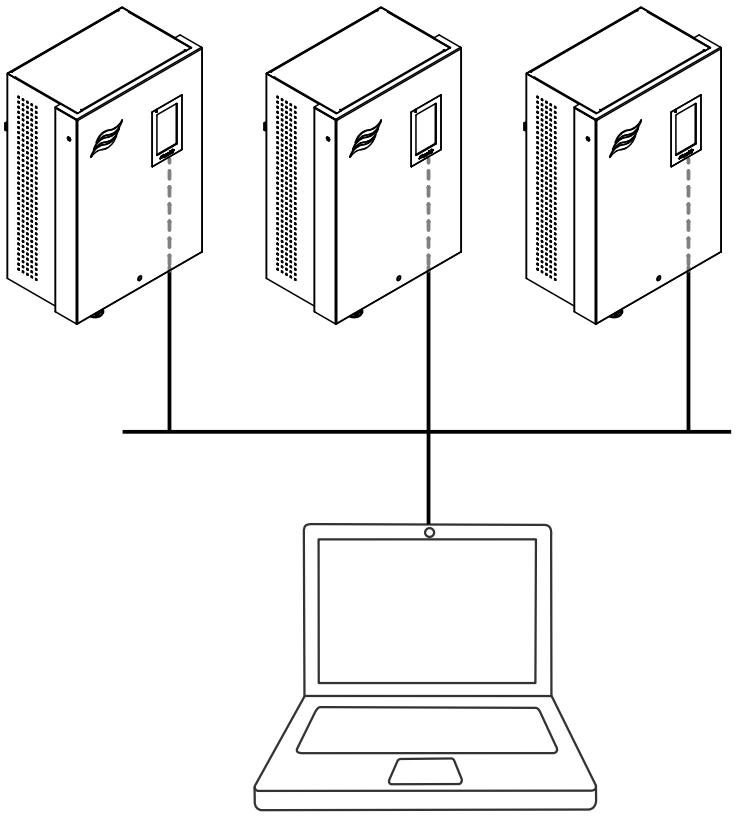
2603584-F EN 2607



Gateway Board for BACnet and LonWorks

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

Humidification, Dehumidification
and Evaporative Cooling

condair

Thank you for choosing Condair

Installation date (MM/DD/YYYY):
Commissioning date (MM/DD/YYYY):
Site:
Model:
Serial number:

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1 Introduction

1.1 Notes on this addendum manual

Condair devices equipped with an Integrated Controller can either be connected via the corresponding interface on the Integrated Controller (BACnet on-board) to a BACnet IP network or a BACnet MS/TP network or via the optional LonWorks or BACnet gateway boards (ProtoCessor gateway) to a LonWorks, BACnet IP or BACnet MS/TP network to a building management system.

This manual describes how to install and configure the optional LonWorks and BACnet gateway boards (see *Section 3*) to connect the corresponding Condair devices 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 installing and configuring the BACnet or LonWorks based network.

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

CAUTION!

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**.

WARNING!

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**.

DANGER!

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.

2 For your safety

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 optional LonWorks or BACnet gateway boards are intended exclusively for connecting the Condair Integrated Controller to a LonWorks or 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 electrical compartment where the Integrated Controller is located may have live mains voltage connected for other uses of the device. 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 on the control unit disconnect the mains supply voltage to the humidifier via the electrical isolator in the mains supply line, and secure electrical isolator in "Off" position against inadvertent switching on.

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 optional LonWorks or BACnet gateway boards and 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 the optional LonWorks and BACnet gateway boards

3.1 Notes for the planning engineer

3.1.1 Overview

The optional LonWorks or BACnet gateway boards allow the integration of the Condair Integrated Controller into a **BACnet IP, BACnet MS/TP** or a **LonWorks** network. The optional LonWorks or BACnet gateway boards feature a serial-interface gateway which converts the information from the host Modbus RTU protocol to a specified secondary protocol.

Important: Please note that the gateway board is configured for the latest software version of the Integrated Controller. To guarantee correct data communication it is therefore mandatory to update the software of the Integrated Controller to the latest version before installing the gateway board. Please contact your Condair distributor regarding a software update of the Integrated Controller.

The following protocol options are available and must be specified when ordering:

Part Number	Protocols	Part Description
2603508	BACnet IP	Gateway board BACnet IP DL II
2603509	BACnet MS/TP	Gateway board BACnet MS/TP DL II
2603510	LonWorks	Gateway board LonWorks DL II
2606233	BACnet IP	Gateway board BACnet IP ME II
2606234	BACnet MS/TP	Gateway board BACnet MS/TP ME II
2606235	LonWorks	Gateway board LonWorks ME II
2610475	BACnet IP	Gateway board BACnet IP RS II
2610480	BACnet MS/TP	Gateway board BACnet MS/TP RS II
2610483	LonWorks	Gateway board LonWorks RS II
2611780	BACnet IP	Gateway board BACnet IP RO-E
2611783	BACnet MS/TP	Gateway board BACnet MS/TP RO-E
2611784	LonWorks	Gateway board LonWorks RO-E

Please refer to the BACnet object or Lonworks SNVT 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 network

