

## BACnet on-board

Addendum manual for installation and operation  
for use with DL II, ME II and RS II

# Thank you for choosing Condair

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Site:

Model:

Serial number:

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# Contents

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<b>1</b>	<b>Introduction</b>	<b>4</b>
1.1	Notes on this addendum manual	4
1.2	Functions overview	5
<b>2</b>	<b>For your safety</b>	<b>6</b>
<b>3</b>	<b>Network integration via BACnet on-board</b>	<b>8</b>
3.1	Notes for the planning engineer	8
3.1.1	Overview	8
3.1.2	Principle network diagrams	9
3.1.2.1	Principle BACnet IP network	9
3.1.2.2	Principle BACnet MS/TP network	10
3.2	Wiring	11
3.3	Configuration	12
3.3.1	Setup network parameters (or IP parameters)	12
3.3.2	Setup BACnet interface parameters	14
3.3.2.1	BACnet IP settings	14
3.3.2.2	BACnet MS/TP Einstellungen (Master oder Slave)	16
3.3.3	Signal settings and monitoring of bus communication	17
3.3.3.1	Signal settings	17
3.3.3.2	Monitoring of bus communication	18
<b>4</b>	<b>Communication tables</b>	<b>19</b>
4.1	Condair DL - BACnet on-board	19
4.2	Condair ME - BACnet on-board	22
4.3	Condair RS - BACnet on-board	26
<b>5</b>	<b>Troubleshooting</b>	<b>30</b>
5.1	Operating trouble list	30
<b>6</b>	<b>Appendix</b>	<b>32</b>
6.1	Object abbreviations	32
6.2	Declaration of Conformity for the implementation of BACnet protocols (PICS)	33
<b>7</b>	<b>Ordering form</b>	<b>35</b>

# 1 Introduction

## 1.1 Notes on this addendum manual

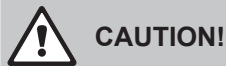
Condair devices equipped with an Integrated Controller can be connected via the corresponding interface on the Integrated Controller (BACnet on-board) to a BACnet IP network or a BACnet MS/TP network.

This manual describes how to install and configure BACnet on-board (see [Section 3](#)) to connect Condair devices with Integrated Controller to a building management system.

This addendum manual is intended for use by engineers and properly trained technical personnel. Please read this manual thoroughly before working on the Integrated Controller.

If you have questions after reading this documentation, please contact your Condair representative. They will be glad to assist you.

### Symbols used in this manual



The catchword "CAUTION" used in conjunction with the general caution symbol designates notes in this manual that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.



The catchword "WARNING" used in conjunction with the general caution symbol designates safety and danger notes in this manual that, if neglected, may cause **injury to persons**.



The catchword "DANGER" used in conjunction with the general caution symbol designates safety and danger notes in this manual that, if neglected, may lead to **severe injury or even death of persons**.

### Safekeeping

Please safeguard this addendum manual in a safe place, where it can be immediately accessed. If the equipment changes hands, the documentation must be passed on to the new operator.

If the documentation gets mislaid, please contact your Condair representative for replacement.

### Language versions

This addendum manual is available in various languages. Please contact your Condair representative for information.

## 1.2 Functions overview

The following table gives you an overview of the supported protocols and functions.

	<b>BACnet on-board Integrated controller</b>
BACnet IP	yes
BACnet MS/TP Master Mode	yes
BACnet MS/TP Slave Mode	yes
BTL certified	yes
BACnet Service COV (Change of Value)	yes

Please refer to the BACnet Protocol Implementation Conformance Statement (PICS, see [Section 6.2](#)) and the objects tables (see [Section 4](#)) for detailed information.

## 2 For your safety

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### General

Every person working with the Condair Integrated Controller must have read and understood this addendum manual, and the installation manual and operation manual of the Condair Integrated Controller, before carrying out any work.

Knowing and understanding the contents of the manuals is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty operation, and to operate the unit safely and correctly.

All icons, signs and markings applied to the unit must be observed and kept in readable state.

### Qualification of personnel

All work described in this addendum manual **may only be carried out by specialists who are well trained and adequately qualified and are authorised by the customer.**

For safety and warranty reasons any action beyond the scope of this manual must be carried out only by qualified personnel authorised by the manufacturer.

It is assumed that all persons working with the Condair Integrated Controller are familiar and comply with the appropriate local regulations on work safety and the prevention of accidents.

### Intended use

The BACnet on-board interfaces Condair Integrated Controller are intended exclusively for connecting the Condair Integrated Controller to a BACnet based network. Any other type of application, without the written consent of the manufacturer, is considered as not conforming with the intended purpose and may lead to the Condair Integrated Controller becoming dangerous.

Operation of the equipment in the intended manner requires **that all the information contained in this addendum manual as well as in the installation manual and operation manual of the Condair Integrated Controller are observed.**

### Danger that may arise from the Condair Integrated Controller



**DANGER!**  
**Risk of electric shock!**

**The control unit where the Integrated Controller is located is mains powered. Live parts may be exposed when the control unit is open. Touching live parts may cause severe injury or danger to life.**

**Prevention:** Before commencing any work disconnect the corresponding Condair device from the mains supply via the electrical isolator in the mains supply line, and secure electrical isolator in "Off" position against inadvertent switching on.

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### **Safety reporting**

All persons working with the Condair Integrated Controller are obliged to report any alterations to the system that may affect safety to the owner without delay and to **secure such systems against accidental power-up**.

### **Prohibited modifications to the unit**

**No modifications must be undertaken** on the Condair Integrated Controller without the express written consent of the manufacturer.

For the replacement of defective components use exclusively **original accessories and spare parts** available from your Condair representative.

## 3 Network integration via BACnet on-board

### 3.1 Notes for the planning engineer

#### 3.1.1 Overview

The BACnet on-board functionality of the Integrated Controllers allows to connect Condair devices via the RJ45 Ethernet interface to a BACnet IP network or via the RS485 interface to a BACnet MS/TP network without further options.

The following protocol options are available as standard:

Interface on the Integrated Controller	Protocol	Description
RJ45 Ethernet port	BACnet IP	BACnet IP
RS485 interface	BACnet MS/TP	BACnet MS/TP Master or Slave Mode

Please refer to the BACnet object tables in [Section 4](#) for detailed information regarding the available read out and settings functions.



### 3.1.2 Principle network diagrams

#### 3.1.2.1 Principle BACnet IP network

The principle diagram below shows the connection of the Condair Integrated Controller to a BACnet IP network.

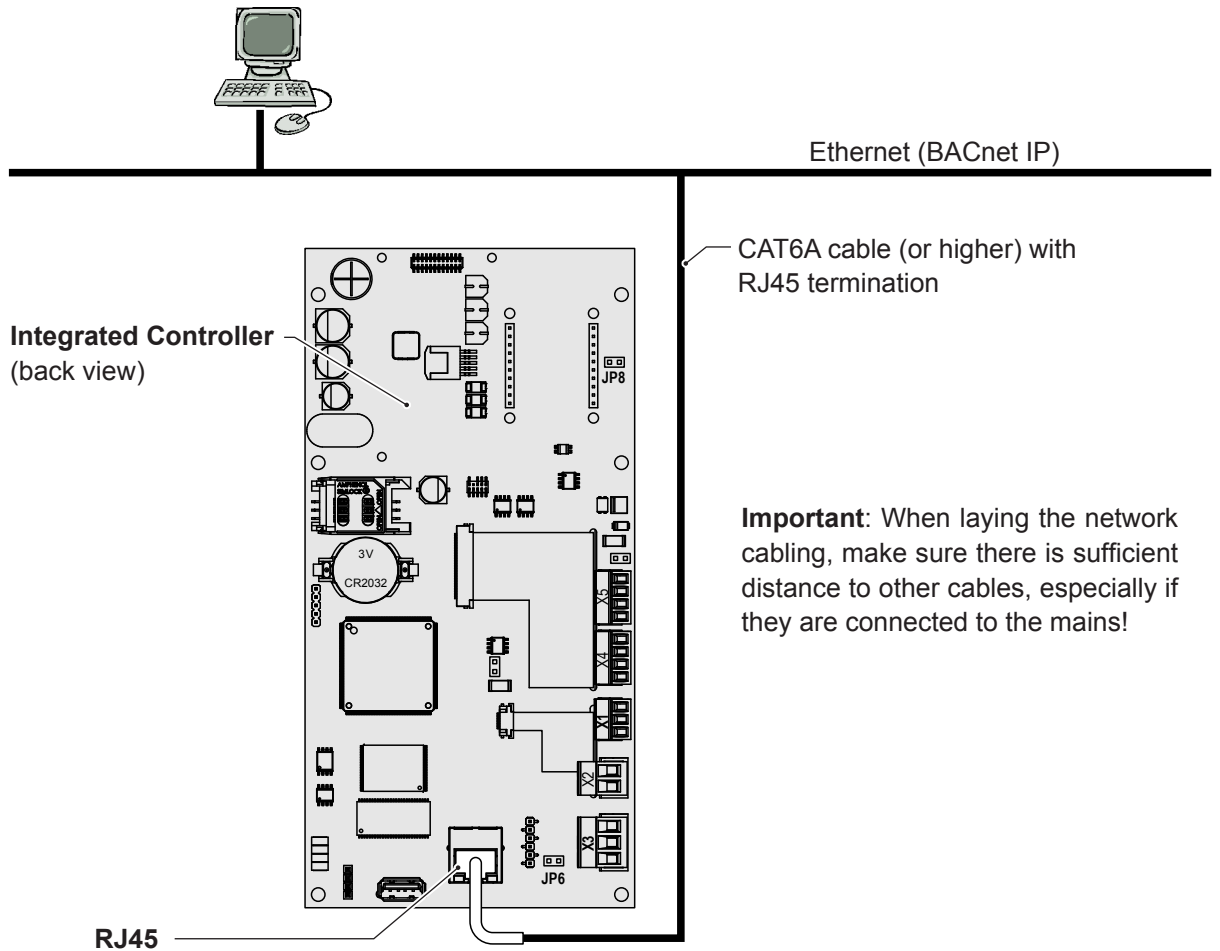


Fig. 1: Principle BACnet IP network

### 3.1.2.2 Principle BACnet MS/TP network

The diagram below shows the connection of a Condair Integrated Controller to a BACnet MS/TP network. The diagram also shows an application an application encountered in practice: BACnet MS/TP communicates with the higher-level BACnet IP via a router.

