



Interface specification BACnet aicore™ air

BACnet parameter specification for the Güntner Motor Management aicore™ air
Applicable for interface modules 5215620 & 5215621

[guntner.com/uk](https://www.guntner.com/uk)

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Version history

Version	Information
01.00.00	Document created Valid for interface modules 5215466 & 5215467
02.00.00	Revision of data points Valid for interface modules 5215620 & 5215621
02.00.01	Change of product name from "GMMnext" to "aicare™ air"

1 Introduction

This document describes the BACnet communication of the Güntner Motor Management aicore™ air. Communication of the Güntner controller takes place via a gateway from Modbus RTU to BACnet IP or BACnet MS/TP.

The aicore™ air is available via the gateway as BACnet device.

The corresponding modules are available with the following ERP numbers and each consist of the configured gateway and an installation kit:

- BACnet IP: 5215620
- BACnet MS/TP: 5215621
- Installation kits (depending on the size of the aicore™ air housing):
 - aicore™ air: 5215474 (200) / 5215475 (300) / 5215476 (400)
 - aicore™ air ec: 5215516 (200) / 5215448 (300) / 5215555 (400)

For connection to a BACnet network, specialist knowledge is required.

The following additional documents are available:

- EDE file: "aicore air.zip"
- The PICS document for the Intesis gateway can be downloaded here:
<https://www.bacnetinternational.net/btl/index.php?m=199>
→ "pics_intesisbox_bacnet_server_rev_14_.pdf"

The aicore™ air-parameters are available on the BACnet page via the object property "Present Value" (85).

2 Settings

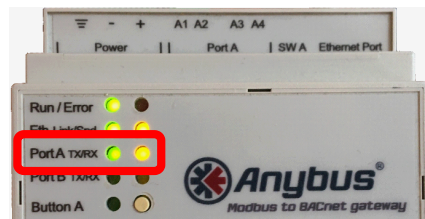
2.1 aicore™ air

The following parameters must be set on the aicore™ air so that communication with the BACnetgateway works.

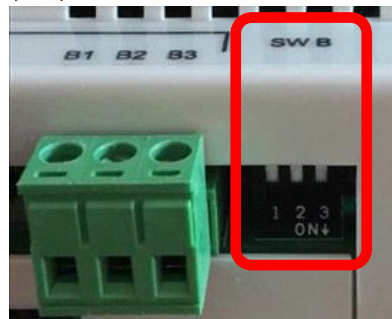
Modbus settings	
Modbus address	1
Baud rate	19200
Framing	8,N,1
Data format	16 bit
Modbus mapping	Standard

2.2 Gateway

The green and orange LED indicators "Port A TX/RX" on the gateway flash green/orange and signal an established Modbus connection.



For BACnet MS/TP, the terminating resistor (1) and polarization (2, 3) can be activated via the DIP switches "SW B".



The following values are standard settings for the gateway and can be changed if necessary.

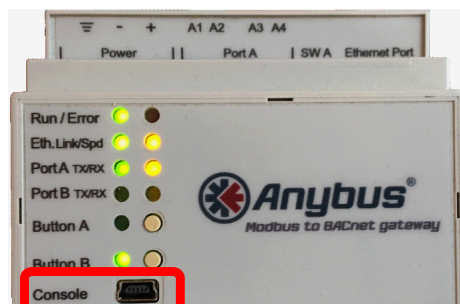
BACnet parameters on the gateway		
General	Device name	aicore™ air
	Device instance	915003
BACnet IP	IP address	192,168.0.20
	Subnet mask	255,255.0.0
	UDP port	47808
BACnet MS/TP	Baud rate	Auto
	Max. masters	127
	Max. info frames	1
	MAC address	0

These parameters can be changed via the "Intesis MAPS" configuration tool.

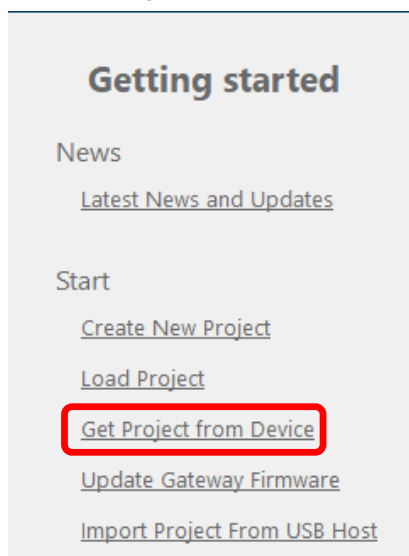
<https://www.intesis.com/products/intesis-maps>

Changing the parameters:

- 1 Establish a USB connection between a PC and the gateway



- 2 Run the program "Intesis MAPS" and select "Get Project from Device":



- 3 Under "Select Discovery Mode", select "USB" and then the COM port for the USB connection. The correct COM port is the one where gateway information can be read out on the right-hand side. Now press the "Import Project" button.