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

Principle BACnet IP network

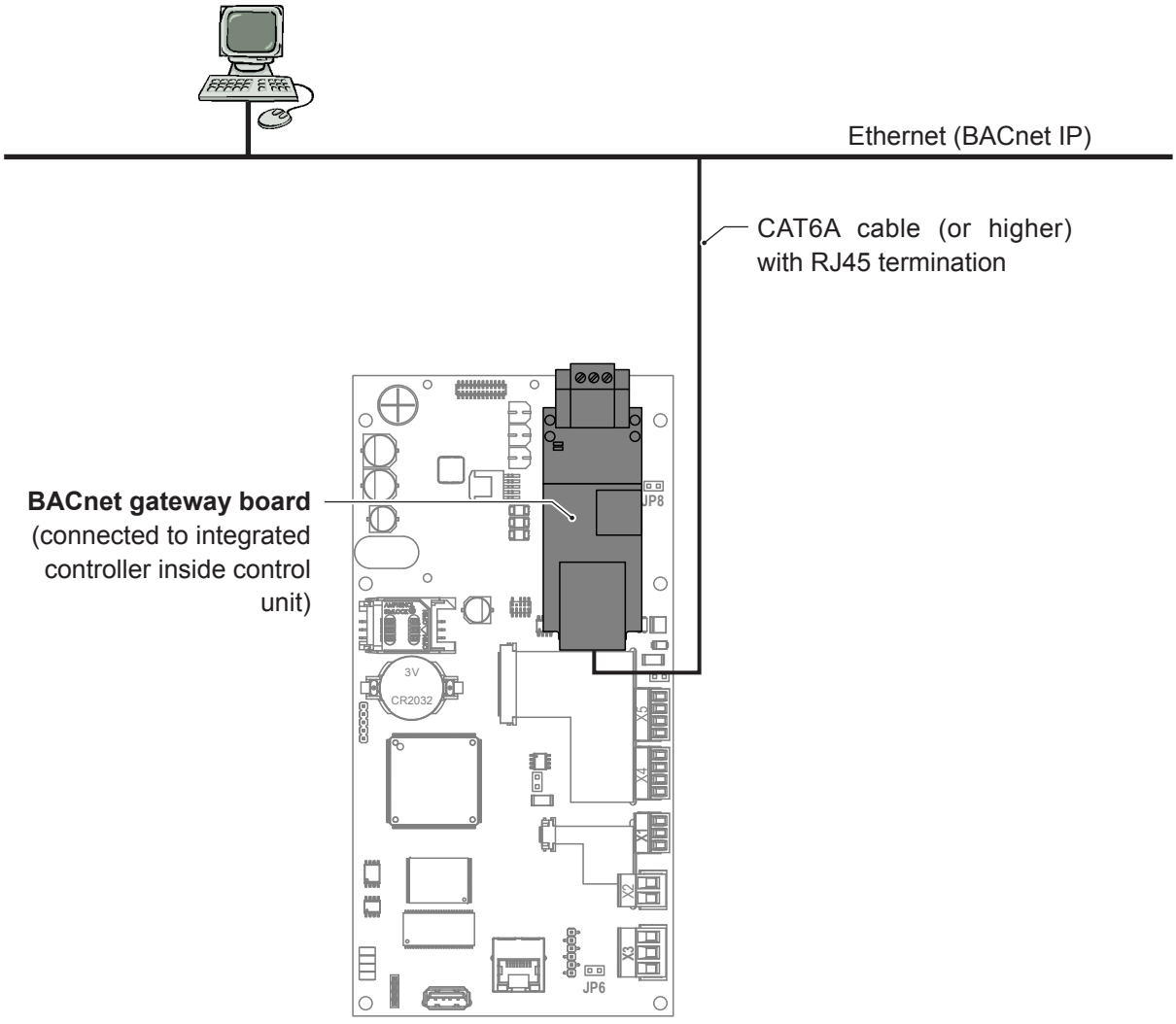


Abb. 1: Principle BACnet IP network

Principle BACnet MS/TP network

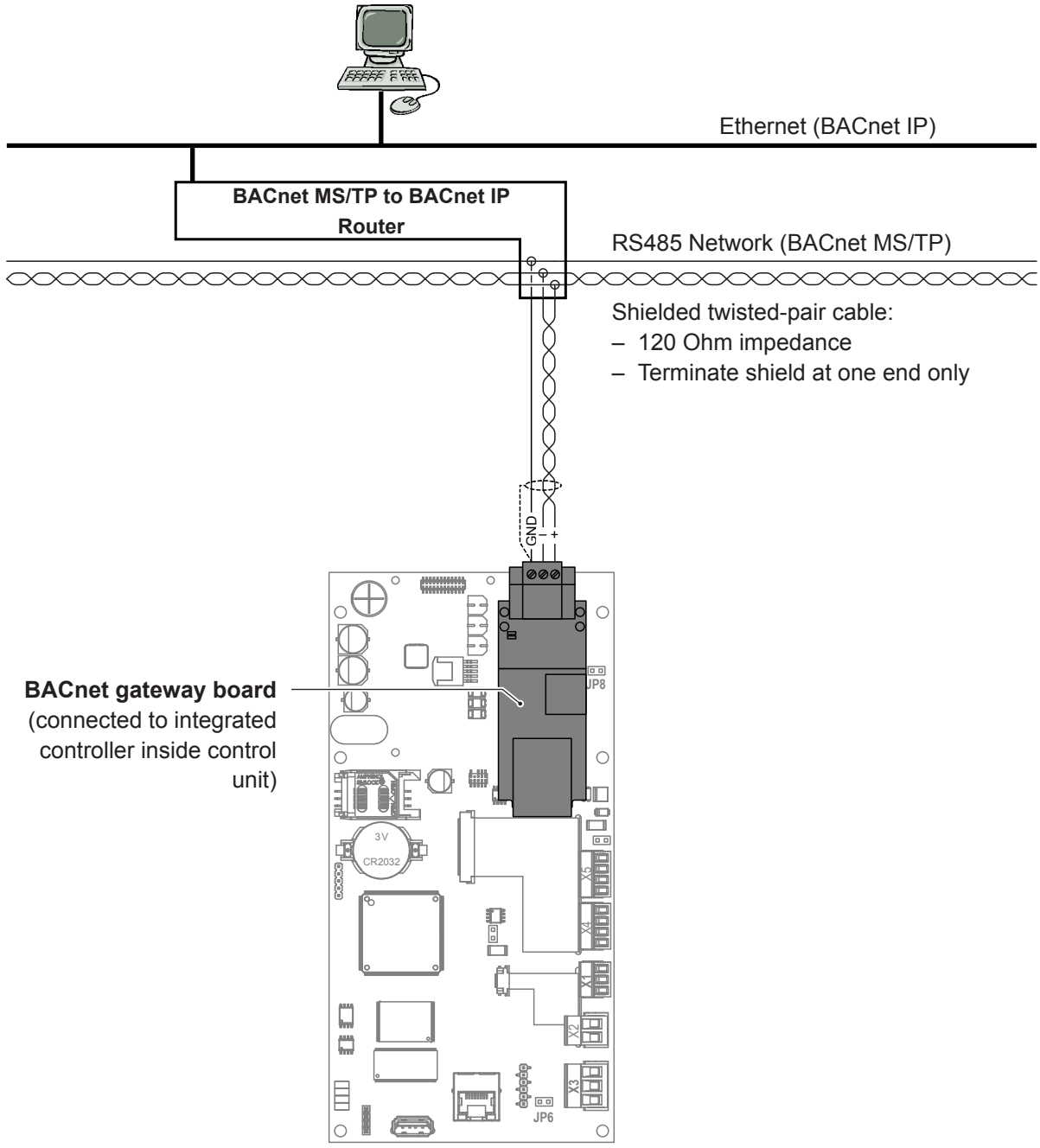


Abb. 2: Principle BACnet MS/TP network

3.1.2.2 Principle LonWorks network

This principle diagram below shows the connection of the Condair Integrated Controller to a LonWorks network via a shielded twisted-pair cable.

