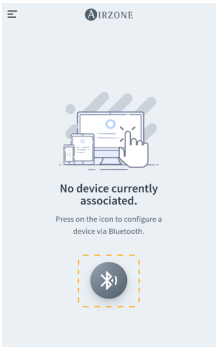
Creating an account

If you are not already a user, click on "New here? Sign Up", fill in the required fields and click "Sign In". A verification email will be sent to your email account to confirm your identity (if you do not receive an email, please check your spam folder).

BACnet configuration (only from the app)

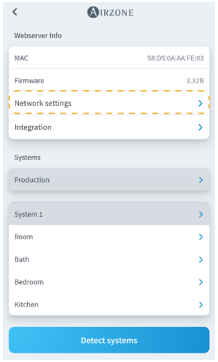
To configure the BACnet parameters, you have to follow the instructions below.

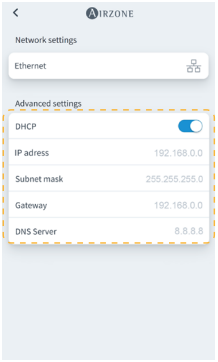




1. In the side bar menu, click on Airtools menu to access to advanced settings.

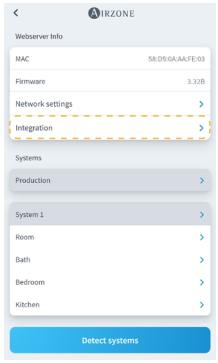
2. Then click on Bluetooth icon to start searching DZK devices and select the DZK device that you wish to configure.

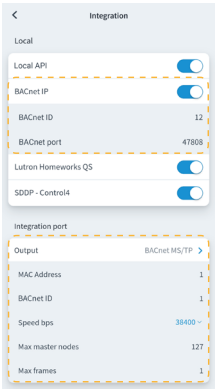




3. For the proper operation of the DZK BACnet Interface with the BACnet IP network, it may be required to configure the following network parameters:

   - DHCP
   - IP Address (default 192.168.0.100)
   - Subnet mask (default 255.255.255.0)
   - Gateway IP (default 192.168.0.1)
   - DNS server





4. If your integration type is BACnet IP, ensure that the switch is enabled and configure the associated parameters:

   BACnet IP.
   - **BACnet ID** (by default 1000)
   - **BACnet port** (by default 47808)

   For BACnet MS/TP, ensure that the Integration port is properly selected and configure the associated parameters:

   BACnet MS/TP.
   - **MAC address.** Configurable value between 0 and 127.
   - **BACnet ID.** Configurable value between 0 and 4, 194, 302.
   - **Speed bps.** Value selectable from among the available options.
   - **Max master nodes.** Configurable value between 1 and 127.
   - **Max frames.** Configurable value between 1 and 127.

OBJECTS

SUPPORTED OBJECT TYPE

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Supported DZK System monitoring/control items are mapped to the standard object types defined by the BACnet.

Object Type		Supported	DZK management point
Accumulator	23		
Analog-Input	0	√	Measured room temperatures
Analog-Output	1		
Analog-Value	2	√	Zone Set point (cool/heat), Indoor Unit set point, Humidity
Averaging	18		
Binary-Input	3	√	On/Off(Status), Alarm
Binary-Output	4		
Binary-Value	5	√	On/Off zone, Zone Local Fan, Vacation override, Unoccupied override, Global Fan (status), Aux Heaters (status)
Calendar	6		
Command	7		
Device	8	√	
Event-Enrollment	9		
File	10		
Group	11		
Life-Safety-Point	21		
Life-Safety-Zone	22		
Loop	12		
Multistate-Input	13	√	Indoor Unit Fan Speed (status), Indoor Unit Errors
Multistate-Output	14	√	Operating mode (setting) and user mode (setting)
Multistate-Value	19	√	Opening step damper (status)
Notification-Class	15		
Program	16		
Schedule	17		
Trend-Log	20		

OBJECTS LIST

Below is the full list of objects available in the DZK BACnet Interface. The availability of the communication objects depends on the DZK system configuration, and on the number of zones in the system.
The availability of the communication object in the DZK system is indicated in the parameter "out of service" of each communication object indicating whether it is available or not in the system.
The communication object will only have correct/valid values when the "out of service" is FALSE.