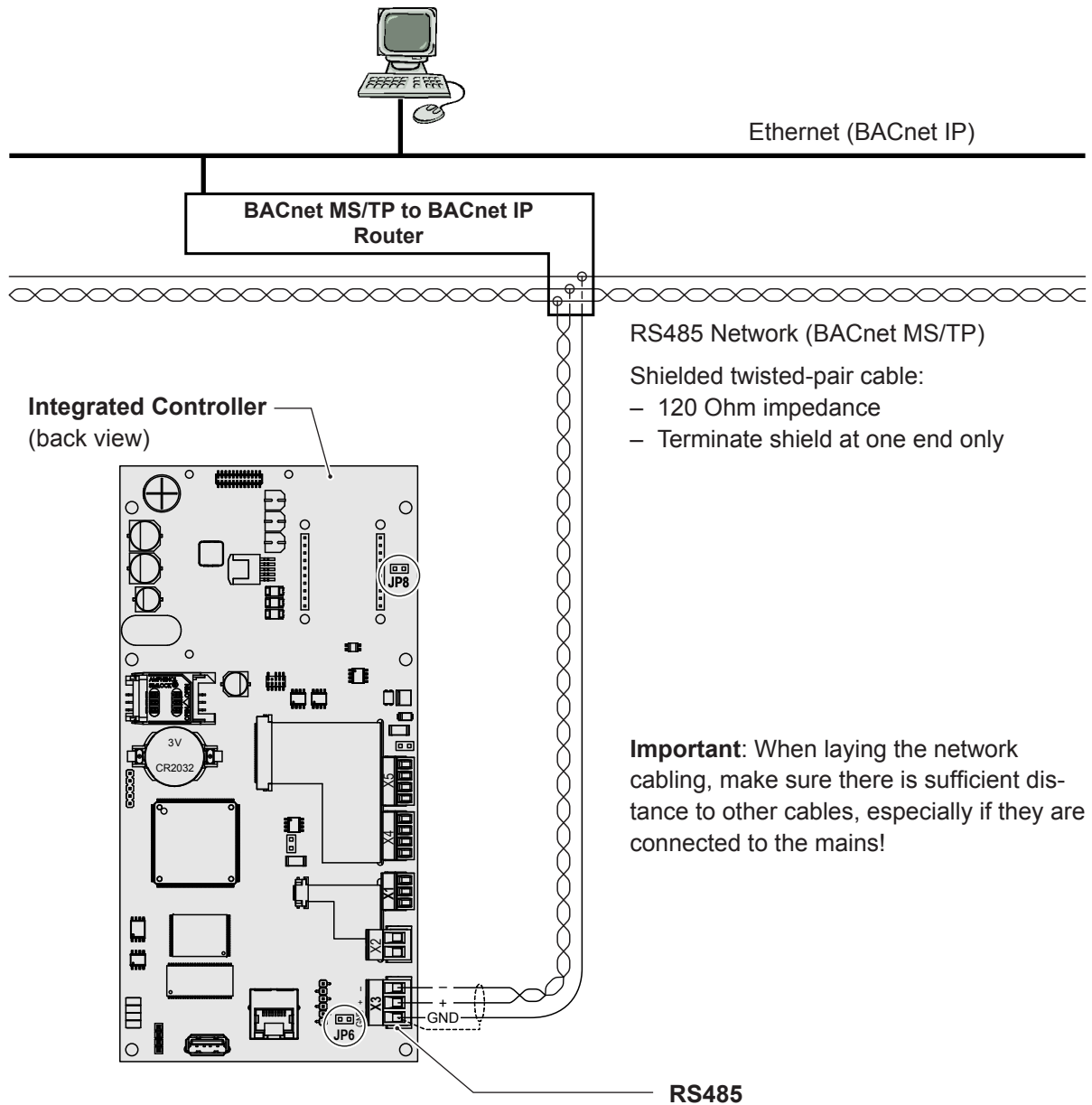
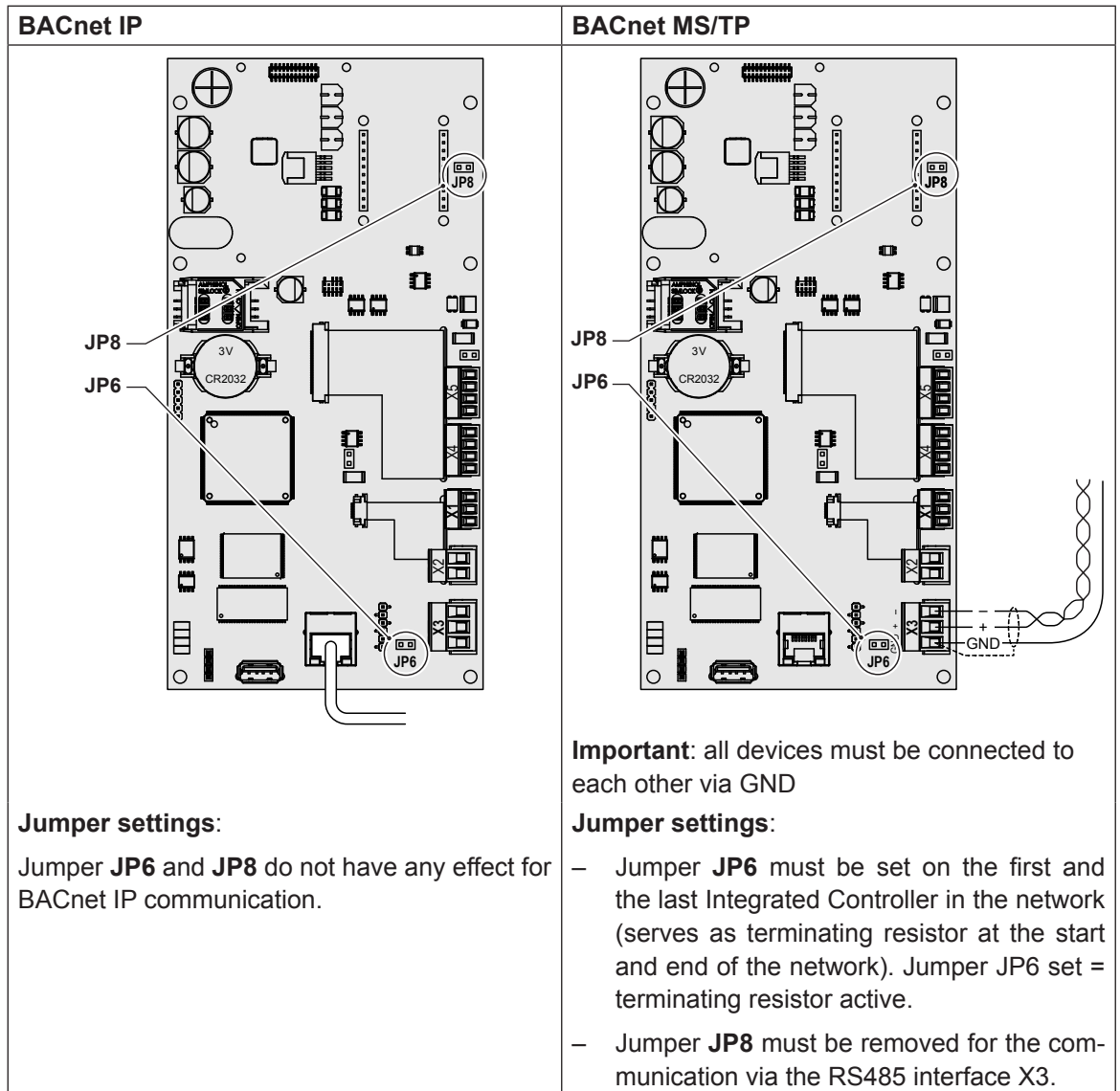


Fig. 2: Principle BACnet MS/TP network

## 3.2 Wiring

1. Lead the network cable through a cable gland or the rectangular cable lead-through into the control unit.
2. Connect network cable according to the following wiring diagrams to the corresponding interface connector on the Integrated Controller.