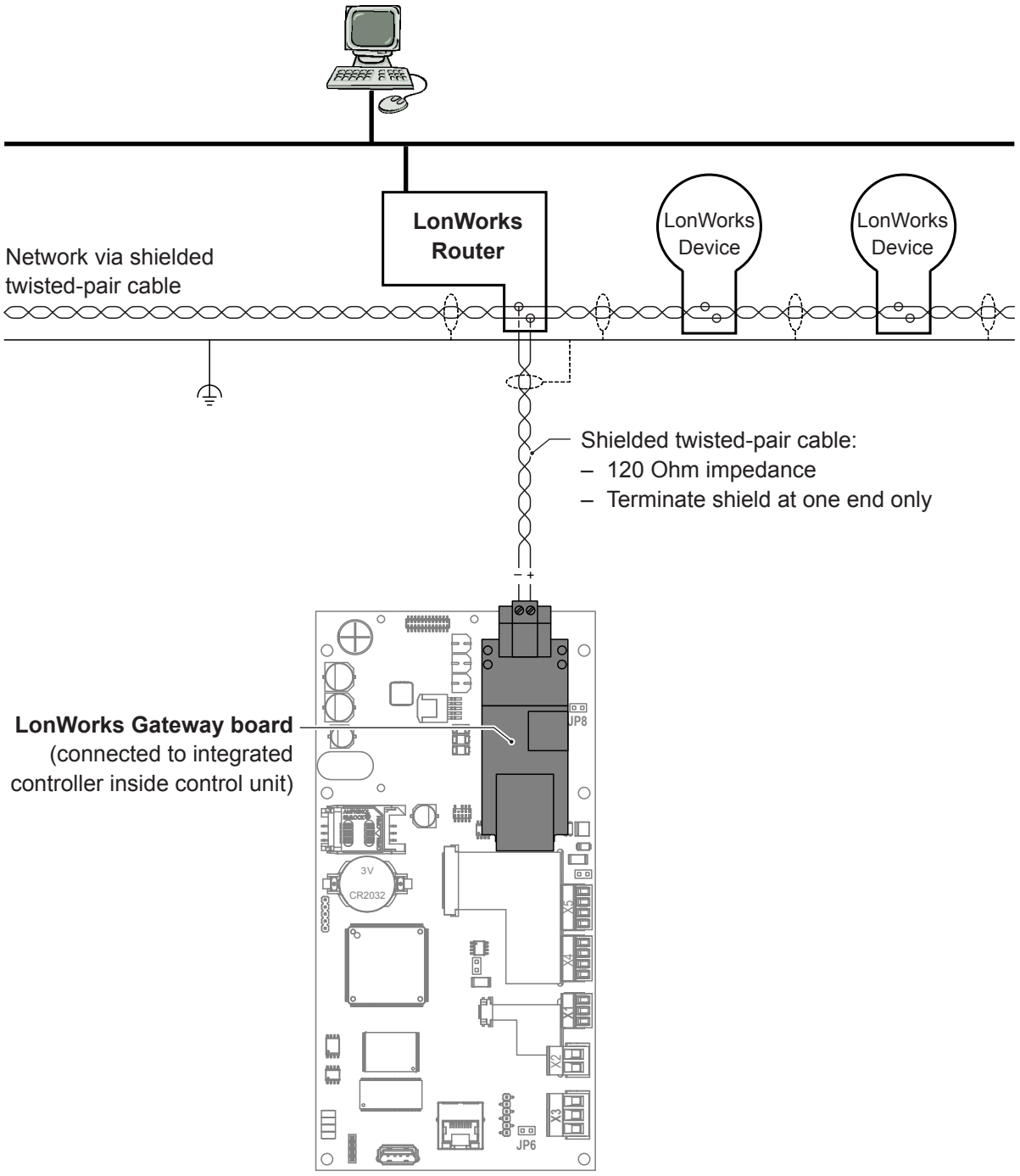


Abb. 3: Principle LonWorks network

3.2 Installation work

3.2.1 Installing the BACnet/LonWorks gateway board on the Integrated Controller

1. Isolate power supply to the control unit.
2. Remove the front cover of the control unit.

> **CAUTION!**
>
> Electronic components are very sensitive to electrostatic discharge. Before proceeding with the next step, appropriate measures (ESD-protection) must be taken to prevent damage to electronic components. A wrist strap should be worn to connect the maintenance specialist with a common ground point. For more information, refer to ANSI/ESD-S20.20.

3. Open the control unit inner swing door.
4. Fix BACnet or LonWorks gateway board to the TTL interface on the Condair Integrated Controller. **Important**: Ensure pin alignment when fixing.
5. Set Jumper on "JP8".

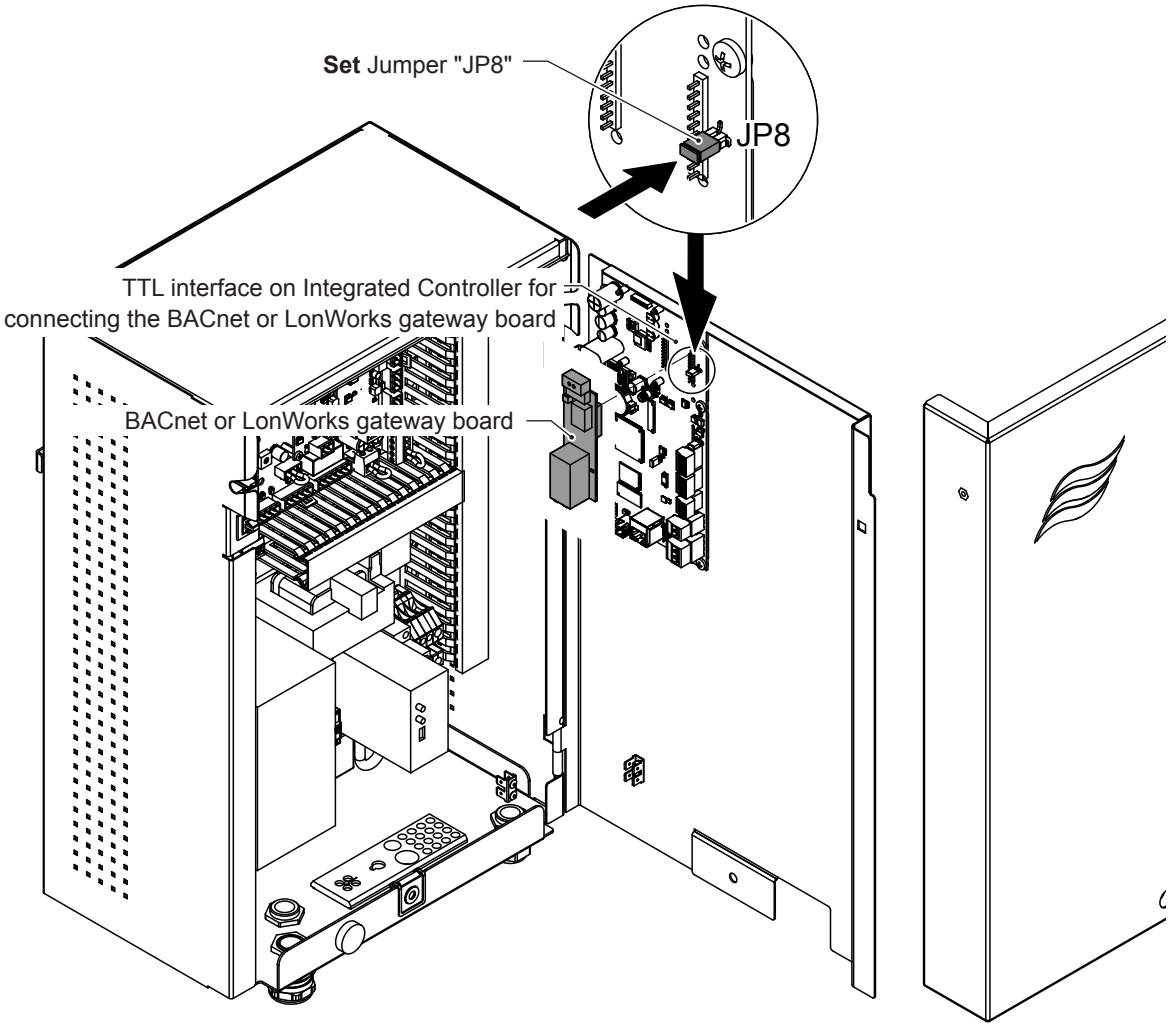


Abb. 4: Installing the BACnet/LonWorks gateway board on the integrated controller

3.2.2 Wiring

1. Lead the network cable through the rectangular cable lead-through into the control unit. Inside the control unit run the cable to the BACnet or LonWorks gateway board, respectively.
2. Connect network cable according to the following wiring diagrams.