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**Note: R: Read and W: Write*

Binary-input			
0	IU Status ON/OFF	R	0 → Deactivated 1 → Activated
1	DZK system input alarm	R	0 → Deactivated 1 → Activated
Binary-value			
0	DZK Global Fan	R	0 → Deactivated 1 → Activated
1	DZK Aux Heat1	R	0 → Deactivated 1 → Activated
2	DZK Aux Heat2	R	0 → Deactivated 1 → Activated
3	Z1 ON/OFF	R/W	0 → Off 1 → On
4	Z1 Local Ventilation	R/W	0 → Disable 1 → Enable
5	Z1 Vacation override	R	0 → Disable 1 → Enable
6	Z1 Unoccupied override	R	0 → Deactivated 1 → Activated
7	Z2 ON/OFF	R/W	0 → Off 1 → On
8	Z2 Local ventilation	R/W	0 → Disable 1 → Enable
9	Z2 Vacation override	R	0 → Disable 1 → Enable
10	Z2 Unoccupied override	R	0 → Deactivated 1 → Activated
11	Z3 ON/OFF	R/W	0 → Off 1 → On
12	Z3 Local ventilation	R/W	0 → Disable 1 → Enable
13	Z3 Vacation override	R	0 → Disable 1 → Enable
14	Z3 Unoccupied override	R	0 → Deactivated 1 → Activated
15	Z4 ON/OFF	R/W	0 → Off 1 → On

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OBJECTS LIST

Binary-value			
16	Z4 Local ventilation	R/W	0 → Disable 1 → Enable
17	Z4 Vacation override	R	0 → Disable 1 → Enable
18	Z4 Unoccupied override	R	0 → Deactivated 1 → Activated
19	Z5 ON/OFF	R/W	0 → Off 1 → On
20	Z5 Local ventilation	R/W	0 → Disable 1 → Enable
21	Z5 Vacation override	R	0 → Disable 1 → Enable
22	Z5 Unoccupied override	R	0 → Deactivated 1 → Activated
23	Z6 ON/OFF	R/W	0 → Off 1 → On
24	Z6 Local ventilation	R/W	0 → Disable 1 → Enable
25	Z6 Vacation override	R	0 → Disable 1 → Enable
26	Z6 Unoccupied override	R	0 → Deactivated 1 → Activated
27	DZK/BACnet Interface communication error	R	0 → Deactivated 1 → Activated
Analog-input			
0	Z1 Room Temperature	R	°F: 50-95 / °C: 10-35
1	Z2 Room Temperature	R	°F: 50-95 / °C: 10-35
2	Z3 Room Temperature	R	°F: 50-95 / °C: 10-35
3	Z4 Room Temperature	R	°F: 50-95 / °C: 10-35
4	Z5 Room Temperature	R	°F: 50-95 / °C: 10-35
5	Z6 Room Temperature	R	°F: 50-95 / °C: 10-35
Analog-value			
0	IU Set Point	R	°F: 64-86 / °C: 18-30
1	Z1 Heat Set point	R/W	°F: 59-86 / °C: 15-30
2	Z1 Cool Set point	R/W	°F: 64-86 / °C: 18-30
3	Z2 Heat Set point	R/W	°F: 59-86 / °C: 15-30
4	Z2 Cool Set point	R/W	°F: 64-86 / °C: 18-30
5	Z3 Heat Set point	R/W	°F: 59-86 / °C: 15-30
6	Z3 Cool Set point	R/W	°F: 64-86 / °C: 18-30
7	Z4 Heat Set point	R/W	°F: 59-86 / °C: 15-30
8	Z4 Cool Set point	R/W	°F: 64-86 / °C: 18-30
9	Z5 Heat Set point	R/W	°F: 59-86 / °C: 15-30