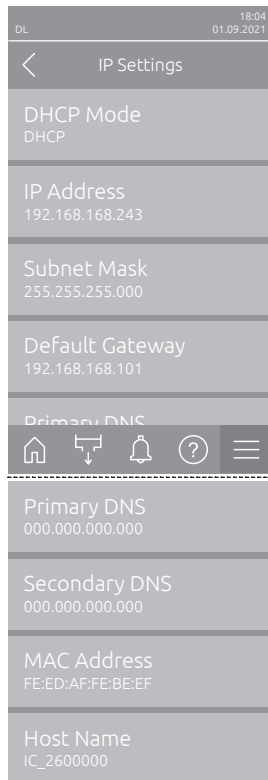
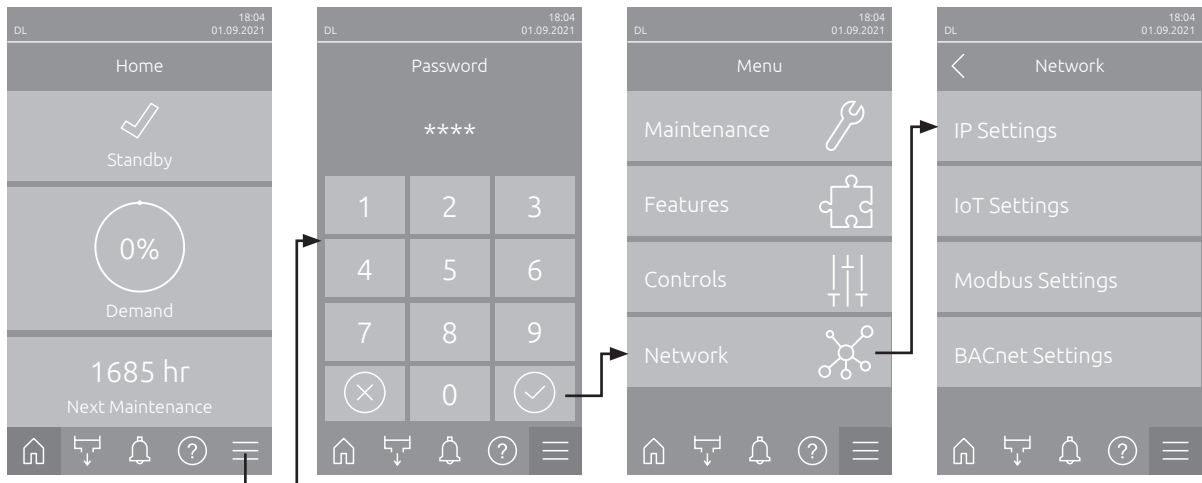
### 3.3 Configuration

After network wiring connections have been completed, the Condair Integrated Controller needs to be setup to operate and communicate through BACnet IP or BACnet MS/TP with the building management system. This setup includes the settings in the "Network" and the "Controls" submenu of the Integrated Controller.

#### 3.3.1 Setup network parameters (or IP parameters)

The network settings (or IP parameters) are required for communication via the integrated Ethernet interface (RJ45).

Select "IP Settings" (Path: "Menu > Password: 8808 > Network > IP Settings"). The IP setting parameters appear.

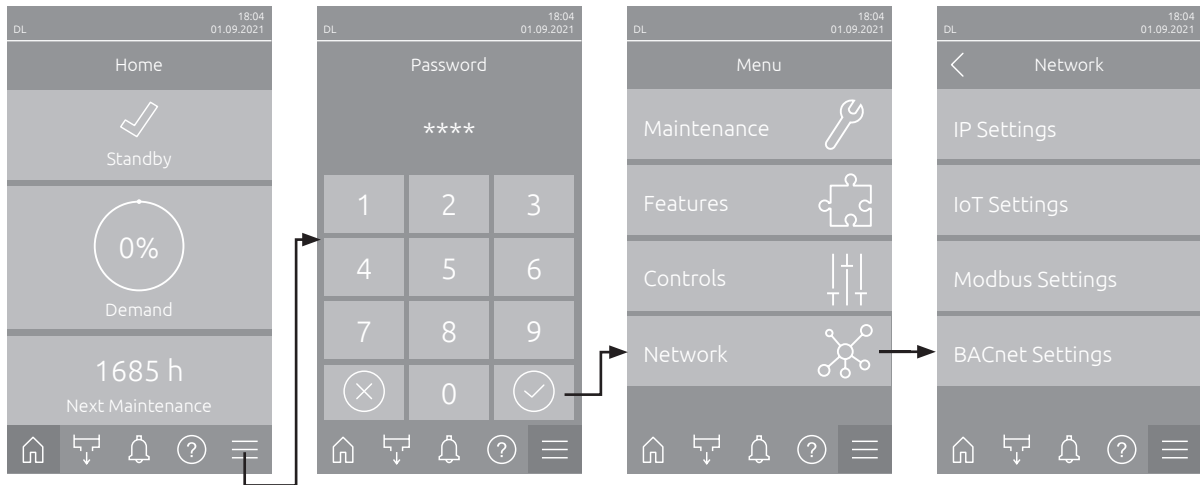


- **DHCP Mode:** With this setting you determine whether the IP Address, the Subnet Mask, the Standard Gateway as well as the Primary and Secondary DNS address should be assigned as fixed values or dynamically assigned via a DHCP server.  
 Note: If no address can be assigned via a DHCP server when "DHCP Mode" is set to "DHCP", an APIPA (Automatic Private IP Addressing) is automatically assigned. This is in the range from 169.254.1.0 to 169.254.254.255. The subnet mask is set to 255.255.0.0 and the standard gateway remains 0.0.0.0.  
 Factory setting: **DHCP**  
 Options: **DHCP** (dynamic assignment)  
**Fixed** (fixed assignment)
- **IP Address:** This field shows the actual IP address of the device assigned manually or assigned by a DHCP server.  
 If the parameter "DHCP Mode" is set to "Fixed", the IP address of the device can be set via this field. If the parameter "DHCP Mode" is set to "DHCP", the IP address of the device is assigned by a DHCP server.
- **Subnet Mask:** This field shows the actual subnet mask of the IP network assigned manually or assigned by a DHCP server.  
 If the parameter "DHCP Mode" is set to "Fixed", the subnet mask can be set via this field. If the parameter "DHCP Mode" is set to "DHCP", the subnet mask is assigned by a DHCP server.

- **Default Gateway:** This field shows the actual IP address of the default gateway assigned manually or assigned by a DHCP server.  
If the parameter "DHCP Mode" is set to "Fixed", the IP address of the default gateway can be set via this field. If the parameter "DHCP Mode" is set to "DHCP", the IP address of the default gateway is assigned by a DHCP server.
- **Primary DNS:** This field shows the actual IP address of the primary domain name server (DNS) assigned manually or assigned by a DHCP server.  
If the parameter "DHCP Mode" is set to "Fixed", the IP address of the primary domain name server can be set via this field. If the parameter "DHCP Mode" is set to "DHCP", the IP address of the primary domain name server is assigned by a DHCP server.
- **Secondary DNS:** This field shows the actual IP address of the secondary domain name server (DNS) assigned manually or assigned by a DHCP server.  
If the parameter "DHCP Mode" is set to "Fixed", the IP address of the secondary domain name server can be set via this field. If the parameter "DHCP Mode" is set to "DHCP", the IP address of the secondary domain name server is assigned by a DHCP server.
- **MAC Address:** Factory set MAC Address (Media Access Control) of the device. Not modifiable.
- **Host Name:** Host Name of the device automatically generated by the control. Format: "IC\_"+"Serial number of the device". Not modifiable.

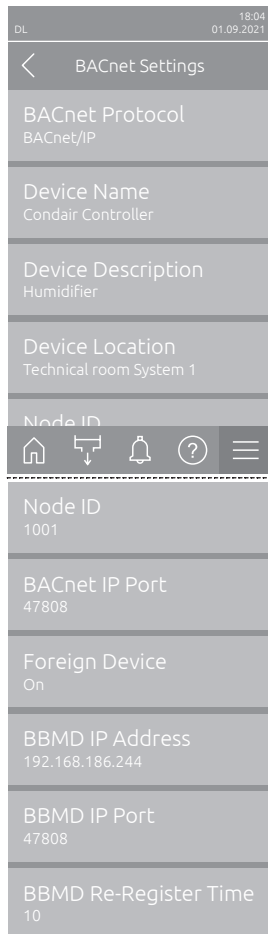
### 3.3.2 Setup BACnet interface parameters

Select "**BACnet Settings**" (Path: "**Menu > Password: 8808 > Network > BACnet Settings**"). The BACnet setting parameters appear.



#### 3.3.2.1 BACnet IP settings

The following settings are required for BACnet communication via the integrated RJ45 interface.



- **BACnet Protocol:** Set the "BACnet Protocol" parameter to "**BACnet/IP**" to activate BACnet IP communication via the integrated RJ45 interface. After changing this setting, the control automatically carries out a restart.  
Factory setting: **Off**  
Options: **Off, MS/TP Master, MS/TP Slave or BACnet/IP**
- **Device Name:** With this setting you determine the name of the device for the communication via the integrated BACnet interface.  
Note: The name assigned here is also assigned to the object name of the device object.
- **Device Description:** with this setting you determine a short description of the device.  
Note: The device description assigned here is also assigned to the property "Description" in the device object.
- **Device Location:** With this setting you determine the designation of the device location.  
Note: The location assigned is also assigned to the property "Location" in the device object.
- **Node ID:** With this setting you assign a node ID to the device for the communication over the BACnet IP protocol. This ID must be unique in the network.  
Factory setting: **1001**  
Setting range: **1 - 4194303**
- **BACnet IP Port:** With this setting you assign a IP port number for the device. The default port for BACnet IP is 47808.  
Factory setting: **47808**  
Setting range: **1 - 65535**

- **Foreign Device:** With this setting, you determine whether the device logs in to an external BACnet IP Broadcast Management Device (BBMD) ("On") so that it can receive broadcast messages (messages to all participants) on the IP network or not ("Off").

Note: In an IP network, routers generally block broadcast messages (messages to all participants) to reduce traffic. This prevents a BACnet IP device from being detected via the "Who-is" service, or to answer via the "I-Am" service. In order for the BACnet IP broadcast messages to be forwarded to other network segments anyway, a BBMD (BACnet IP Broadcast Management Device) is required. These devices integrated into the IP network forward BACnet IP broadcast messages to other network segments. Only one BBMD may be integrated per network segment.