BACnet

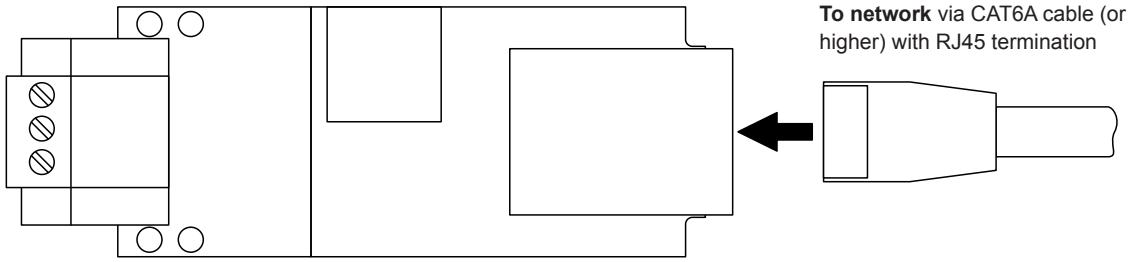


Abb. 5: BACnet IP network connection

To network via shielded twisted-pair cable:
– 120 Ohm impedance
– Terminate shield at one end only

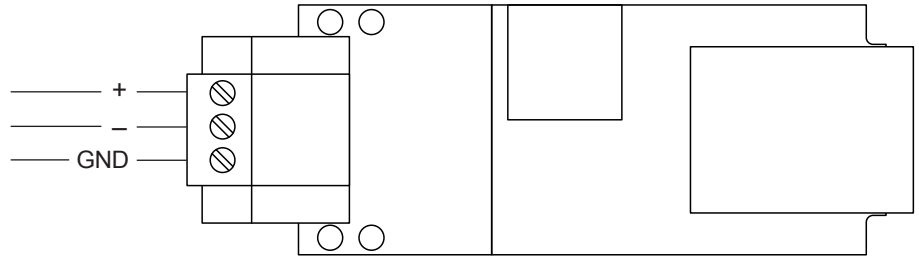


Abb. 6: BACnet MS/TP network connection

LonWorks

To network via shielded twisted-pair cable:
– 120 Ohm impedance
– Terminate shield at one end only

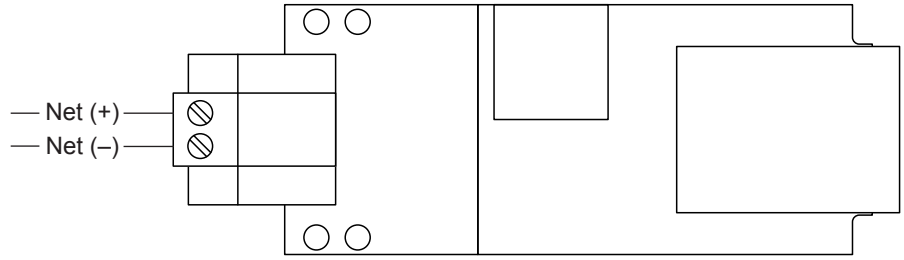


Abb. 7: LonWorks network connection

3.3 Configuration

After wiring connections have been completed, the Condair Integrated Controller needs to be setup to operate and communicate through its optional BACnet or LonWorks gateway board. This setup includes the settings in the "**Controls**" and the "**Network**" submenu of the Condair Integrated Controller unit and the configuration of the gateway board.

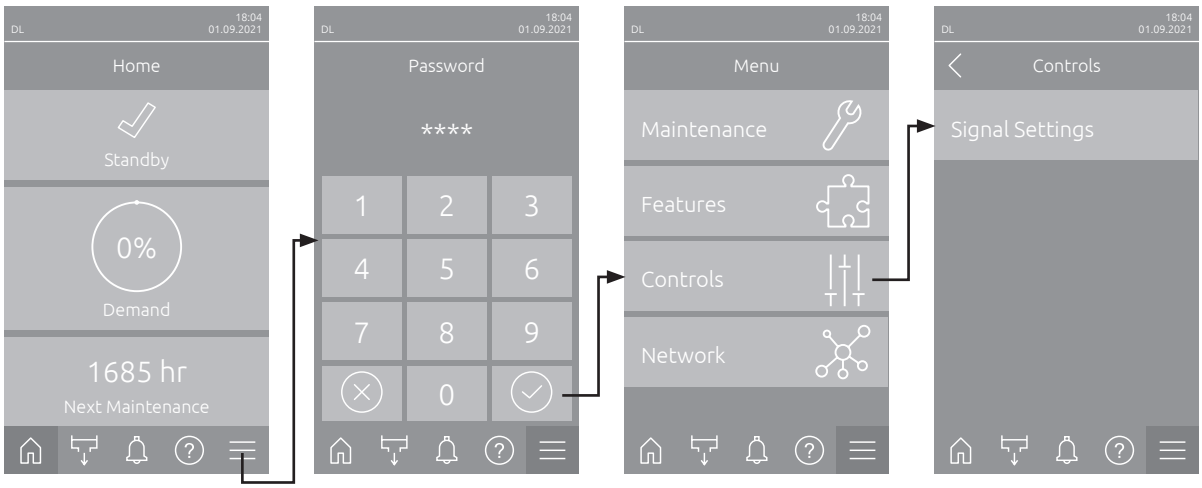
3.3.1 Configuring the Condair Integrated Controller

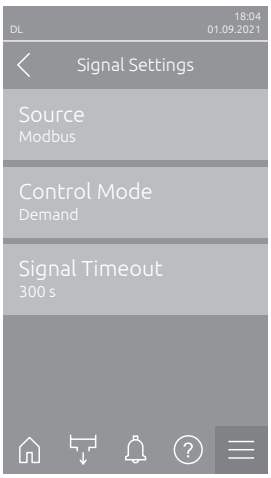
3.3.1.1 Signal settings

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 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 entirely via the building management system through the optional BACnet or LonWorks gateway board the control settings must be adjusted as follows:

1. Close control unit and switch it on.
2. Select "**Signal Settings**" (Path: "***Menu > Password: 8808 > Controls > Signal Settings***"). The signal setting parameters appear.





– **Source**: Set "Source" parameter to "**Modbus**".

  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: **Demand** (if you use a external demand control signal)

  RH P (if you use a sensor signal and proportional controller)

  RH PI (use a sensor value and proportional-integral controller)

– **Signal Timeout**: With this setting you determine the timeout period for the signal transmission. If communication via BACnet or LonWorks 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**

3.3.1.2 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".

As soon as the signal is transmitted via a BACnet or LonWorks gateway board, communication via the bus system is also monitored.
The control signal must be periodically updated within the time set in "Signal Timeout".

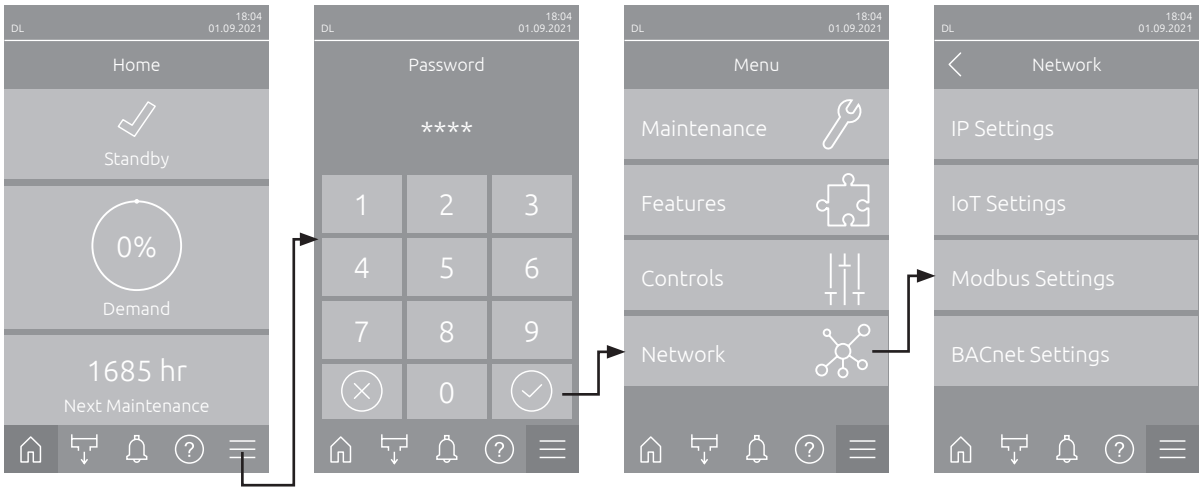
If the control signal is not updated within the set time, warning "W35 - Signal Timeout" will be triggered and the humidification will be stopped until a valid signal is returned.
This monitoring is intended to prevent the humidifier from humidifying with the last transmitted value in the event of a bus failure.