OBJECTS LIST

Analog-value			
10	Z5 Cool Set point	R/W	°F: 64-86 / °C: 18-30
11	Z6 Heat Set point	R/W	°F: 59-86 / °C: 15-30
12	Z6 Cool Set point	R/W	°F: 64-86 / °C: 18-30
13	DZK address (DK AirNet address)	R	0-255
14	DZK group address (DK group address)	R	0-255
15	Z1 cooling demand (%)	R	0-100
16	Z1 heating demand (%)	R	0-100
17	Z1 aux heating demand (%)	R	0-100
18	Z2 cooling demand (%)	R	0-100
19	Z2 heating demand (%)	R	0-100
20	Z2 aux heating demand (%)	R	0-100
21	Z3 cooling demand (%)	R	0-100
22	Z3 heating demand (%)	R	0-100
23	Z3 aux heating demand (%)	R	0-100
24	Z4 cooling demand (%)	R	0-100
25	Z4 heating demand (%)	R	0-100
26	Z4 aux heating demand (%)	R	0-100
27	Z5 cooling demand (%)	R	0-100
28	Z5 heating demand (%)	R	0-100
29	Z5 aux heating demand (%)	R	0-100
30	Z6 cooling demand (%)	R	0-100
31	Z6 heating demand (%)	R	0-100
32	Z6 aux heating demand (%)	R	0-100
33	Z1 humidity	R	0-100
34	Z2 humidity	R	0-100
35	Z3 humidity	R	0-100
36	Z4 humidity	R	0-100
37	Z5 humidity	R	0-100
38	Z6 humidity	R	0-100
Multi-state-input			
0	IU speed	R	1 → Speed Low 2 → Speed Medium 3 → Speed High No. speeds will depend on IU model
1	IU errors	R	See “IU Error explanation”

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OBJECTS LIST

Multi-state-input			
2	DZK error	R	1 → Displayed Wired Thermostat Error 9. Error in DZK internal bus between DK interface board and Main board 2 → Displayed Wired Thermostat Error 10. Error in BACnet interface board 3 → Displayed Wired Thermostat Error 11. P1 P2 communication error (It appears 1-1½ min. since it happened)
Multi-state-output			
0	DZK operation mode	R/W	1 → Auto 2 → Cold 3 → Heat 4 → Dry 5 → Emergency heat
1	DZK user mode	R/W	1 → Stop 2 → Comfort 3 → Unoccupied 4 → Night time 5 → Eco 6 → Vacation
Multi-state-value			
0	Z1 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %
1	Z2 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %
2	Z3 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %
3	Z4 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %
4	Z5 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %
5	Z6 opening step damper	R	1 → 0% 2 → 25% 3 → 50 % 4 → 75 % 5 → 100 %

IU Errors Explanation

In the parameter “Description” will be specified the Daikin Error Code and its explanation (as it is specified in the following table). In the “value”, returns an Integer value that converted to hexadecimal representation obtains a Daikin error code, using Daikin Malfunction Code Table. The process used to get the Daikin error code from the Integer value is:

1. Read the integer value from the BACnet object: Value D
2. Convert it from decimal to Hexadecimal: 0xXY
3. Obtain the #row and #column from the Hexadecimal value:
   - Row = X-1
   - Column = Y
4. Check the Daikin Malfunction Code Table (see section Daikin malfunction error code table).

**Note: Row and column index start in 0.*

Example:

1. Value read from the BACnet object: 148
2. Convert it to Hexadecimal value: 0x94
3. Obtain the #row and #column from the Hexadecimal value:
   - Row = 9 – 1 = 8
   - Column= 4
4. Check the Daikin Malfunction Code Table:
   - Row: 8 System U
   - Column: 4 Communication error between indoor unit and outdoor unit, communication error outdoor unit and BS unit.

DETAILED DESCRIPTION OF THE OBJECTS

COMMON TO ALL OBJECTS

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For each DZK:

1. When the indoor unit is communicating normally, a communication can be established between the DZK BACnet Interface and the indoor unit. The BACnet building management system will then have access to the DZK unit's objects.
2. If the communication between the DZK BACnet Interface and the system is not correct, or if a request for information related to a communication object that is not present in the DZK system the object's property "Out of service" is activated.

IU STATUS ON/OFF

The DZK BACnet Interface will report the status of the IU when interrogated by the BACnet network. This is a Read only object.

DZK SYSTEM INPUT ALARM

This object represents the state of alarm input available to the DZK main board (normally closed contact), indicating whether this input is active or inactive. When this input is active, the system remains in STOP. This is a Read only object.

DZK GLOBAL VENTILATION (STATUS)

If the DZK system is configured for Global Ventilation, the Global Fan Object will show as active. Otherwise, it will show as inactive. This is a Read only object.

DZK AUX. HEAT1 AND AUX HEAT2 (STATUS)

If the DZK system is configured with Auxiliary Heat, when one or both (if 2 stages are configured) will show the active stages. If there is no demand for auxiliary heat, then it will show both as inactive. These are Read only objects.