Factory setting: **Off**

Options: **Off or On**

- **BBMD IP Address:** With this setting, you specify the IP address of the external BBMD to which the device should log on.
- **BBMD IP Port:** With this setting you assign an IP port number to the external BBMD.

Factory setting: **47808**

Setting range: **1 - 65535**

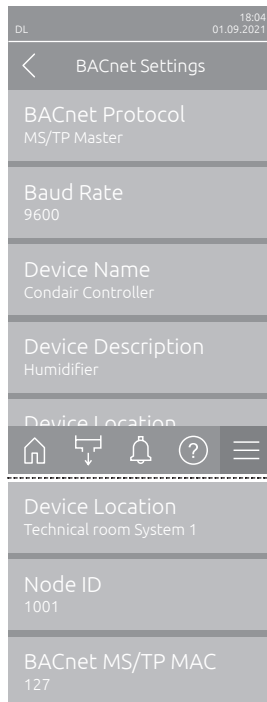
- **BBMD Re-Register Time:** With this setting you determine how long a device remains registered with an external BBMD (BACnet IP Broadcast Management Device) before a new registration is required.

Factory setting: **10**

Setting range: **5 - 65535**

### 3.3.2.2 BACnet MS/TP Einstellungen (Master oder Slave)

The following settings are required for BACnet MS/TP Master or Slave communication via the integrated RS485 interface.



- **BACnet Protocol:** Set the "BACnet Protocol" parameter either to "**MS/TP Master**" if the device is to act as the Master or to "**MS/TP Slave**" if the device is to act as a Slave. After changing this setting, the control automatically carries out a restart.  
Factory setting: **Off**  
Options: **Off, MS/TP Master, MS/TP Slave or BACnet/IP**
- **Baud Rate:** With this setting you set the Baudrate for the data transfer..  
Factory setting: **9600**  
Options: **9600, 19200, 38400, 57600, 76800, 115200**
- **Device Name:** With this setting you determine the name of the device for the communication via the integrated BACnet interface.  
Note: The name assigned here is also assigned to the object name of the device object.
- **Device Description:** With this setting you determine a short description of the device.  
Note: The device description assigned here is also assigned to the property "Description" in the device object.
- **Device Location:** with this setting you determine the designation of the device location.  
Note: The location assigned is also assigned to the property "Location" in the device object.
- **Node ID:** with this setting you assign a node ID to the device for the communication over the BACnet MS/TP protocol. This ID must be unique in the network.  
Factory setting: **1001**  
Setting range: **1 - 4194303**
- **BACnet MS/TP MAC:** with this setting you assign a MS/TP MAC address for the device. This address must be unique in the network.  
Factory setting: **127**  
Setting range: **0 - 127 (for Master)**  
**0 - 254 (for Slave)**



### 3.3.3 Signal settings and monitoring of bus communication

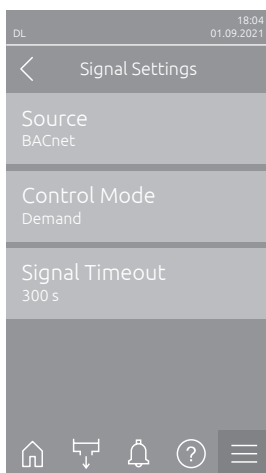
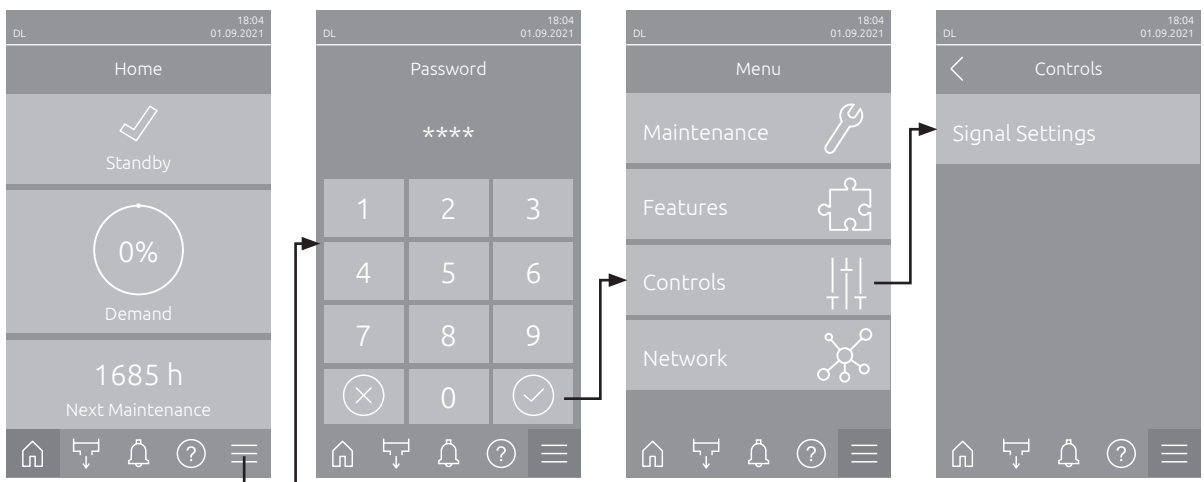
#### 3.3.3.1 Signal settings

By default the Condair Integrated Controller is configured to operate on a hardwired analog control signal from an external humidity controller or a humidity sensor (if internal P or PI controller is used) connected to the driver board inside the control unit.

Note: If you want the Condair Integrated Controller to be controlled via a hardwired analog control signal set "Source" to "Analog" and set the other control settings as required (see "Operation Manual" of the corresponding device for details).

If you want to control the Condair Integrated Controller via one of the integrated BACnet on-board interfaces the "Signal Settings" must be adjusted as follows.

Select "**Signal Settings**" (Path: "**Menu > Password: 8808 > Controls > Signal Settings**"). The setting parameters for the signal transmission appear.



- **Source:** Set "Source" parameter to "**BACnet**".  
Factory setting: **Analog**  
Options: **Analog, Modbus, BACnet or IoT**
- **Control Mode:** Set the "Control Mode" parameter to "**Demand**" (demand signal from an external controller) or to "**RH P**" or "**RH PI**" (humidity signal from an external humidity sensor).  
Factory setting: **Demand**  
Options: **On/Off, Demand, RH P or RH PI**
- **Signal Timeout:** With this setting you determine the timeout period for the signal transmission. If communication with the BACnet system fails for longer than the set time, warning "W35 - Signal Timeout" is triggered and the Condair DL is stopped.  
Factory setting: **300 s**  
Setting range: **1 ... 300 s**

**Important:** If the demand or control signal via BACnet is used, no second, hard-wired demand or control signal may be connected to the driver board!

Further information on the control settings can be found in the operating instructions for the corresponding device.

### **3.3.3.2 Monitoring of bus communication**

The monitoring of the bus communication described below only takes place if the "Source" parameter in the "Signal Settings" submenu is not set to "Analog" (siehe [Section 3.3.3.1](#)).

As soon as the control signal (demand or humidity signal) is transmitted via the BACnet IP or BACnet MS/TP bus system, communication via the bus system is also monitored.

The control signal must be periodically updated within the time set in "Signal Timeout".

If the control signal is not updated within the set time, warning "W35 - Signal Timeout" will be triggered and the humidification will be stopped until the device receives an updated value.

This monitoring is intended to prevent the humidifier from humidifying with the last transmitted value in the event of a bus failure.

## 4 Communication tables

### 4.1 Condair DL - BACnet on-board

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Condair Controller	Humidifier	—	DEV	1001	—
Network Port IPv4	Network-Port for BACnet IPv4 Communication	—	Network Port	1	R/W
Device Status	Actual device status	1 = Initializing 2 = Diagnostic 3 = Stopped 4 = Flushing 5 = Standby 6 = Humidifying 7 = Ready 8 = Air Cleaning 9 = Filling 10 = Conductivity Flush 11 = Switched Off 12 = Remote Off 13 = Temperature Flush 14 = Ceramic Wash Over	MI	5154	R
Error Status	Maintenance and error status	1 = No Info 2 = Warning 3 = Activation Code 4 = Out of Commissioning 5 = Refill Disinfection 6 = Maintenance 7 = Error 8 = Replace Ag Cartridge 9 = Disinfection	MI	5155	R
DL Type	Condair DL device assembly configuration	1 = Humidifier 2 = Humidifier + FC 3 = Humidifier + FC - Off	MI	5089	R
ErrorWarning Code	Code of the latest pending error or warning <sup>3)</sup>	0 = no Error	AI	10020	R
Operating Hours	Total hours of operation since commissioning	0 - 1200000 h	AI	10044	R
Next Maintenance	Due date of next maintenance in operating hours	0 - 10000 h	AI	10060	R
Humidity Control	Actual humidity or demand	0 - 100 %	AI	15068	R
Max. Hum. Capacity	Maximum possible spray water output <sup>2)</sup>	2 - 1000 kg/h 4 - 2573 lb/hr	AI	15172	R
Actual Hum. Capacity	Actual spray water output <sup>2)</sup>	0 - 1000 kg/h 0 - 2573 lb/hr	AI	15174	R
Remain. Ag-Ion Capacity	Remaining Ag-Ion capacity	0 - 58.4 Ah	AI	15154	R
Target Ag-Ion Current	Target Ag-Ion current	0 - 29.2 mA	AI	15179	R
PS4 Inlet Pressure	Inlet pressure PS4 <sup>2)</sup>	0 - 10.0 bar 0 - 145.0 psi	AI	15170	R
PS5 Nozzle Pressure	Nozzle pressure PS5 <sup>2)</sup>	0 - 10.0 bar 0 - 145.0 psi	AI	15171	R
Water Temperature	Inlet water temperature <sup>1) 2)</sup>	°C or °F	AI	15169	R
Water Conductivity	Inlet water conductivity	µS/cm	AI	15168	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Pump Current	Pump current	0 - 5.0 A	AI	15148	R
Ag-Ion Current	Ag-Ion current	mA	AI	15027	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Setpoint	Humidity setpoint	0 - 95 %	AV	15050	R/W
P-Band	Proportional band	6 - 65 %	AV	15051	R/W
I-Time	Integral time	1 - 60 min	AV	15052	R/W
Capacity Limitation	Limitation of the maximum possible output	20 - 100 %	AV	15058	R/W
Flushing	Remote flush	Read: 100 = Off 0-100 = Progress flushing in %  Write: 0 = Stop flushing 1 = Start flushing	AV	30506	R/W
Ceramic Wash Over	Remote ceramic wash over	Read: 100 = Off 0-100 = Progress ceramic wash over in %  Write: 0 = Stop ceramic wash over 1 = Start ceramic wash over	AV	30507	R/W
Rh or Demand	Actual humidity or demand via BACnet	0 - 100 % Relinquish Default = 0	AO	15059	R/W