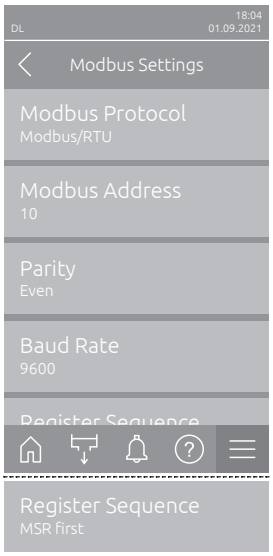
Note: The gateway board transfers the control signal to the humidifier only if the value changes!

3.3.1.3 Modbus settings

To allow the Condair Integrated Controller to communicate via the optional BACnet or LonWorks gateway board the Condair Integrated Controller must be configured as follows:

1. Switch on control unit (if not already switched on).
2. Select "**Modbus Settings**" (Path: "***Menu > Password: 8808 > Network > Modbus Settings***"). The Modbus setting parameters appear.





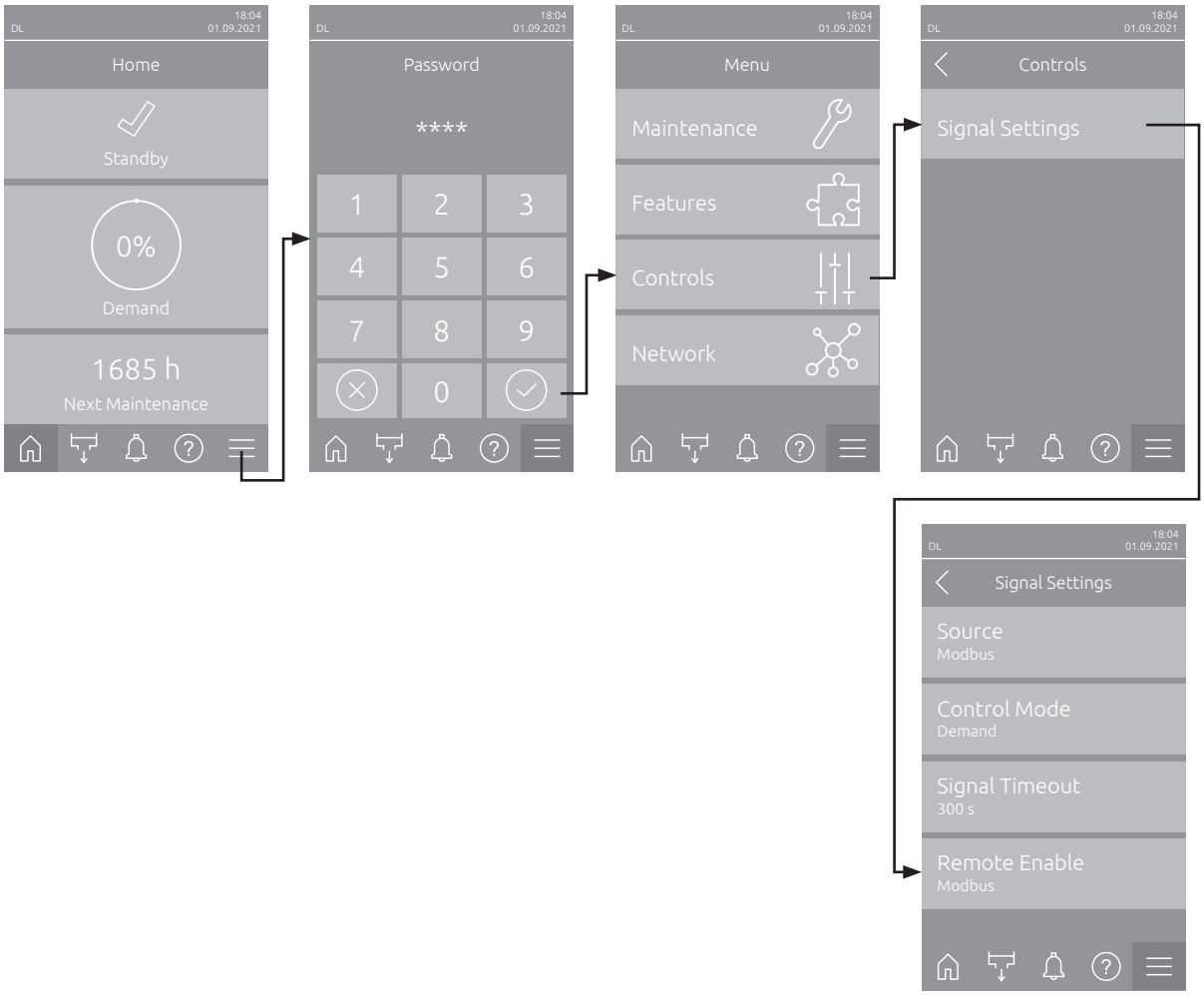
The following settings must be selected when using the gateway board:

- **Modbus Protocol**: Modbus/RTU
- **Modbus Address**: 10
- **Parity**: Even
- **Baud Rate**: 19200
- **Register Sequence**: MSR first

Important! Please note that the gateway board is communicating with the Integrated Controller of the device via the Modbus RTU protocol. When using a gateway board the "BACnet" function in the "*Network* > *BACnet Settings*" submenu must be deactivated!

3.3.1.4 Remote enable via BACnet (Condair DL)

To control the humidifier remotely via BACnet, the controller must be configured as follows:



With this setting, the humidifier (Condair DL) is remotely enabled via the BACnet object BV 16 "BV_RemEnable" or Lonworks nvoRemEnable/nviRemEnable 48/49.

3.3.2 Gateway configuration (BACnet or LonWorks)

The **protocol configuration is made at the factory**, prior to final testing. The following values are set ex factory (adjustable values see *Section 3.3.2.2* and *Section 3.3.2.3*):

BACnet

Protocol	Baud rate	BACnet MS/TP MAC Address	Node ID	Parity
BACnet IP	10 / 100 BaseT	---	DL: 300	---
BACnet MS/TP Master	9600 Baud	127	1001	None

LonWorks

Protocol	Baud rate	Lonmark Objects		
LonWorks	78125 bps	#0 Node	#520 Analog Input	#521 Analog Output

3.3.2.1 Requirements for gateway configuration

Hardware Requirements

A PC with web browser that connects over Ethernet on port 80 and a Ethernet cable to establish the connection between Computer/Laptop and BACnet or LonWorks gateway board.

PC Software Requirements

One of the following web browsers must be used:
- Mozilla Firefox 13.0 and up
- Microsoft Internet Explorer 8 and up
- Google Chrome 19.0 and up
- Opera 11 and up
- Microsoft Edge

Please note that the computer and network firewalls must be opened for Port 80 to allow FS-GUI to function.