Z# ON/OFF

Because the zone thermostats can be deactivated (Off), that will cause the zone to leave the damper open but will not generate demand, the DZK BACnet Interface will report the status of each specific zone. Through the BACnet platform, any zone can be set On/Off. These are Read/Write objects.

Z# LOCAL VENTILATION

Given the capability of each zone to individually activate ventilation this status is also reported to the BACnet platform, which in turn can remotely activate or deactivate this function. These are Read/Write objects.

Z# VACATION OVERRIDE

Vacation override can be enabled or not in each zone. This object represents if the Override time of the Vacation mode in the zone is active or inactive. This is read only object.

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Z# UNOCCUPIED OVERRIDE

Unoccupied override can be enabled or not in each zone. This object represents if the Override time of the Unoccupied mode in the zone is active or inactive. This is read only object.

DZK COMMUNICATION ERROR

This object monitors the communications between the DZK BACnet Interface and the DZK System. It will be activated when the DZK BACnet Interface loses communication with DZK control board. This is a Read only object.

Z# ROOM TEMPERATURE

The BACnet platform can obtain the actual room temperature for any zone. These are read only objects.

INDOOR UNIT (IU) SETPOINT

The IU set point is the result of a computation including the overall zone demand and the return temperature read by the IU. This set point is shown in the Daikin controller, and reported to the BACnet platform. This is Read only object.

Z# HEAT AND COOL SET POINTS

Each thermostat can be configured for a heat and cool set point, and those values are reported to the BACnet platform, and can be changed from it. These are Read/Write objects.

INDOOR UNIT (IU) SPEED

This parameter refers to the IU fan speed. Depending on the number of open zones and the value selected in the Q-Adapt parameter in the DZK system, the IU fan will run at a given speed, and the step at which the fan is running is reported to the BACnet platform. This is read only object.

INDOOR UNIT (IU) ERRORS

If the IU generates an error, it will be reported by the DZK BACnet Interface to the BACnet platform. This is read only object.

DZK ERROR

If the DZK generates an error, it will be reported by the DZK BACnet Interface to the BACnet platform. This is Read only object. The errors are:
0 → When operating normally.
9 → Communication error between DZK control board and DZK Interface board.
10 → Error in DZK BACnet Interface.
11 → Communication error between Indoor Unit and DZK Interface board.

DZK OPERATION MODE

The DZK BACnet Interface will report the system operation mode, represented by a number from 1 through 5. This is a Read/Write object. The modes are:

1. Auto
2. Cold
3. Heat
4. Dry
5. Emergency heat

In VRV Heat Pump installations, all the indoor units must work in supported/compatible operation modes, the operation mode of the DZK connected to a slave indoor unit could be restricted or limited by the operation mode selected in the DZK connected to the master indoor unit.
If in the same VRV Heat Pump installation, a DZK unit is connected to a slave indoor unit and another indoor unit is configured as the master (with or without DZK connected to):

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- When the master IU is operating in Fan mode, the DZK will send the current mode (cool, heat or dry) to the BACnet interface, if a cooling or heating demand exits.
- If no cooling or heating demand exits, the DZK will report STOP to the DZK BACnet Interface.

DZK USER MODE

The DZK BACnet Interface will report the system user mode, represented by a number from 1 through 6. This is a Read/Write object. The modes are:

1. Stop	3. Unoccupied	5. Eco
2. Comfort	4. Night time	6. Vacation

DZK ADDRESS (DK AIRNET)

The DZK BACnet Interface will read from the IU the DK AirNet address and report it to the BACnet platform. The information regarding the indoor unit address is sent to the DZK system in the initialization process or the indoor unit startup after powering on the unit. Or, if this information is queried from the NAV-controller unit.

Because of that, in the situation where the DZK system is powered up after the indoor unit, it will be required to access this parameter via the NAV-controller so that information is forwarded to the system DZK. This is read only object.

DZK GROUP ADDRESS - GROUP (DK GROUP ADDRESS)

This object represents the group address of the indoor unit. This address is the same that returns the Daikin system via the Itouch connected to the BACnet network.
Like the above object, the information is sent in the process of initiation or startup of the indoor unit, or when this information is queried to the indoor unit NAV-controller. This is read only object.