Discovered Devices

Select Discovery Mode

☐ IP

☒ USB

COM7

COM6

COM5

COM3

COM11

COM17

Description	Value
Gateway Name	GMMnext EC
Serial Number	000K5446
Application Name	IBOX-BAC-MBM
License	100
License Comments	-
Version	1.1.3.0
Config file name	GMMnext_BACnetMSTP_01_00_00
Last Configuration Date	07/07/2021 15:01:59
MAC Address	CC:3F:1D:01:24:AC
IP Address	192.168.0.20
Netmask	255.255.0.0
Gateway	0.0.0.0
DHCP	OFF
Current Date Time	08/07/2021 12:30:52
Gateway Operating Time	0000d 03:38:10

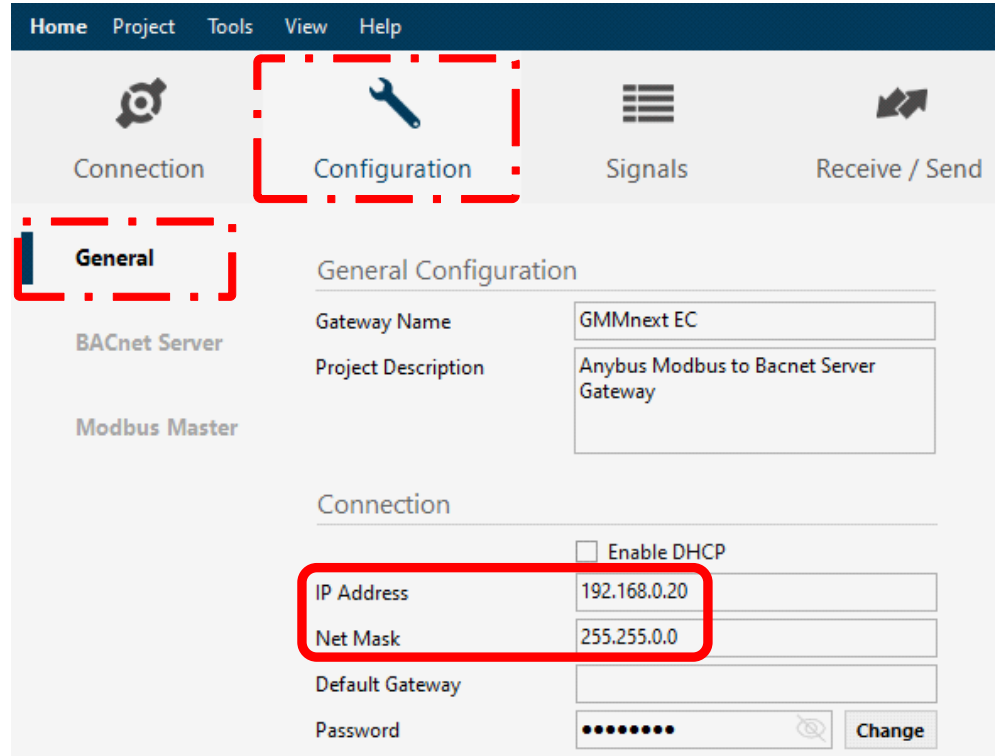
Refresh Import Project

- 4 Once the project import is complete, the following message must be acknowledged and the project saved locally on the PC:

Project has been successfully downloaded.
Please, select the folder to save it.

OK

- 5 The configuration can then be changed via the "Configuration" tab.
a) General parameters under the "General" menu:
→ IP address and subnet mask