3.3.2.2 Configure the IP settings

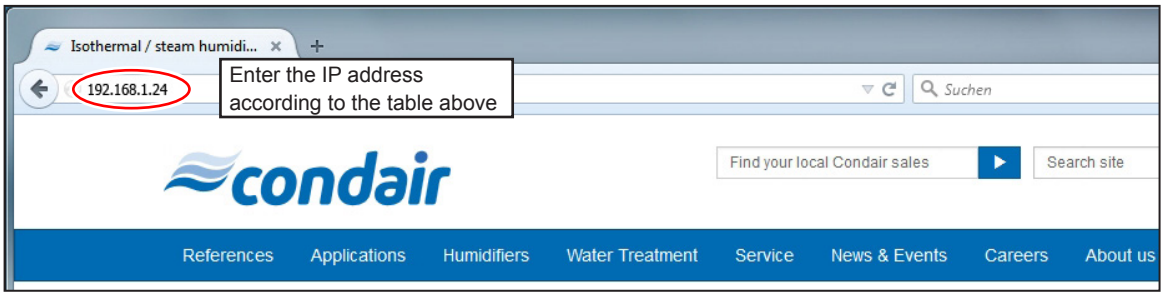
For BACnet and LonWorks application, an IP address and the subnet mask must be assigned to the BACnet/LonWorks gateway board in order to access it. The IP address and subnet mask may be assigned at the factory or can be modified at any time via the integrated FS-GUI (Fieldserver Graphic User Interface) of the gateway board.

Ex factory the gateway board is configured to the following default settings:

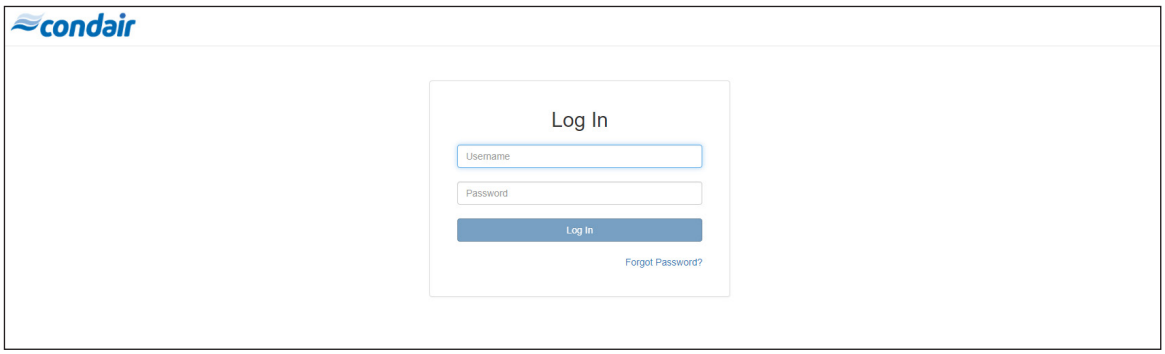
	Until the end of January 2022	**From February 2022**
IP address	10.232.72.172	192.168.1.24
Subnet mask	255.255.0.0	255.255.255.0
Default gateway	10.232.72.1	192.168.1.1

To configure a new IP address, subnet mask and default gateway via the integrated FS-GUI of the gateway board proceed as follows:

1. Connect the gateway board **to a PC using an Ethernet cross-over cable** or **directly to the network using a straight cable**.
2. Make sure your PC is in the same IP network as the gateway board (default IP settings see table above); otherwise assign a static IP address to your PC.
3. Switch on Condair Integrated Controller unit in order to power up the gateway board.
4. Open your internet browser and enter the IP address of the gateway board (according table above), then confirm the entry with the Enter key.

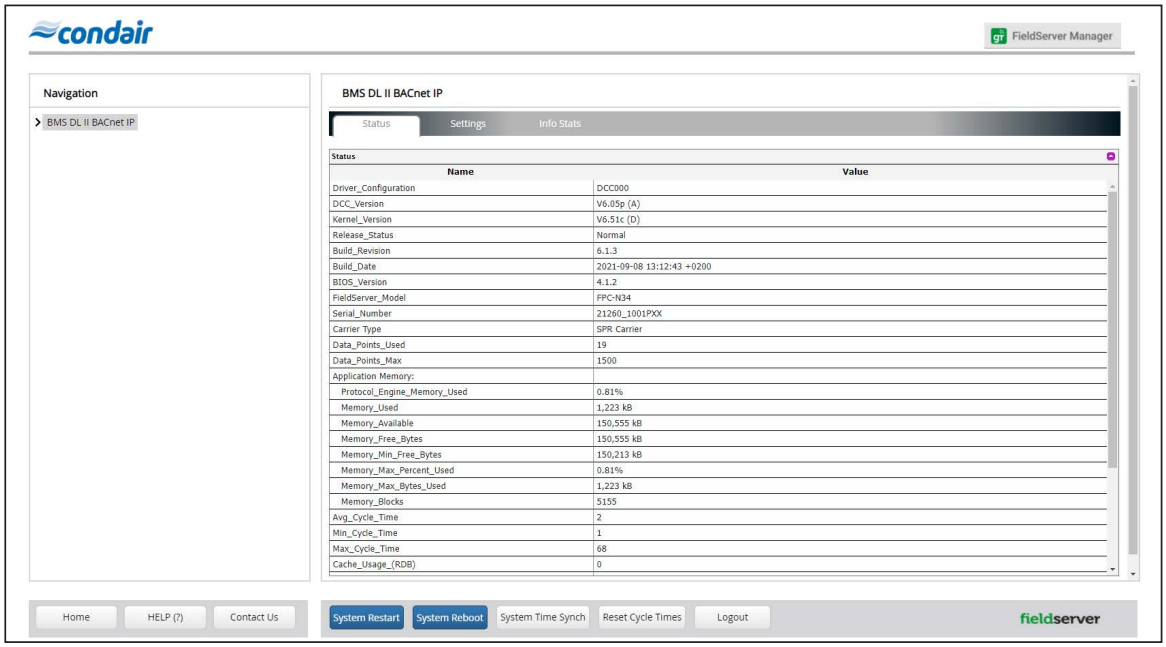


5. Depending on the FS-GUI version either the start screen or the login screen appears:
   - If the start screen appears: Press the <Diagnostics & Debbuging> button at the bottom right of the screen.
   - If the login screen screen appears: Enter "admin" as the username and the password (can be found on the sticker of the gateway board). Then confirm your entries with the <Log In> button. Note: The password should later be changed under "Setup > User Management / Password" (see step 6).



Note: After 5 unsuccessful attempts to enter the password, access will be blocked for 10 minutes!

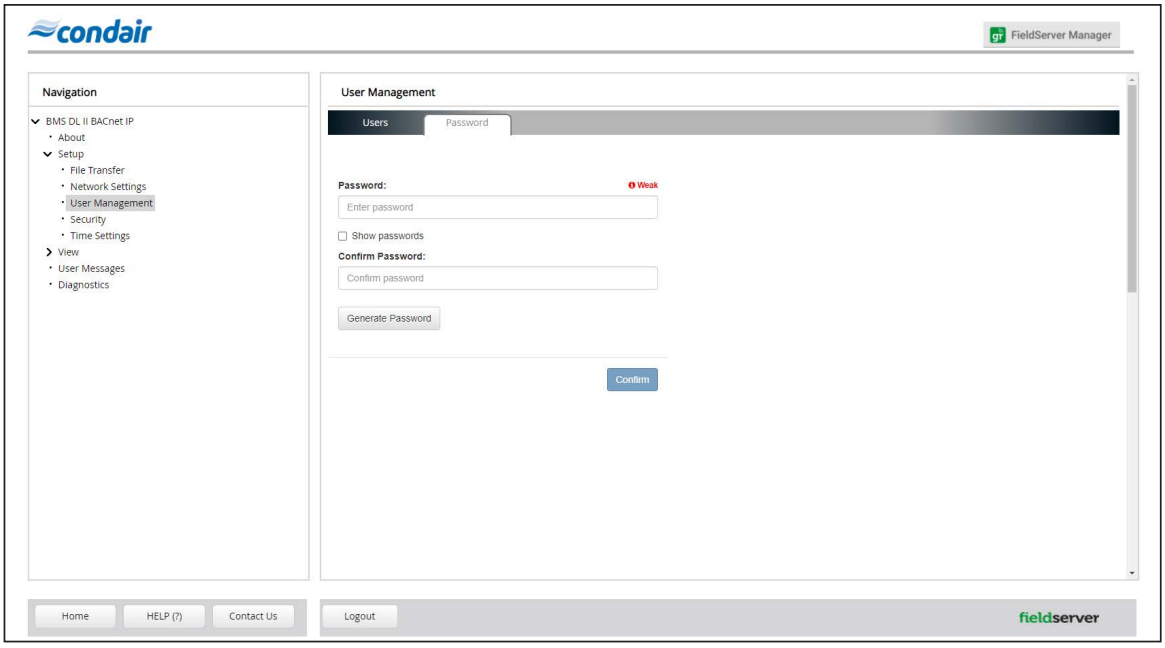
The FS-GUI will be started.