Z# COOLING AND HEATING DEMAND (%)

Each zone generates simultaneously values for heating and cooling demand, to allow the auto changeover function to define which mode will select to operate the system. Those values are reported to the BACnet platform as a percentage of the total demand. These are read only objects.

Z# OPENING STEP DAMPER

When the DZK system is configured for Modulating dampers, depending on the temperature difference between room and set point, the dampers will open to a given step. This is the step reported to the BACnet platform. These are read only objects.

Z# HUMIDITY

The BACnet platform can obtain the actual humidity for any zone. These are read only objects.

REPORT FUNCTION

COV NOTIFICATION

The COV notification with subscription (DS-COV-B) is supported.

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COV notification with subscription (subscribed COV)

COV subscription request is received by the Subscribe COV service.

1. Setting COV generation with/without confirmation. Supported as defined in the BACnet specifications.

2. Validity period for notification.
- Supported as defined in the BACnet specifications.
- When executing COV notification at status change, the system calculates the difference between the current time and registered time, and then it will delete the COV notification if the difference is larger than the validity period.
- Therefore, if the clock is changed, the actual validity period may differ from the defined period.

3. Memorization at power off.
- Not supported.
- Since the subscribed information is not saved, it will be deleted at power off.
- The BACnet specifications do not require memorization at power off.

4. Notification recipient information.
- The notification recipient information is not visible from the BACnet. The BACnet specifications do not require network visibility.

5. Number of notification recipients.
- X clients per object.
- Specifying more than 5 recipients will return ErrorPDU of Error Class = SERVICES,
- Error Code = COV_SUBSCRIPTION_FAILED.

6. COV notification is supported for all the objects for the indoor unit.

TROUBLESHOOTING

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THE DZK SYSTEM DOES NOT DETECT THE DZK BACNET INTERFACE

Verify the correct connection between the DZK BACnet Interface in the DZK main control board (see section Specifications and device elements):

- Verify that the LED (Microprocessor activity) is blinking.
- Verify that LEDs and are alternately blinking.
- Verify that BACnet IP or BACnet MS/TP is enabled (see BACnet configuration).
- Verify that the "Remote assistance" option is enabled in the wired thermostat.

If the above does not verify, check the correct connection of the DZK BACnet Interface on the DZK main control board, verifying the 5-pin connector.

THE DZK BACNET INTERFACE CANNOT BE CONNECTED (I)

Verify that LEDs "A" and "B" are blinking, and those in the Ethernet connector are active.
If the above is not true, check that the Ethernet cable is properly connected.

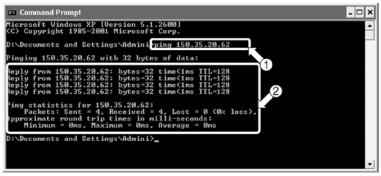
THE DZK BACNET INTERFACE CANNOT BE CONNECTED (II)

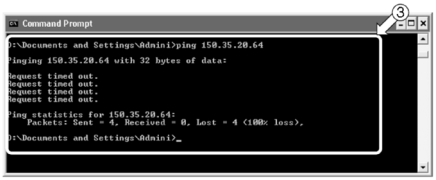
Check the following possible causes:

1. Using the Ethernet (LAN)
   - Check the state of the LEDs of the DZK BACnet Interface. If all of them are blinking at the same time, it means the IP selected for the DZK BACnet Interface is already being used by other device. Access settings (see section IP configuration) and change the parameter IP address.
   - Verify that the IP address set for the PC is correct (Refer to 7.2 for the correct IP address and setting procedure.)
   - Verify the Ethernet cable connection:
     - Verify if connecting via the hub: straight cable.
     - Verify communication with the Interface for use in BACnet® by testing the operation from the PC directly: Use a crossover cable.
   - Verify that the PC's LAN communication port is active.
   - If using the hub, verify that the hub is powered on.
   - Do a PING to the DZK BACnet Interface from the PC to verify the Ethernet Link (See below).

   [How to execute a PING to the BACnet Interface].
   - From the PC's desktop, select "Start", "Program", "Accessories", and "Command Prompt". The dialog box shown below opens.
   - Use the PC's key board; enter the BACnet gateway IP address in [1]. Ex. When Interface for use in BACnet®'s IP address is "150.35.20.62", enter "ping 150.35.20.62" and press the Return key.
2. If you can see information as shown in [2], the LAN connection is established. Start the test operation program and try connection again.