Home Project Tools View Help

Connection **Configuration** Signals Receive / Send

General

BACnet Server

Modbus Master

General Configuration

Gateway Name GMMnext EC

Project Description Anybus Modbus to Bacnet Server Gateway

Connection

☐ Enable DHCP

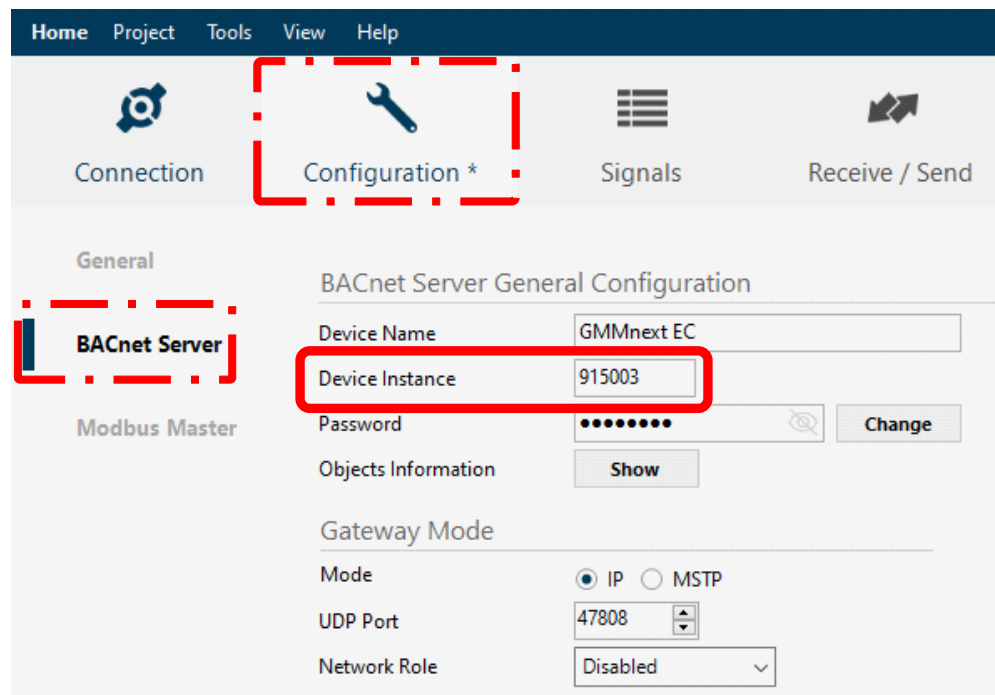
IP Address 192.168.0.20

Net Mask 255.255.0.0

Default Gateway

Password

- b) BACnet connection settings under the "BACnet Server" menu:
→ Device instance



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Connection **Configuration *** Signals Receive / Send

General

BACnet Server

Modbus Master

BACnet Server General Configuration

Device Name GMMnext EC

Device Instance 915003

Password

Objects Information

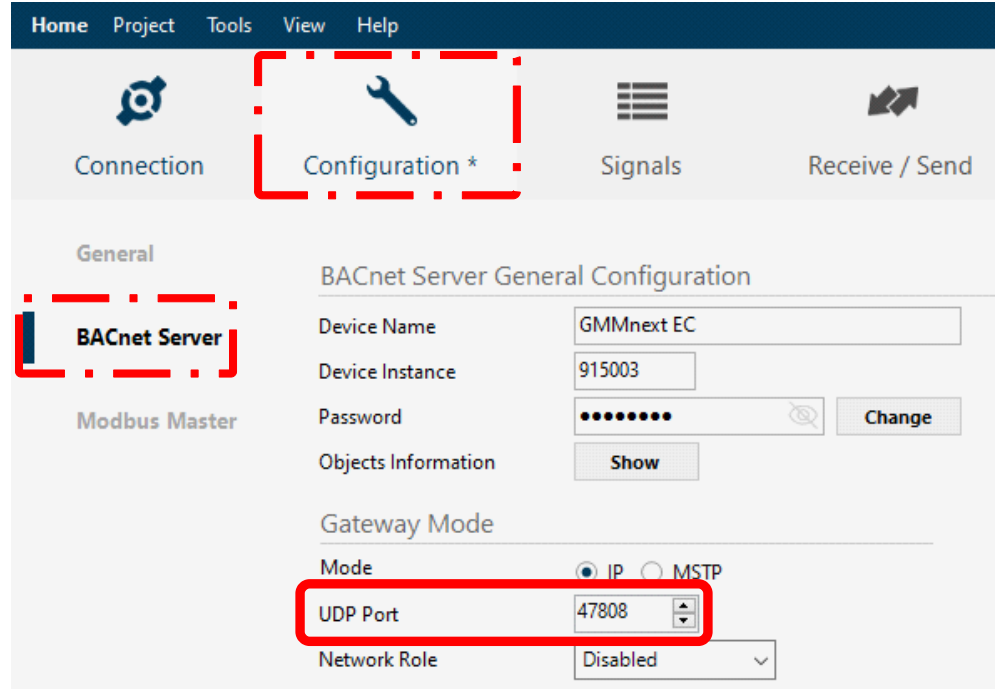
Gateway Mode

Mode ☒ IP ☐ MSTP

UDP Port 47808

Network Role Disabled

- c) With BACnet IP:
→ UDP port



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Connection **Configuration *** Signals Receive / Send