6. Select the menu point "**Setup > User Management / Password**" in the "**Navigation Tree**". Enter the new password and confirm it with the <Confirm> button.

CAUTION!

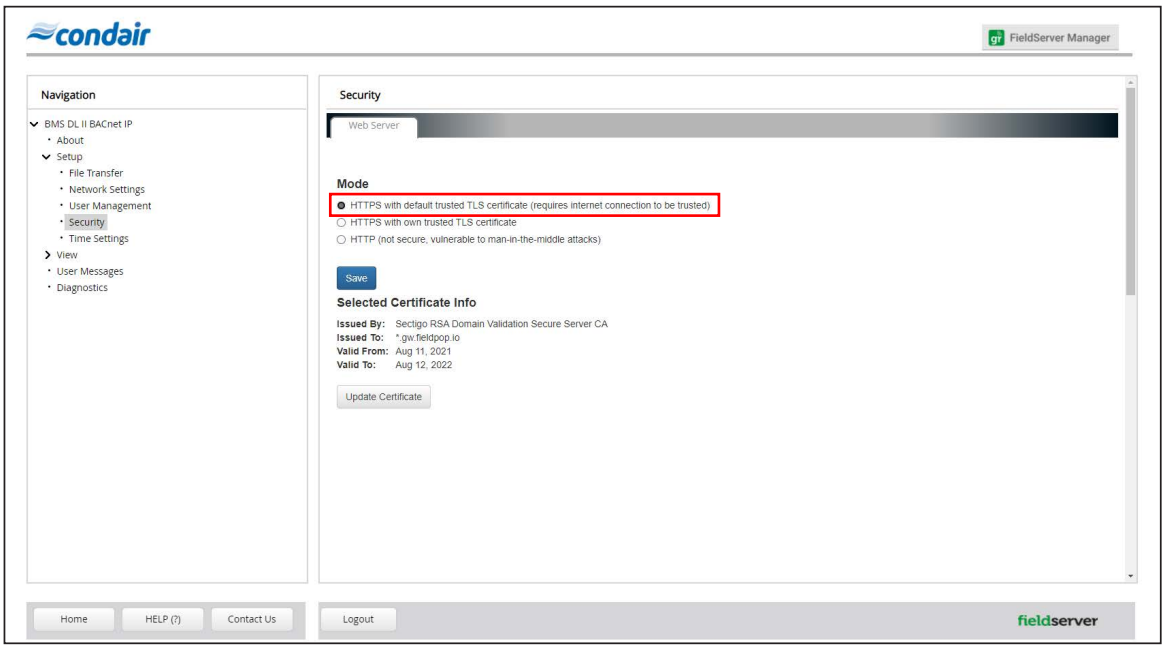
Remember the new password. The password on the sticker of the gateway board is no longer valid after the alteration.



7. Select the menu point "**Setup > Security**" in the "**Navigation Tree**" in order to select the security mode the FS-GUI should use.

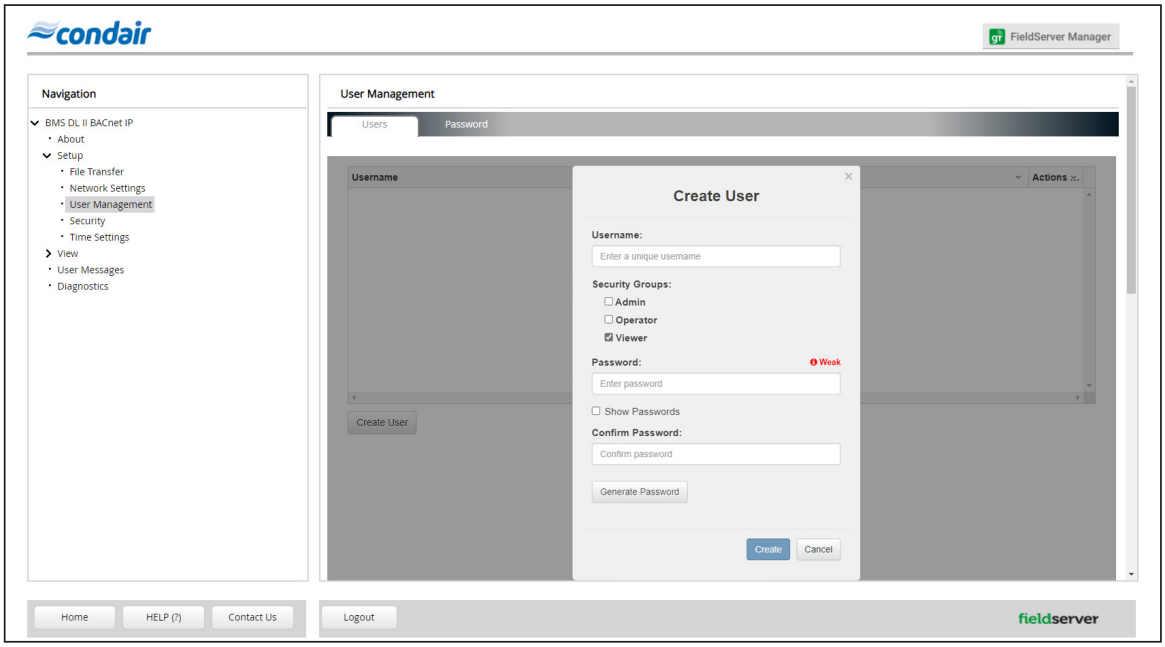
CAUTION!

The gateway board is factory configured for HTTP protocol. It is strongly recommended to change this setting to an HTTPS protocol (HTTPS = encrypted, secure connection)!



Select the desired protocol type and then press <Save>.

8. Select the menu point "**Setup > User Management**" in the "**Navigation Tree**" in order to define the users having access to the FS-GUI.