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Safety Loop	Safety loop	0 = Open 1 = Closed (ok)	BI	5002	R
Y1 Inlet Valve	Y1 inlet valve	0 = Closed 1 = Open	BI	5156	R
Y2 Reserve	Y2 valve	0 1	BI	5157	R
Y3 Air Cleaning	Y3 valve air cleaning	0 = Closed 1 = Open	BI	5158	R
Y4 Ext. Pipe Flush	Y4 valve external pipe flush	0 = Closed 1 = Open	BI	5159	R
Y5 Spray Valve	Y5 valve for spray circuit 1	0 = Closed 1 = Open	BI	5160	R
Y6 Spray Valve	Y6 valve for spray circuit 2	0 = Closed 1 = Open	BI	5161	R
Y7 Spray Valve	Y7 valve for spray circuit 3	0 = Closed 1 = Open	BI	5162	R
Y8 Spray Valve	Y8 valve for spray circuit 4	0 = Closed 1 = Open	BI	5163	R
Y9 Spray Valve	Y9 valve for spray circuit 5	0 = Closed 1 = Open	BI	5164	R
Y10 Drain Valve	Y10 valve drain (NO)	0 = Open 1 = Closed	BI	5165	R
Y11 Aux. Outlet Valve	Y11 auxiliary outlet valve	0 = Open 1 = Closed	BI	5166	R
FC Enable	Frequency converter enable	0 = Off 1 = On	BI	5170	R
FC Status	Frequency converter status	0 = Off 1 = On	BI	5167	R

<sup>1)</sup> optional

<sup>2)</sup> According to the settings <Imperial> or <Metric> in the DL controller software

<sup>3)</sup> Refer to malfunction list in the Condair DL operation manual for a description of the malfunction codes

## 4.2 Condair ME - BACnet on-board

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Condair Controller	Humidifier	—	DEV	1001	—
Network Port IPv4	Network-Port for BACnet IPv4 Communication	—	Network Port	1	R/W
Device Status	Actual device status	1 = Initializing 2 = Diagnostic 3 = Stopped 4 = Humidifying 5 = Cooling 6 = Holding 7 = Draining 8 = Refreshing 9 = Filling 10 = Standby 11 = Diluting 12 = Assisted Draining 13 = Bleeding 14 = Softstart 15 = Switched Off 16 = Remote Off 17 = Purging 18 = Drain Check	MI	5050	R
Error Status	Maintenance and error status	1 = No Info 2 = Warning 3 = Maintenance 4 = WET Tank empty 5 = Replace PureFlo Cartridge 6 = Replace UV Lamp 7 = Matrix Wash Over 8 = Out of Commissioning 9 = Activation Code 10 = Error 11 = Disinfection Tank empty	MI	5051	R
Water Level Tank	Water level tank	0 = Level 0 1 = Level 1 2 = Level 2 3 = Level 3 4 = Level 4 5 = Level 5 6 = Level 6 7 = Level 7	AI	15176	R
Error/Warning Code	Code of the latest pending error or warning <sup>2)</sup>	0 = no Error	AI	10020	R
Operating Hours	Total hours of operation since commissioning	0 - 1200000 h	AI	10044	R
Next Maintenance	Due date of next maintenance in operating hours	0 - 10000 h	AI	10060	R
Next UV Lamp Exchange	Due date of next UV Lamp exchange in days	0 - 450 d	AI	15171	R
Next PureFlo Exchange	Due date of next PureFlo exchange in days	0 - 365 d	AI	15172	R
Humidity Control	Actual humidity or demand	0 - 100 %	AI	15047	R
Temperature Control	Actual air temperature <sup>1)</sup>	°C or °F	AI	15048	R
UV Current	Actual UV current	0 - 4.0 A	AI	15019	R
Actual Stages	Number of running stages	0 - 7 stages	AI	15112	R
Capacity 1	Water capacity stage <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15086	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Capacity 2	Water capacity stage 2 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15087	R
Capacity 3	Water capacity stage 3 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15088	R
Capacity 4	Water capacity stage 4 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15089	R
Capacity 5	Water capacity stage 5 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15090	R
Capacity 6	Water capacity stage 6 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15091	R
Capacity 7	Water capacity stage 7 <sup>1)</sup>	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15092	R
Speed Pump 1	Actual speed pump 1	0 - 100 %	AI	15130	R
Speed Pump 2	Actual speed pump 2	0 - 100 %	AI	15131	R
Speed Pump 3	Actual speed pump 3	0 - 100 %	AI	15132	R
Speed Pump 4	Actual speed pump 4	0 - 100 %	AI	15133	R
Speed Pump 5	Actual speed pump 5	0 - 100 %	AI	15134	R
Speed Pump 6	Actual speed pump 6	0 - 100 %	AI	15135	R
Speed Pump 7	Actual speed pump 7	0 - 100 %	AI	15136	R
Water Conductivity	Water conductivity tank	µS/cm	AI	15077	R
Water Temperature	Actual water temperature <sup>1)</sup>	°C or °F	AI	15075	R
Incoming Air Temperature	Incoming air temperature <sup>1)</sup>	°C or °F	AI	15049	R

<sup>1)</sup> According to the settings <Imperial> or <Metric> in the ME controller software.

<sup>2)</sup> See Error code description in the malfunction list in the ME operation manual.

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Setpoint Humidifying	Setpoint humidity control	0 - 95 %	AV	15054	R/W
P-Band Humidifying	Proportional band humidity control	6 - 65 %	AV	15055	R/W
I-Time Humidifying	Integral time humidity control	1 - 60 min	AV	15056	R/W
Setpoint Cooling	Setpoint temperature control <sup>1)</sup>	0 - 40 °C 32 - 104 °F	AV	15057	R/W
P-Band Cooling	Proportional band temperature control <sup>1)</sup>	1 - 50 °C 1.8 - 89.9 °F	AV	15058	R/W
I-Time Cooling	Integral time temperature control	1 - 60 min	AV	15059	R/W
Draining	Remote draining	Read: 100 = Off 0-100 = Progress draining in %  Write: 0 = Stop draining 1 = Start draining	AV	30507	R/W
Matrix Wash Over	Remote matrix wash over	Read: 100 = Off 0-100 = Progress matrix wash over in %  Write: 0 = Stop matrix wash over 1 = Start matrix wash over	AV	30505	R/W
Error/Warning Reset	Remote Error/Warning Reset	0 = Off 1 = On	AV	30002	R/W
RH or Demand	Actual humidity or demand via BACnet	0 - 100% Relinquish Default = 0	AO	15044	R/W
Temperature	Actual temperature via BACnet <sup>1)</sup>	-25 - 100 °C -12.9 - 211.9 °F Relinquish Default = 20	AO	15045	R/W

<sup>1)</sup> According to the settings <Imperial> or <Metric> in the ME controller software.



Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Safety Loop	Safety loop	0 = Open 1 = Closed (ok)	BI	5002	R
Drain Valve	Drain valve	0 = Open 1 = Closed	BI	5034	R
Inlet Valve	Inlet valve	0 = Closed 1 = Open	BI	5033	R
Drain Pump	Drain pump	0 = Off 1 = On	BI	5091	R
Pump 1 Error	Fault pump 1	0 = Fault 1 = Ok	BI	5111	R
Pump 2 Error	Fault pump 2	0 = Fault 1 = Ok	BI	5112	R
Pump 3 Error	Fault pump 3	0 = Fault 1 = Ok	BI	5113	R
Pump 4 Error	Fault pump 4	0 = Fault 1 = Ok	BI	5114	R
Pump 5 Error	Fault pump 5	0 = Fault 1 = Ok	BI	5115	R
Pump 6 Error	Fault pump 6	0 = Fault 1 = Ok	BI	5116	R
Pump 7 Error	Fault pump 7	0 = Fault 1 = Ok	BI	5117	R
Water Inlet Error	Fault water inlet	0 = Fault 1 = Ok	BI	5118	R
Water Outlet Error	Fault water outlet	0 = Fault 1 = Ok	BI	5119	R
Water Temperature Error	Fault water temperature	0 = Fault 1 = Ok	BI	5120	R
Level Sensor Error	Fault level sensor	0 = Fault 1 = Ok	BI	5122	R
Water Conductivity Error	Fault water conductivity	0 = Fault 1 = Ok	BI	5121	R
Leak Monitoring	Leakage sensor	0 = Leak 1 = Ok	BI	5009	R
WET Tank Level	WET tank level	0 = Empty 1 = Ok	BI	5007	R
Disinfection Tank Level	Disinfection tank level	0 = Empty 1 = Ok	BI	5008	R

### 4.3 Condair RS - BACnet on-board

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Condair Controller	Humidifier	—	DEV	1001	—
Network Port IPv4	Network-Port for BACnet IPv4 Communication	—	Network Port	1	R/W
Device Status Cyl. A	Actual device status cylinder A	1 = Initializing 2 = Diagnostic 3 = Stopped 4 = Break 5 = Level Test 6 = Standby 7 = Humidifying 8 = Filling 9 = Idle 10= Draining 11= Remote Off 12= Keep Warm	MI	5109	R
Device Status Cyl. B	Actual device status cylinder B	1 = Initializing 2 = Diagnostic 3 = Stopped 4 = Break 5 = Level Test 6 = Standby 7 = Humidifying 8 = Filling 9 = Idle 10= Draining 11= Remote Off 12= Keep Warm	MI	5110	R
Error Status	Maintenance and error status	1 = Service Info 2 = Warning 3 = RO Service 4 = Extended Maintenance 5 = Small Maintenance 6 = Activation Code 7 = Error	MI	5159	R
Nominal Voltage	Nominal voltage device	1 = 200 V 2 = 208 V 3 = 230 V 4 = 240 V 5 = 380V 6 = 400 V 7 = 415 V 8 = 440 V 9 = 460 V 10= 480 V 11= 500 V 12= 550 V 13= 600 V	MI	5123	R
Level Cyl. A	Water level cylinder A	1 = no level 2 = low 3 = low-mid 4 = mid 5 = mid-high 6 = high	AI	15044	R
Level Cyl. B	Water level cylinder B	1 = no level 2 = low 3 = low-mid 4 = mid 5 = mid-high 6 = high	AI	15045	R
ErrorWarning Code	Code of the latest pending error or warning <sup>3)</sup>	0 = No error	AI	10020	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Operating Hours	Total hours of operation since commissioning	0 - 1'200'000 h	AI	10219	R
Operating Hours Cyl. A	Total hours of operation since commissioning of cylinder A	0 - 1'200'000 h	AI	15124	R
Operating Hours Cyl. B	Total hours of operation since commissioning of cylinder B	0 - 1'200'000 h	AI	15125	R
System Demand	Actual demand of the system	0 - 100%	AI	10221	R
Control CH1	Actual humidity or demand signal CH1	0 - 100%	AI	15103	R
Control CH2	Actual humidity or demand signal CH2	0 - 100%	AI	15104	R
Max Hum. Capacity	Maximum humidifying capacity <sup>2)</sup>	5 - 160 kg/h 10 - 360 lb/hr	AI	10216	R
Max Hum. Capacity Cyl. A	Maximum humidifying capacity cylinder A <sup>2)</sup>	5 - 40 kg/h 10 - 90 lb/hr	AI	15117	R
Max Hum. Capacity Cyl. B	Maximum humidifying capacity cylinder B <sup>2)</sup>	5 - 40 kg/h 10 - 90 lb/hr	AI	15118	R
Actual Hum. Capacity	Actual humidifying capacity <sup>2)</sup>	0 - 160 kg/h 0 - 360 lb/hr	AI	10225	R
Actual Hum. Capacity Cyl. A	Actual humidifying capacity cylinder A <sup>2)</sup>	0 - 40 kg/h 0 - 90 lb/hr	AI	15025	R
Actual Hum. Capacity Cyl. B	Actual humidifying capacity cylinder B <sup>2)</sup>	0 - 40 kg/h 0 - 90 lb/hr	AI	15026	R
Next Small Maintenance Cyl. A	Due date of next small maintenance cylinder A	0 - 6000 h	AI	15120	R
Next Small Maintenance Cyl. B	Due date of next small maintenance cylinder B	0 - 6000 h	AI	15121	R
Next Extended Maint. Cyl. A	Due date of next extended maintenance cylinder A	0 - 6000 h	AI	15122	R
Next Extended Maint. Cyl. B	Due date of next extended maintenance cylinder B	0 - 6000 h	AI	15123	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Setpoint CH1	Setpoint humidity channel 1	5 - 95 %	AV	15094	R/W
Setpoint CH2	Setpoint humidity channel 2	5 - 95 %	AV	15095	R/W
P-Band CH1	Proportional band humidity channel 1	6 - 65 %	AV	15096	R/W
P-Band CH2	Proportional band humidity channel 2	6 - 65 %	AV	15097	R/W
I-Time CH1	Integral time humidity channel 1	1 - 60 min	AV	15098	R/W
I-Time CH2	Integral time humidity channel 2	1 - 60 min	AV	15099	R/W
Capacity Limitation	Limitation of the maximum possible output	20 - 100 %	AV	15102	R/W

RS Drain	Remote RS drain	Read: 0..99 = Progress draining in % 100 = Off  Write: 0 = Stop draining 1 = Start draining cylinder A + B	AV	30504	R/W
RS Drain Cyl. A	Remote RS drain cylinder A	Read: 0..99 = Progress draining in % 100 = Off  Write: 0 = Stop draining 1 = Start draining cylinder A	AV	30502	R/W
RS Drain Cyl. B	Remote RS drain cylinder B	Read: 0..99 = Progress draining in % 100 = Off  Write: 0 = Stop draining 1 = Start draining cylinder B	AV	30503	R/W
RH or Demand CH1 via BACnet	Actual humidity or demand via BACnet channel 1	0 - 100 %	AO	15012	R/W
RH or Demand CH2 via BACnet	Actual humidity or demand via BACnet channel 2	0 - 100 %	AO	15014	R/W

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Overheat Switch Cyl. A	Overheat switch cylinder A	0 = Open 1 = Closed (=ok)	BI	5011	R
Overheat Switch Cyl. B	Overheat switch cylinder B	0 = Open 1 = Closed (=ok)	BI	5012	R
Safety Loop Cyl. A	External safety loop cylinder A	0 = Open 1 = Closed (=ok)	BI	5017	R
Safety Loop Cyl. B	External safety loop cylinder B	0 = Open 1 = Closed (=ok)	BI	5018	R
Security Floater Cyl. A	Security floater cylinder A	0 = Open 1 = Closed (=ok)	BI	5013	R
Security Floater Cyl. B	Security floater cylinder B	0 = Open 1 = Closed (=ok)	BI	5014	R
Heating Voltage Cyl. A	Heating voltage cylinder A	0 = Off 1 = On	BI	5015	R
Heating Voltage Cyl. B	Heating voltage cylinder B	0 = Off 1 = On	BI	5016	R
Blower Pack Cyl. A	Blower pack ready cylinder A	0 = Off 1 = On (ready)	BI	5021	R
Blower Pack Cyl. B	Blower pack ready cylinder B	0 = Off 1 = On (ready)	BI	5022	R
Main Contactor Cyl. A	Main contactor cylinder A	0 = Off 1 = On	BI	5027	R
Main Contactor Cyl. B	Main contactor cylinder B	0 = Off 1 = On	BI	5028	R
Relay Pump Cyl. A	Relay pump cylinder A	0 = Off 1 = On	BI	5029	R
Relay Pump Cyl. B	Relay pump cylinder B	0 = Off 1 = On	BI	5030	R
Inlet Valve 1 Cyl. A	Inlet valve 1 cylinder A	0 = Closed 1 = Open	BI	5089	R
Inlet Valve 1 Cyl. B	Inlet valve 1 cylinder B	0 = Closed 1 = Open	BI	5090	R
Inlet Valve 2 Cyl. A	Inlet valve 2 cylinder A	0 = Closed 1 = Open	BI	5091	R
Inlet Valve 2 Cyl. B	Inlet valve 2 cylinder B	0 = Closed 1 = Open	BI	5092	R
Drain Cooling Valve Cyl. A	Drain cooling valve cylinder A	0 = Closed 1 = Open	BI	5093	R
Drain Cooling Valve Cyl. B	Drain cooling valve cylinder B	0 = Closed 1 = Open	BI	5094	R
Complete Drain Valve Cyl. A	Complete drain valve cylinder A <sup>1)</sup>	0 = Closed 1 = Open	BI	5095	R
Complete Drain Valve Cyl. B	Complete drain valve cylinder B <sup>1)</sup>	0 = Closed 1 = Open	BI	5096	R
Leakage Sensor	Leakage Sensor <sup>1)</sup>	0 = Leak 1 = OK	BI	5009	R
Furnace Fan	Condair UL: Remote Furnace/Fan <sup>1)</sup>	0 = Off 1 = On	BI	28	R
Ext. Pipe Flush	Condair CE: Ext.Pipe Flush <sup>1)</sup>	0 = Off 1 = On			

<sup>1)</sup> optional

<sup>2)</sup> According to the settings <Imperial> or <Metric> in the RS controller software

<sup>3)</sup> Refer to malfunction list in the Condair RS operation manual for a description of the malfunction codes