General

BACnet Server

Modbus Master

BACnet Server General Configuration

Device Name: GMMnext EC

Device Instance: 915003

Password:

Objects Information:

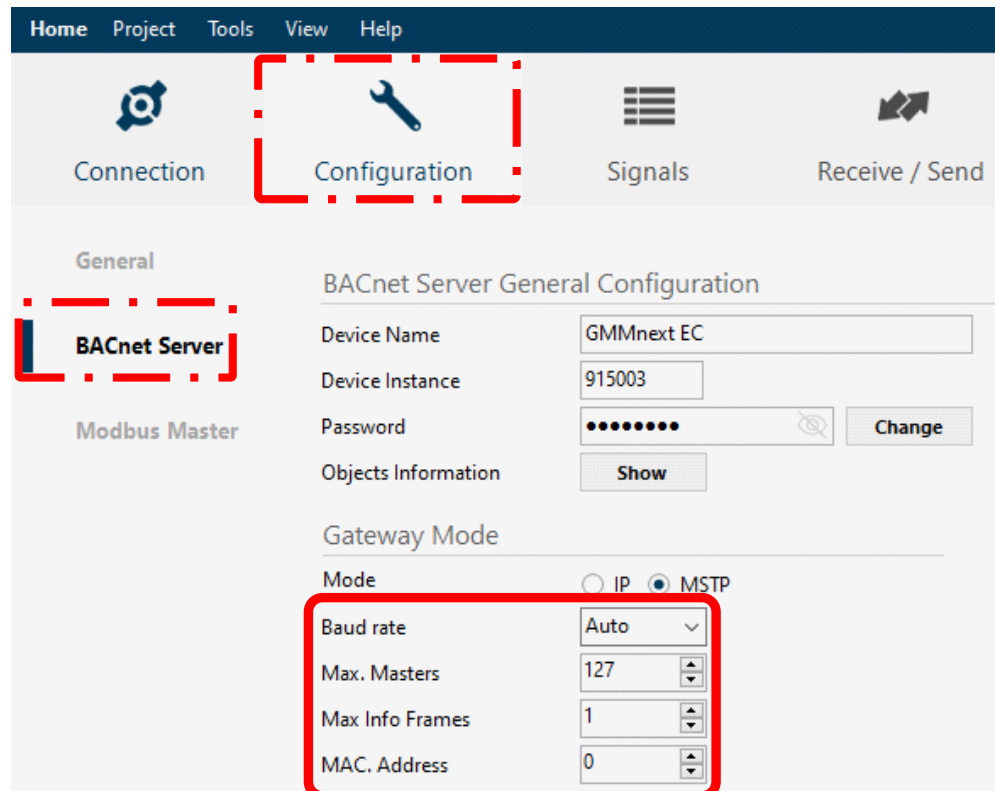
Gateway Mode

Mode: ☒ IP ☐ MSTP

UDP Port: 47808

Network Role: Disabled

- d) With BACnet MS/TP:
→ Baud rate, max. masters, max. info frames, MAC address



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Connection **Configuration** Signals Receive / Send

General

BACnet Server

Modbus Master

BACnet Server General Configuration

Device Name: GMMnext EC

Device Instance: 915003

Password:

Objects Information:

Gateway Mode

Mode: ☐ IP ☒ MSTP

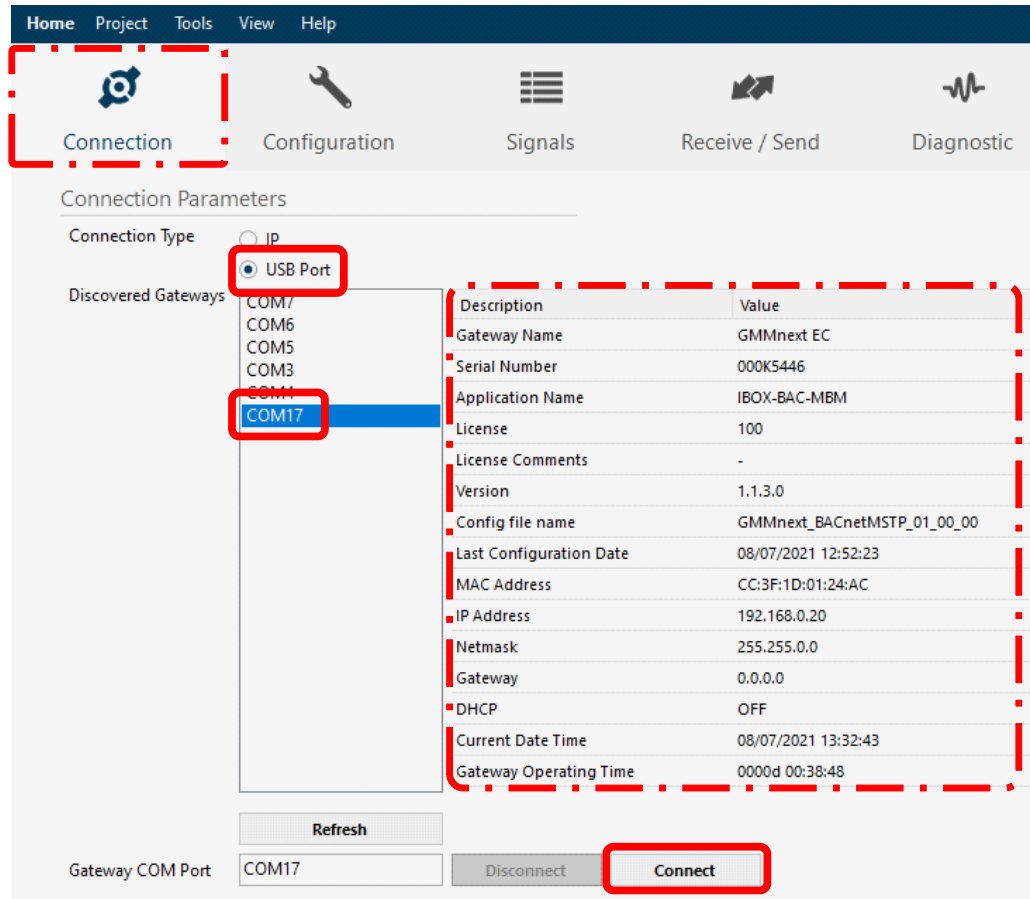
Baud rate: Auto

Max. Masters: 127

Max Info Frames: 1

MAC Address: 0

- 6 In order to load the changed configuration to the gateway again, a connection to the gateway must be established via the "Connection" tab.
Under "Connection Type", select "USB Port" and then the COM port for the USB connection. The correct COM port is the one where gateway information can be read out on the right-hand side.
Now press the "Connect" button.



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Connection Configuration Signals Receive / Send Diagnostic

Connection Parameters

Connection Type ☐ IP ☒ USB Port

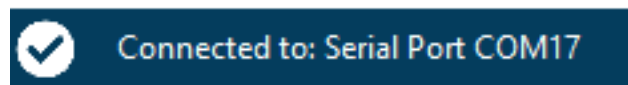
Discovered Gateways

Description	Value
Gateway Name	GMMnext EC
Serial Number	000K5446
Application Name	IBOX-BAC-MBM
License	100
License Comments	-
Version	1.1.3.0
Config file name	GMMnext_BACnetMSTP_01_00_00
Last Configuration Date	08/07/2021 12:52:23
MAC Address	CC:3F:1D:01:24:AC
IP Address	192.168.0.20
Netmask	255.255.0.0
Gateway	0.0.0.0
DHCP	OFF
Current Date Time	08/07/2021 13:32:43
Gateway Operating Time	0000d 00:38:48

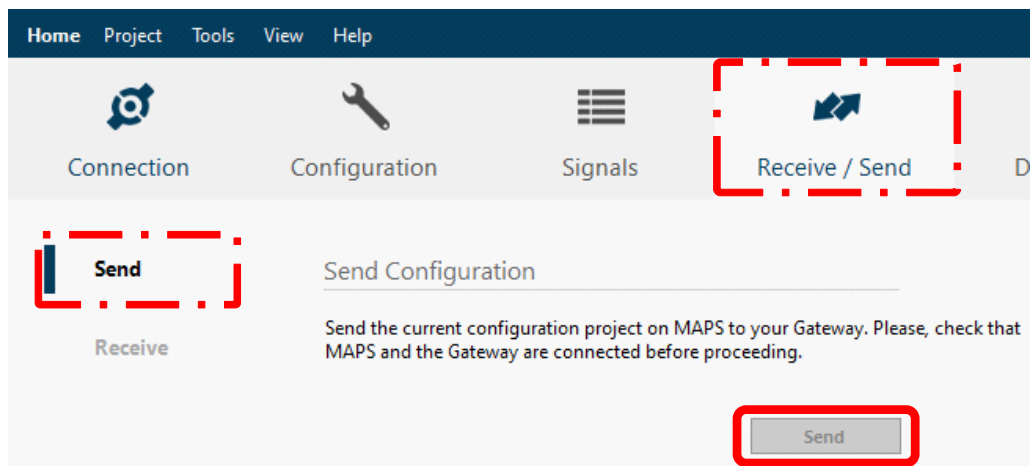
Refresh

Gateway COM Port COM17 Disconnect **Connect**

A successful connection will be shown at the bottom of the screen:



- 7 Finally, the changed configuration should be loaded to the gateway.
To do this, open the "Receive/Send" tab and press the "Send" button in the "Send" menu.