If you see information as shown in [3], the LAN connection is not established for some reason. Check the PC's settings, etc. again.





HOW TO SET THE PC'S IP ADDRESS

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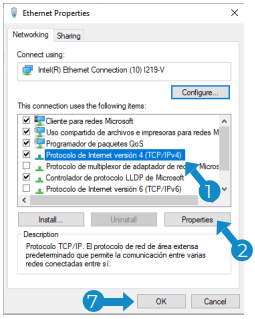
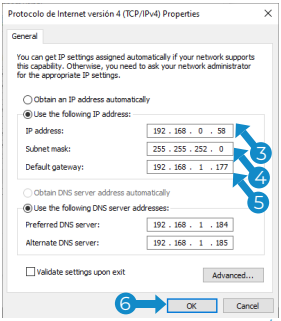
1. Take a note of the test operation PC's current IP address. (Be sure to take a note of the current IP address because this address needs to be restored after the test operation)
   a. Start the test operation PC. (The screens shown below are Windows 10 examples, and the actual screens differ depending on the OS used.)
   b. Double-click the Network Connections icon on the Control Panel. Click the Local Area Connection and right-click to choose "Properties". The dialog box 1 below opens.
   c. Select "Internet Protocol (TCP / IP)" [1] and click the Properties button [2]. The dialog box 2 opens. This dialog box shows the test operation PC's current IP address [3], subnet mask [4], and default gateway address [5]. Take a note of this information in Table 1.



Dialog box 1. Local Area Connection Properties



Dialog box 2. Internet Protocol (TCP / IP) Properties

[3] IP Address		Ex. 150.35.20.60
[4] Subnet mask		Ex. 255.255.255.0
[5] Default gateway address		EX15.35.20.254

[Table 1: Test Operation PC's Current Address]

2. Change the test operation PC's IP address. Use one of the following IP address depending on the current status of the Interface for use in BACnet®.

If the Interface for use in BACnet®'s IP address has not been changed from the factory setting, use the following:

- Port: 47808
- IP Address: 192.168.0.100
- Subnet Mask: 255.255.255.0
- Gateway IP: 192.168.0.1

If the Interface for use in BACnet®'s IP address has been changed from the factory setting at the site, use the following:

- IP address shown in the table in "[6]-2. IP address temporarily used for the test service operation" on P.12.
  a. Enter the information above in "IP address" [3], "subnet mask" [4], and "default gateway" [5] in the dialog box 2 of Step 1-3, and press the OK button [6]. The dialog box 1 reappears. Click the OK or Cancel button [7].
  b. Reboot the PC as required by the PC. (Reboot may not be necessary depending on the Windows version. Reboot the PC only when requested).

3. Return the IP address to the original address after the test operation. (Be sure to return the test operation PC's IP address to the original address.)
   a. Return the test operation PC's IP address to the original address recorded in Step 1-3, as instructed in Steps 2-1 and 2-2.

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BACNET MS/TP TROBLESHOOTING

1. Verify the correct connection on the communication cable, verifying the 4-pin connector with the 2-wires properly connected (see BACnet MS/TP installation).
2. Verify that BACnet MS/TP is enabled and ensure that all devices have a unique MAC address and Device Instance (see BACnet configuration).
3. Ensure that all software device instances are unique on the whole network.
4. Ensure that the speed rate (bps) is the same for all devices including repeaters.
5. Check if there are more than 2 EOL terminations present on the same segment. No intermediate device should have an EOL.
6. In order to help narrow down a communication issue, divide the network in half and verify if the devices come online. Repeat the operation until the network is functional.
7. Swap a working and a non-working device. If the problem moved with the device, then it indicates a configuration issue or problematic device. If the problem stays at the same location, then it indicates a wiring issue.