# 5 Troubleshooting

## 5.1 Operating trouble list

Problem	Solutions
Condair Integrated Controller does not respond to humidity values or demand values written over BACnet.	<ul style="list-style-type: none"> <li>– Check that Condair Integrated Controller is configured to be controlled via BACnet (see <a href="#">Section 3.3.3.1</a>).</li> </ul> <p>Note: If "Source" in the controller settings is set to "Analog" the Condair Integrated Controller will look for a control signal connected to the driver board only.</p>
The device will not respond to control signal connected to the driver board.	<ul style="list-style-type: none"> <li>– Check under "Menu &gt; Password: 8808 &gt; Controls &gt; Signal Settings" that parameter "Source" is configured for "Analog" control.</li> </ul>
The BACnet node ID, BACnet IP port or BACnet MS/TP MAC settings are not accepted.	<ul style="list-style-type: none"> <li>– Check if the input is within the valid value range.</li> </ul>
Intermittent Communications.	<ul style="list-style-type: none"> <li>– Check whether the wire type and run length meet the requirements of the corresponding network.</li> <li>– Look for wire runs in close proximity to equipment generating significant electrical noise (such as VFD's, medical equipment, X-ray machinery, servers, etc.).</li> <li>– Check that wire shield is terminated at one end only.</li> <li>– Confirm correct polarity of conductors at each device.</li> <li>– Check BACnet/LonWorks addresses for conflicts with any device.</li> </ul> <p>Note: Each device on the network must have a unique address.</p>

Problem	Solutions
No communication can be established	<ul style="list-style-type: none"> <li>– Check that latest software version of the device is installed.</li> <li>– <b>With BACnet IP:</b> Check the IP address, subnet mask and default gateway. These parameters must be in the same range as the client (client = BACnet device, for example a building controller or workstation requesting data from the humidifier) Check if other network participants or firewalls are blocking BACnet messages.</li> <li>– <b>With BACnet MS/TP:</b> Ensure that all devices in the MS/TP network use the same baud rate. Notice: Baud rate 76800 is not a standard baud rate and is not supported by many devices or notebooks. Check the times of the properties "APDU Segment Timeout" and "APDU Timeout" in the Device object. These should be the same for all subscribers in the same BACnet MS/TP network.</li> <li>– <b>With BACnet MS/TP Master:</b> Check the MAC address. This should be in the range 0-127. The value in the Device Object property "Max Master" must be equal to or higher than the MAC address.</li> <li>– <b>With BACnet MS/TP Slave:</b> MS/TP slave devices cannot be detected automatically via the "Who-is" BACnet service and therefore have to be manually added to the network.</li> </ul>
Invalid data	<ul style="list-style-type: none"> <li>– Check BACnet addresses for conflicts with any device. Note: Each device on the network must have a unique address.</li> </ul>
Wrong values (e.g. temperature, pressure, mass flow) are shown via BACnet.	<ul style="list-style-type: none"> <li>– Check software version of the Integrated Controller.</li> <li>– Check the "Units" setting under "Menu &gt; Password: 8808 &gt; General &gt; Region".</li> </ul>
More variables or additional information is required from the Condair Integrated Controller.	Contact Condair Technical Services for additional support.

# 6 Appendix

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## 6.1 Object abbreviations

AI = Analog Input	Analog value, readable
AO = Analog Output	Analog control signal, readable and writable (with priority)
AV = Analog Value	Analog setting, readable and writable
BI = Binary Input	Binary state value, readable
BV = Binary Value	Binary value, readable and writable
DEV = Device Object	Device object, some properties are writeable
MI = Multistate Input	Multistate status value, readable



## 6.2 Declaration of Conformity for the implementation of BACnet protocols (PICS)

# INTEGRATED CONTROLLER BACnet Protocol Implementation Conformance Statement

### Basic Information

Issue date:	September 2021
Document Revision:	3.10
Vendor Name:	Condair Group AG (Vendor ID: 976)
Product Name:	Integrated Controller 2.0
Firmware Revision:	v0.6.5
Application Software Version:	v0.9.5
BACnet Protocol Revision:	Version 1, Revision 22
Product Description:	The products are humidifiers, adiabatic coolers or water treatment units

### BACnet Standardized Device Profile

- B-SS BACnet Smart Sensor
- B-SA BACnet Smart Actuator

### BACnet Interoperability Building Blocks Supported (BIBBs)

- DS-RP-B Data Sharing, Read Property-B
- DS-WP-B Data Sharing, Write Property-B
- DS-RPM-B Data Sharing, Read Property Multiple-B
- DS-COV-B Data Sharing, Change of Value-B\*
- DM-DOB-B Device Management, Dynamic Object Binding-B\*
- DM-DDB-B Device Management, Dynamic Device Binding-B\*
- DM-RD-B Device Management, Reinitialize Device-B

\*not supported by MS/TP slave

### Standard Object Types

- Analog Input
- Analog Output
- Analog Value
- Multi State Input
- Multi State Value
- Binary Input
- Binary Value
- Device

### Optional Supported Properties

Description, Reliability\*\*, COV Increment  
 Description, Reliability\*\*, COV Increment, Min Pres Value, Max Pres Value  
 Description, Reliability\*\*, COV Increment  
 Description, Reliability\*\*, State Text  
 Description, Reliability\*\*, State Text  
 Description, Reliability\*\*, Active Text, Inactive Text  
 Description, Reliability\*\*, Active Text, Inactive Text  
 Description, Location (both read- and writeable)  
 Max Segm Accepted  
 APDU Segm. Timeout, APDU Timeout (both read and writeable)  
 Active COV Subscriptions\*  
 Max Info Frames (only BACnet MS/TP)  
 Max Master (read- and writeable BACnet MS/TP Master)  
 Local Time, Local Date  
 Last Restart Reason, Time of Device Restart  
 Restart Notification Recipients

\*not supported by MS/TP slave

\*\*Depending on the object, not supported by all object

2111 / EN

- Network Port Object:

### BACnet MS/TP:

Description, MAC Address  
 Max Master\* (read- and writeable)  
 Max Info Frames\* (read- and writeable)

\*not supported by MS/TP slave

### BACnet IP:

Description, MAC Address, BACnet IP Mode, BACnet IP Address, BACnet IP UDP Port,  
 BACnet IP Subnet Mask, BACnet IP Default Gateway, BACnet IP DNS Server  
 FD BBMD Address (Mode Foreign only, read- and writeable)  
 FD Subscription Lifetime (Mode Foreign only, read- and writeable)

**The following conditions apply to all object types**

- Objects may be neither dynamically created nor deleted
- Does not support any optional properties unless they are listed
- No proprietary properties are implemented
- No additional properties may be written, except they are listed above or required by the BACnet specification

**Data Link Layer Options**

- BACnet IP (Annex J)
- BACnet IP (Annex J) Foreign Device
- BACnet MS/TP Master (Clause 9) Baud rates: 9'600, 19'200, 38'400, 57'600, 76'800, 115200
- BACnet MS/TP Slave (Clause 9) Baud rates: 9'600, 19'200, 38'400, 57'600, 76'800, 115200

**Segmentation Capability**

Segmented requests and responses are supported. Window size: 8

**Device Address Binding**

Static address binding is not supported

**Network Options**

No networking options are supported.

**Character Sets Supported**

ANSI UTF-8

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Attention: ..... Date: .....  
Company: ..... Fax #: .....  
From: ..... Page:        of  
Subject: .....

FOR YOUR INFORMATION       RESPONSE REQUESTED

MESSAGE:

Distributor / Agent P.O. Number: ..... Sales Order Number: .....

Desired interface option:

- BACnet IP
- BACnet MS/TP Master
- BACnet MS/TP Slave

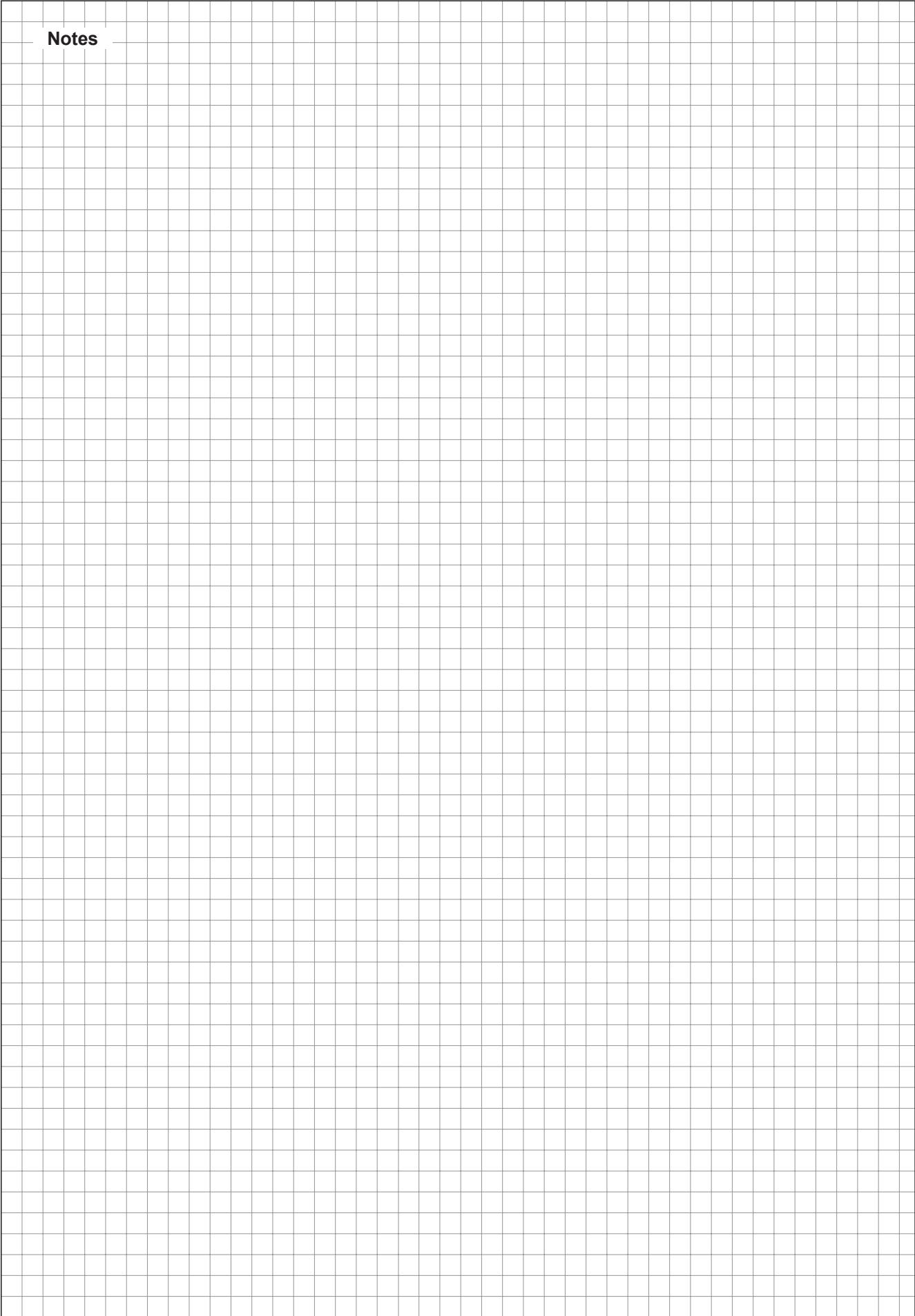
Settings for BACnet IP only:

- IP Address:.....
- Subnet Mask: .....
- Default Gateway Address: .....
- BACnet Node ID (Device Instance): .....
- BACnet IP Port: .....

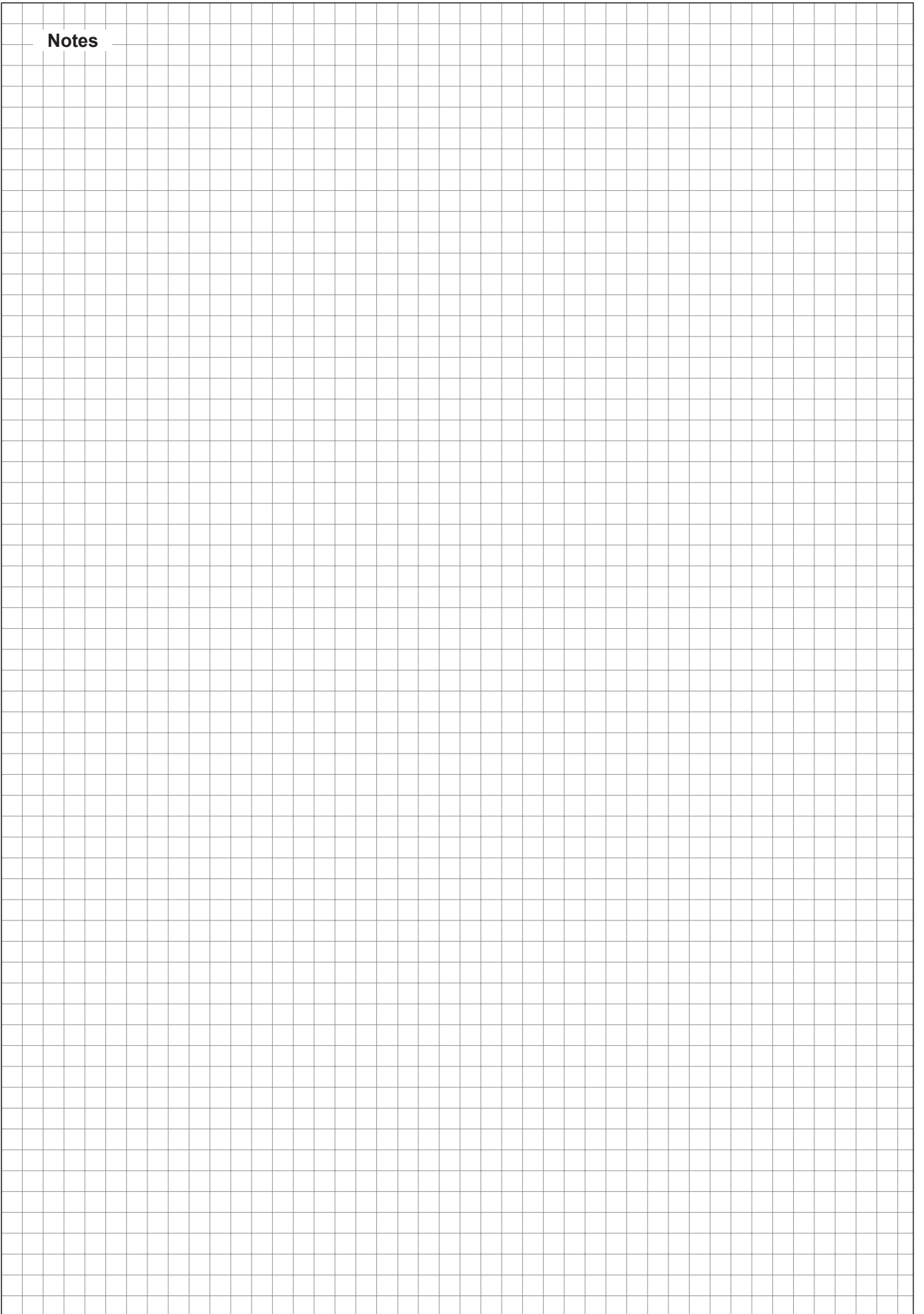
Settings for BACnet MS/TP only:

- MAC Address BACnet MS/TP: .....
- Baud rate: .....
- BACnet Node ID (Device Instance): .....

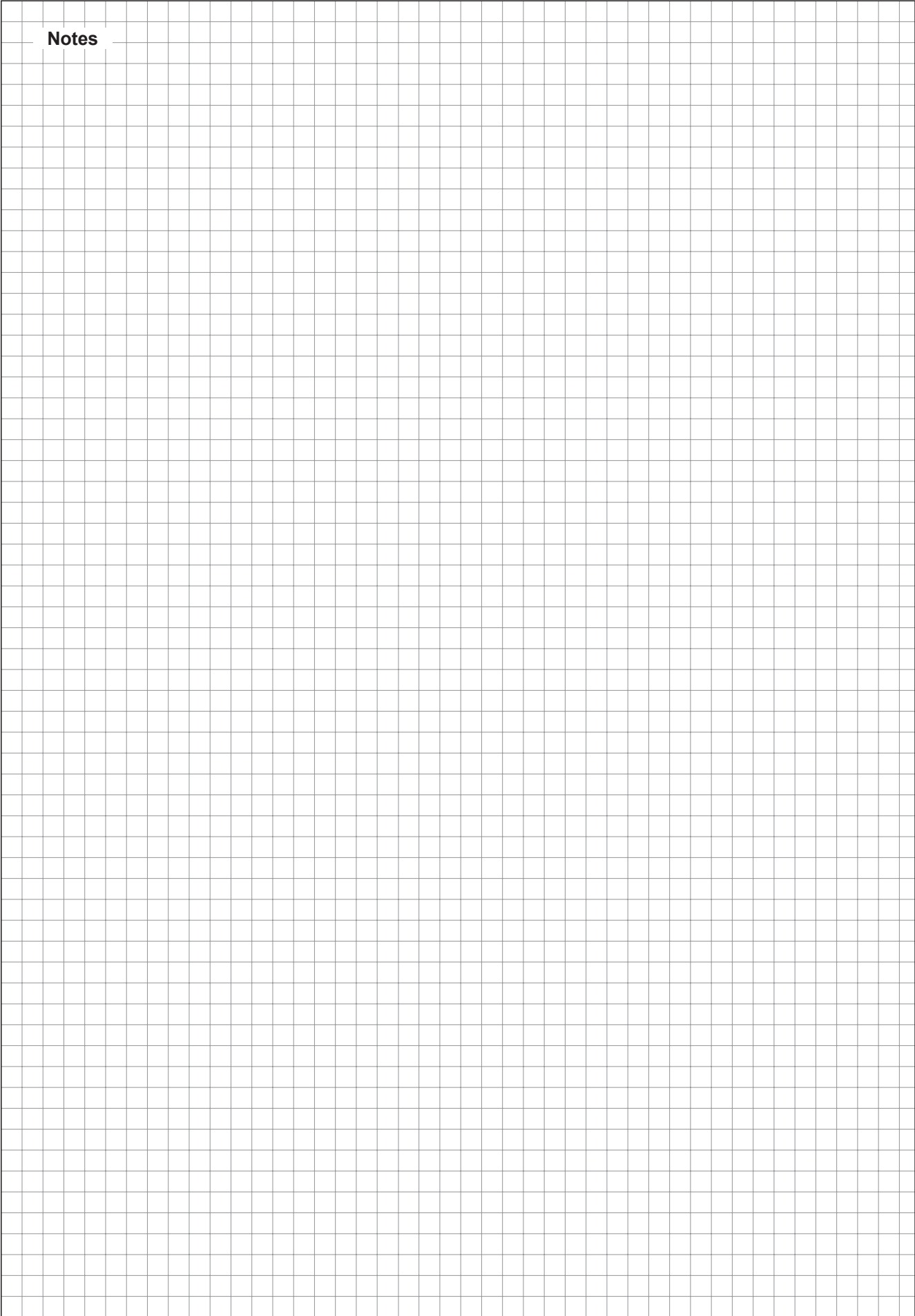
Notes



**Notes**



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