3 Data points of the aicore™ air

The following object types are available:

- Read: Binary input (BI), multistate input (MI), analogue input (AI)
- Read/Write: Binary value (BV), multistate value (MI), analogue value (AI)

BACnet objects		Object name	Description
Type	Instance		
Device	915003	aicore air	-
BI	0	Comm error aicore air	Modbus connection faulty (Connection gateway to aicore air) 0 = inactive, 1 = active
BI	1	Diagnosis: Fan alarm	Diagnosis: Fan alarm 0 = inactive, 1 = active
BI	2	Diagnosis: Fans alarm	Diagnosis: Fans alarm (collective message) 0 = inactive, 1 = active
BI	3	Diagnosis: Sensor alarm	Diagnosis: Sensor alarm 0 = inactive, 1 = active
BI	4	Diagnosis: Alarm message (Prio 1):	Diagnosis: Alarm message (Prio 1) 0 = inactive, 1 = active
BI	5	Diagnosis: Operating message	Diagnosis: Operating message 0 = inactive, 1 = active
BI	6	Diagnosis: Warning message (Prio 2):	Diagnosis: Warning message (Prio 2) 0 = inactive, 1 = active
BI	7	Inverse operation active	Inverse operation 0 = inactive, 1 = active
BI	8	Manual mode active	Manual mode 0 = inactive, 1 = active
BI	9	Night setback active	Night setback 0 = inactive, 1 = active
BI	10	Control cycle 1: enabled	Control cycle 1: enabled 0 = inactive, 1 = active
BI	11	Control cycle 2: enabled	Control cycle 2: enabled 0 = inactive, 1 = active
BI	12	Maintenance run fan group 1 active	Maintenance run fan group 1 0 = inactive, 1 = active
BI	13	Maintenance run fan group 2 active	Maintenance run fan group 2 0 = inactive, 1 = active (only for 2-row units with 2 control cycles and separate assignment of the control cycles to the fan rows "side-by-side")
BI	14	Control cycle 1: Setpoint displacement active	Control cycle 1: Setpoint displacement 0 = inactive, 1 = active
BI	15	Control cycle 2: Setpoint displacement active	Control cycle 2: Setpoint displacement 0 = inactive, 1 = active

BACnet objects		Object name	Description
Type	Instance		
BI	16	Control cycle 1: Threshold active	Control cycle 1: Threshold value 0 = inactive, 1 = active
BI	17	Control cycle 2: Threshold active	Control cycle 2: Threshold value 0 = inactive, 1 = active
BI	18	Fan 1: Alarm	Fan 1: Alarm 0 = inactive, 1 = active
BI	19	Fan 2: Alarm	Fan 2: Alarm 0 = inactive, 1 = active
BI	20	Fan 3: Alarm	Fan 3: Alarm 0 = inactive, 1 = active
BI	21	Fan 4: Alarm	Fan 4: Alarm 0 = inactive, 1 = active
BI	22	Fan 5: Alarm	Fan 5: Alarm 0 = inactive, 1 = active
BI	23	Fan 6: Alarm	Fan 6: Alarm 0 = inactive, 1 = active
BI	24	Fan 7: Alarm	Fan 7: Alarm 0 = inactive, 1 = active
BI	25	Fan 8: Alarm	Fan 8: Alarm 0 = inactive, 1 = active
BI	26	Fan 9: Alarm	Fan 9: Alarm 0 = inactive, 1 = active
BI	27	Fan 10: Alarm	Fan 10: Alarm 0 = inactive, 1 = active
BI	28	Fan 11: Alarm	Fan 11: Alarm 0 = inactive, 1 = active
BI	29	Fan 12: Alarm	Fan 12: Alarm 0 = inactive, 1 = active
BI	30	Fan 13: Alarm	Fan 13: Alarm 0 = inactive, 1 = active
BI	31	Fan 14: Alarm	Fan 14: Alarm 0 = inactive, 1 = active
BI	32	Fan 15: Alarm	Fan 15: Alarm 0 = inactive, 1 = active
BI	33	Fan 16: Alarm	Fan 16: Alarm 0 = inactive, 1 = active
BI	34	Fan 17: Alarm	Fan 17: Alarm 0 = inactive, 1 = active
BI	35	Fan 18: Alarm	Fan 18: Alarm 0 = inactive, 1 = active
BI	36	Fan 19: Alarm	Fan 19: Alarm 0 = inactive, 1 = active
BI	37	Fan 20: Alarm	Fan 20: Alarm 0 = inactive, 1 = active