APPENDIX

DAIKIN MALFUNCTION ERROR CODE TABLE

		0	1	2	3	4	5	6	7	8	9	A	H	C	J	E	F
Indoor unit	A	External protection device activated	Malfunction of ID unit PCB		Malfunction of drain level control system		High pressure control in heating freeze-up protection control in cooling	Fan motor locked overload overcurrent	Malfunction of swing flap motor	Malfunction of power supply	Malfunction of electronic expansion valve drive		Malfunction of dust collector of air cleaner		Malfunction of capacity setting (ID unit PCB)		Malfunction of a humidifier system
	C		Failure of transmission (between ID unit PCB and fan PCB)			Malfunction of liquid pipe thermistor for heat exchanger	Malfunction of gas pipe thermistor for heat exchanger	Malfunction of fan motor control driver	Front panel driving motor fault		Malfunction of suction air thermistor	Malfunction of discharge air thermistor		Malfunction of humidity sensor system	Malfunction of thermostat sensor in remote controller		
Outdoor unit	E	Protection devices actuated (unified)	Defect of OD unit PCB	Earth Leakage detected by the ELB PCB	Actuation of high pressure switch (HPS)	Actuation of low pressure switch (LPS)	Overheat of inverter compressor motor	STD compressor motor overcurrent / lock	Malfunction of OD unit fan motor	Overcurrent of inverter compressor	Malfunction of electronic expansion valve coil	Malfunction of four way valve		Malfunction of entering water temperature			Malfunction of thermal storage unit
	H	Malfunction of sensor system of compressor	Malfunction of humidifier unit damper		Malfunction of high pressure switch (HPS)	Malfunction of low pressure switch (LPS)	Malfunction of compressor motor overload thermistor	Malfunction of position detection sensor	Malfunction of OD fan motor signal	Malfunction of compressor input (CT) system	Malfunction of OD air thermistor			Malfunction of (hot) water temperature thermistor	Malfunction of water system		
	F				Malfunction of discharge pipe temperature	Malfunction of low discharge super heat across the compressor		Abnormal high pressure in cooling Refrigerant overcharged			Defect of FFV in BS box						
	J		Malfunction of pressure sensor	Malfunction of current sensor of compressor	Malfunction of discharge pipe thermistor	Malfunction of low pressure equivalent saturated temperature sensor system	Malfunction of suction pipe thermistor	Malfunction of heat exchanger thermistor	Malfunction of liquid pipe thermistor (Refrigerant circuit and others)	Malfunction of liquid pipe thermistor (Refrigerant circuit and others)	Malfunction of gas pipe thermistor (Refrigerant circuit and others)	Malfunction of high pressure sensor	Malfunction of oil temperature thermistor	Malfunction of low pressure sensor			Malfunction of heating thermistor for heat exchanger
	L	Malfunction of inverter system	Malfunction of inverter PCB		Electrical box temperature rise	Malfunction of inverter radiating fin temperature rise	Inverter instantaneous overcurrent (DC)	Inverter instantaneous overcurrent (AC)		Overcurrent of inverter compressor	Malfunction of inverter compressor startup	Malfunction of power transistor		Malfunction of transmission between OD unit PCB and micro-computer Malfunction of transmission between control and inverter PCB			
	P	Shortage of refrigerant amount (thermal storage unit)	Power voltage imbalance open phase	Automatic refrigerant charge operation stop	Malfunction of thermistor in electrical box	Malfunction of radiating fin temperature sensor				Heat exchanger freezing protection during automatic refrigerant charging	Malfunction of fan motor (humidifier unit) Automatic refrigerant charge operation completed	Broken wire of heater (humidifier unit) Empty refrigerant cylinder during automatic refrigerant charging	Malfunction of temperature (humidifier unit) Empty refrigerant cylinder during automatic refrigerant charging	Empty refrigerant cylinder during automatic refrigerant charging	Malfunction of capacity setting (OD unit PCB) Improper combination between inverter and fan driver	Automatic refrigerant charge operation nearly completed	
System	U	Shortage of refrigerant	Reverse phase open phase	Defect of power supply voltage or instantaneous power failure	Check operation not executed	Malfunction of transmission between ID and OD unit	Malfunction of transmission between ID unit and remote controller	Malfunction of transmission between ID units	Malfunction of transmission between main body micro-computer - INV micro-computer Malfunction of transmission between OD units	Malfunction of transmission between remote controllers	Malfunction of transmission (other system)	Defect of ID/OD power supply Malfunction of field setting Improper combination of ID and OD units	Malfunction of system	Malfunction of setting of centralized controller address	Malfunction of transmission (Accessory devices)	Malfunction of transmission between ID unit and centralized controller	Wiring and piping mismatch
	M		Malfunction of centralized remote controller PCB							Malfunction of transmission between optional controllers for centralized control		Improper combination of optional controllers for centralized control		Address duplication improper setting			

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v.1

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