BACnet objects		Object name	Description
Type	Instance		
BI	38	Fan 21: Alarm	Fan 21: Alarm 0 = inactive, 1 = active
BI	39	Fan 22: Alarm	Fan 22: Alarm 0 = inactive, 1 = active
BI	40	Fan 23: Alarm	Fan 23: Alarm 0 = inactive, 1 = active
BI	41	Fan 24: Alarm	Fan 24: Alarm 0 = inactive, 1 = active
BI	42	Analogue input 1: Alarm	Analogue input 1: Alarm 0 = inactive, 1 = active
BI	43	Analogue input 2: Alarm	Analogue input 2: Alarm 0 = inactive, 1 = active
BI	44	Analogue input 3: Alarm	Analogue input 3: Alarm 0 = inactive, 1 = active
BI	45	Analogue input 4: Alarm	Analogue input 4: Alarm 0 = inactive, 1 = active
BI	46	Analogue input 5: Alarm	Analogue input 5: Alarm 0 = inactive, 1 = active
BV	0	Manual mode	Manual mode 0 = off, 1 = on
BV	1	Manual mode: Inverse operation	Manual mode: Inverse operation 0 = off, 1 = on
BV	2	Night setback	Night setback 0 = off, 1 = on
BV	3	Control cycle 1: Setpoint displacement	Control cycle 1: Setpoint displacement 0 = off, 1 = on
BV	4	Control cycle 2: Setpoint displacement	Control cycle 2: Setpoint displacement 0 = off, 1 = on
MV	0	System of units	System of units 1 = SI (°C, bar, l) 2 = IP (°F, psig, gal)
MV	1	Modbus data format	Modbus data format 1 = 16 bit (default setting), 2 = 32 bit The 16-bit mode must be active!
MV	2	Operating mode	Operating mode 1 = Auto internal 2 = Auto external analogue 3 = Auto external bus 4 = Slave external analogue 5 = Slave external bus
MV	3	Control cycle 1: Setpoint count	Control cycle 1: Setpoint count Value range: 1,2

BACnet objects		Object name	Description
Type	Instance		
MV	4	Control cycle 2: Setpoint count	Control cycle 2: Setpoint count Value range: 1,2
MI	0	Control cycle 1: Refrigerant	Control cycle 1: Refrigerant Only for type "condenser": 1 = bar (not selected), 2 ... = see aicore air-operating instructions
MI	1	Control cycle 2: Refrigerant	Control cycle 2: Refrigerant Only for type "condenser": 1 = bar (not selected), 2 ... = see aicore air-operating instructions
MI	2	Control cycle 1: Fluid dimension	Control cycle 1: Fluid dimension 1 = temperature, 2 = pressure
MI	3	Control cycle 2: Fluid dimension	Control cycle 2: Fluid dimension 1 = temperature, 2 = pressure
AV	0	Inverse run: Max. control value to enable inverse run	Inverse operation: Max. control value to enable inverse run Value range: 0.00...99.00 %
AV	1	Manual mode: Fans control value	Manual mode: Control value Value range: 0.00...100.00 %
AV	2	Night setback: Maximum control value	Night setback: Maximum control value Value range: 0.00...100.00 %
AV	3	Control cycle 1: Control value external bus	Control cycle 1: Control value external bus Value range: 0.00...100.00 %
AV	4	Control cycle 2: Control value external bus	Control cycle 2: Control value external bus Value range: 0.00...100.00 %
AV	5	Control cycle 1: Pressure setpoint 1	Control cycle 1: Pressure setpoint 1 In [bar] / 10 [psig] Value range: 0.00...50.00 bar / 0.0...725.1 psig
AV	6	Control cycle 2: Pressure setpoint 1	Control cycle 2: Pressure setpoint 1 In [bar] / 10 [psig] Value range: 0.00...50.00 bar / 0.0...725.1 psig
AV	7	Control cycle 1: Temperature setpoint 1	Control cycle 1: Temperature setpoint 1 Value range: -30.00...100.00 °C / -22.00...212.00 °F
AV	8	Control cycle 2: Temperature setpoint 1	Control cycle 2: Temperature setpoint 1 Value range: -30.00...100.00 °C / -22.00...212.00 °F
AV	9	Control cycle 1: Pressure setpoint 2	Control cycle 1: Pressure setpoint 2 In [bar] / 10 [psig] Value range: 0.00...50.00 bar / 0.0...725.1 psig

BACnet objects		Object name	Description
Type	Instance		
AV	10	Control cycle 2: Pressure setpoint 2	Control cycle 2: Pressure setpoint 2 In [bar] / 10 [psig] Value range: 0.00...50.00 bar / 0.0...725.1 psig
AV	11	Control cycle 1: Temperature setpoint 2	Control cycle 1: Temperature setpoint 2 Value range: -30.00...100.00 °C / -22.00...212.00 °F
AV	12	Control cycle 2: Temperature setpoint 2	Control cycle 2: Temperature setpoint 2 Value range: -30.00...100.00 °C / -22.00...212.00 °F
AI	0	Fans: Number of fans	Number of fans Value range: 1...24
AI	1	Fan 1: Operating hours	Fan 1: Operating hours
AI	2	Fan 2: Operating hours	Fan 2: Operating hours
AI	3	Fan 3: Operating hours	Fan 3: Operating hours
AI	4	Fan 4: Operating hours	Fan 4: Operating hours
AI	5	Fan 5: Operating hours	Fan 5: Operating hours
AI	6	Fan 6: Operating hours	Fan 6: Operating hours
AI	7	Fan 7: Operating hours	Fan 7: Operating hours
AI	8	Fan 8: Operating hours	Fan 8: Operating hours
AI	9	Fan 9: Operating hours	Fan 9: Operating hours
AI	10	Fan 10: Operating hours	Fan 10: Operating hours
AI	11	Fan 11: Operating hours	Fan 11: Operating hours
AI	12	Fan 12: Operating hours	Fan 12: Operating hours
AI	13	Fan 13: Operating hours	Fan 13: Operating hours
AI	14	Fan 14: Operating hours	Fan 14: Operating hours
AI	15	Fan 15: Operating hours	Fan 15: Operating hours
AI	16	Fan 16: Operating hours	Fan 16: Operating hours
AI	17	Fan 17: Operating hours	Fan 17: Operating hours
AI	18	Fan 18: Operating hours	Fan 18: Operating hours
AI	19	Fan 19: Operating hours	Fan 19: Operating hours
AI	20	Fan 20: Operating hours	Fan 20: Operating hours
AI	21	Fan 21: Operating hours	Fan 21: Operating hours
AI	22	Fan 22: Operating hours	Fan 22: Operating hours
AI	23	Fan 23: Operating hours	Fan 23: Operating hours
AI	24	Fan 24: Operating hours	Fan 24: Operating hours

BACnet objects		Object name	Description
Type	Instance		
AI	25	Ambient humidity	Ambient humidity In [%]
AI	26	Ambient temperature	Ambient temperature In [°C] / [°F]
AI	27	Wet bulb temperature	Wet bulb temperature In [°C] / [°F]
AI	28	Fans: Air volume	Fans: Air volume In [%]
AI	29	Fans: Total power	Fans: Total power In [kW]
AI	30	Control cycle 1: Refrigerant pressure	Control cycle 1: Refrigerant pressure In [bar] / 10 [psig] Only for type "condenser"
AI	31	Control cycle 2: Refrigerant pressure	Control cycle 2: Refrigerant pressure In [bar] / 10 [psig] Only for type "condenser"
AI	32	Control cycle 1: Refrigerant temperature	Control cycle 1: Refrigerant temperature In [°C] / [°F] Only for type "condenser" with defined refrigerant
AI	33	Control cycle 2: Refrigerant temperature	Control cycle 2: Refrigerant temperature In [°C] / [°F] Only for type "condenser" with defined refrigerant
AI	34	Control cycle 1: Current pressure setpoint	Control cycle 1: Current pressure setpoint In [bar] / 10 [psig]
AI	35	Control cycle 2: Current pressure setpoint	Control cycle 2: Current pressure setpoint In [bar] / 10 [psig]
AI	36	Control cycle 1: Outlet temperature	Control cycle 1: Outlet temperature In [°C] / [°F] Only for type "dry cooler"
AI	37	Control cycle 2: Outlet temperature	Control cycle 2: Outlet temperature In [°C] / [°F] Only for type "dry cooler"
AI	38	Control cycle 1: Current temperature setpoint	Control cycle 1: Current temperature setpoint In [°C] / [°F]
AI	39	Control cycle 2: Current temperature setpoint	Control cycle 2: Current temperature setpoint In [°C] / [°F]
AI	40	Fan group 1: Control value	Fan group 1: Control value In [%]

BACnet objects		Object name	Description
Type	Instance		
AI	41	Fan group 2: Control value	Fan group 2: Control value In [%] (only for 2-row units with 2 control cycles and separate assignment of the control cycles to the fan rows "side-by-side")