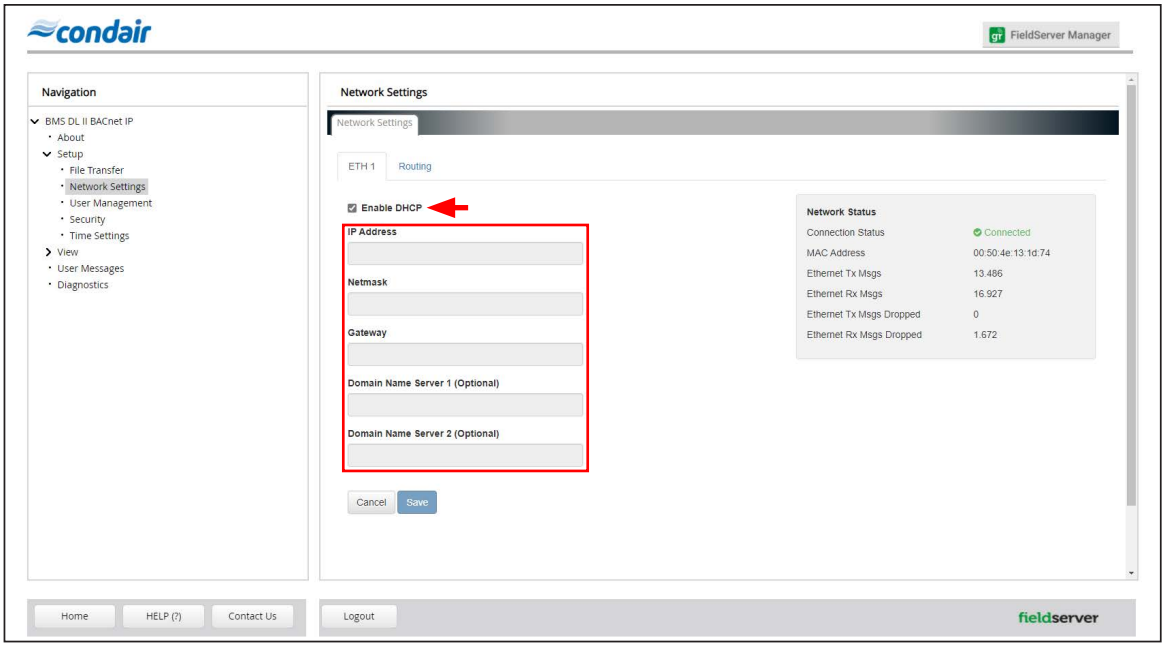


- Press the <Create User> button.
- Enter a "Username".
- Select the security group under "Security Groups":
  - Admin: Can modify and view any settings on the FS-GUI
  - Operator: Can modify and view specific data in the array(s).
  - Viewer: Can only view settings/readings on the FS-GUI
- Enter a password in the "Password" field und confirm it in the "Confirm Password" field.
- Confirm the entries with <Create>.

9. Select the menu point "**Setup > Network Settings**" in the "**Navigation Tree**". Enter the appropriate **IP Address**, **Netmask** (Subnetmask), **Gateway** (Default Gateway) **Domain Name Server 1** (optional) and **Domain Name Server 2** (optional).

   If you would like the "IP Address", "Netmask", "Gateway", "Domain Name Server 1" and "Domain Name Server 2" to be assigned via a DHCP server, activate the "Enable DHCP" [1] mode.
   [1] Depending on the date of manufacture, also called "DHCP Client State".

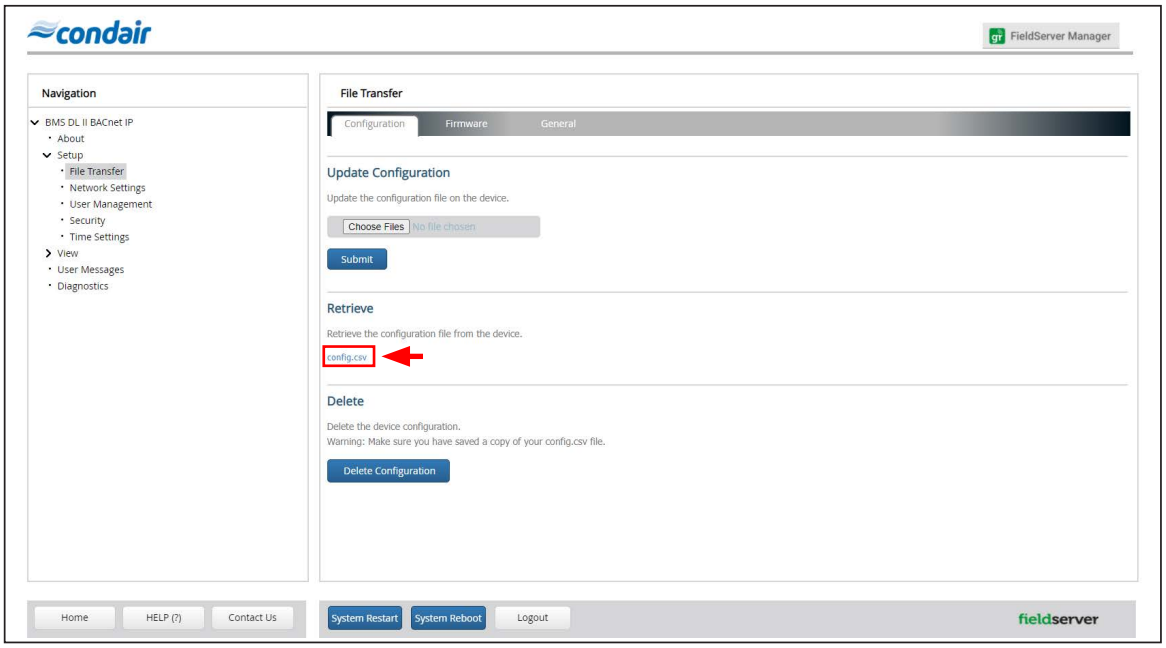
   To activate the new settings, click first on the button **<Update IP settings>** and then on the button **<System Restart>**. After restart the gateway board is configured to the new settings.



10. In order to access the gateway board, the IP address of your laptop must be set to the same network as the gateway board.

3.3.2.3 Modifying the BACnet configuration

1. Enter the (new) IP address of the gateway board in your internet browser and confirm the entry with the Enter key. The FS-GUI will be started.
2. Select the menu point "**Setup > File Transfer**" in the "**Navigation Tree**". Then, click in the "**Retrieve**" section on the link "**config.csv**" and save the configuration file to the desired location on your laptop.



BACnet IP settings:

3a. Open the configuration file "config.csv" with a text editor.

- Change in the section "**Server Side Nodes**" of the window the "Node_ID" to the appropriate value. Range: 0...4194303

```
//=============================================================================
//  Server Side Nodes
Nodes
Node_Name,Node_ID,Protocol,Node_Offline_Response,Description
Virtual_BCU_DL,300,Bacnet_IP,Force_Normal_Response,Humidifier DL
//=============================================================================
```

- Change in the section "**Bridge**" of the window the "**Network_Number**" to the appropriate value. Default Network_Number: 101, Range: 1 - 65534.

```
//=============================================================================
//  Common Information
Bridge
Title,System_Node_Id,Network_Number
BMS DL II BACnet IP,12,101
//=============================================================================
```

- Save the configuration file after all settings have been done.

BACnet MS/TP settings:

3b. Open the configuration file "config.csv" with a text editor.

- Change in the section "**Bridge**" of the window the "**System_Station_Address**" (= MAC address) to the appropriate value. Default MAC address: 127, Range: 1...127 (Master) or 1...254 (Slave).

```
Bridge
Title,System_Station_Address
BMS DL II BACnet MSTP,127
//=============================================================================
```

- Change in the section "**Server Side Nodes**" of the window the "**Node_ID**" to the appropriate value. Default Node_ID: 1001, Range: 1...16777215

```
//=============================================================================
//   Server Side Nodes
Nodes
Node_Name,Node_ID,Protocol,Description
Virtual_BCU_DL,1001,Bacnet_MSTP,Humidifier DL
//=============================================================================
```

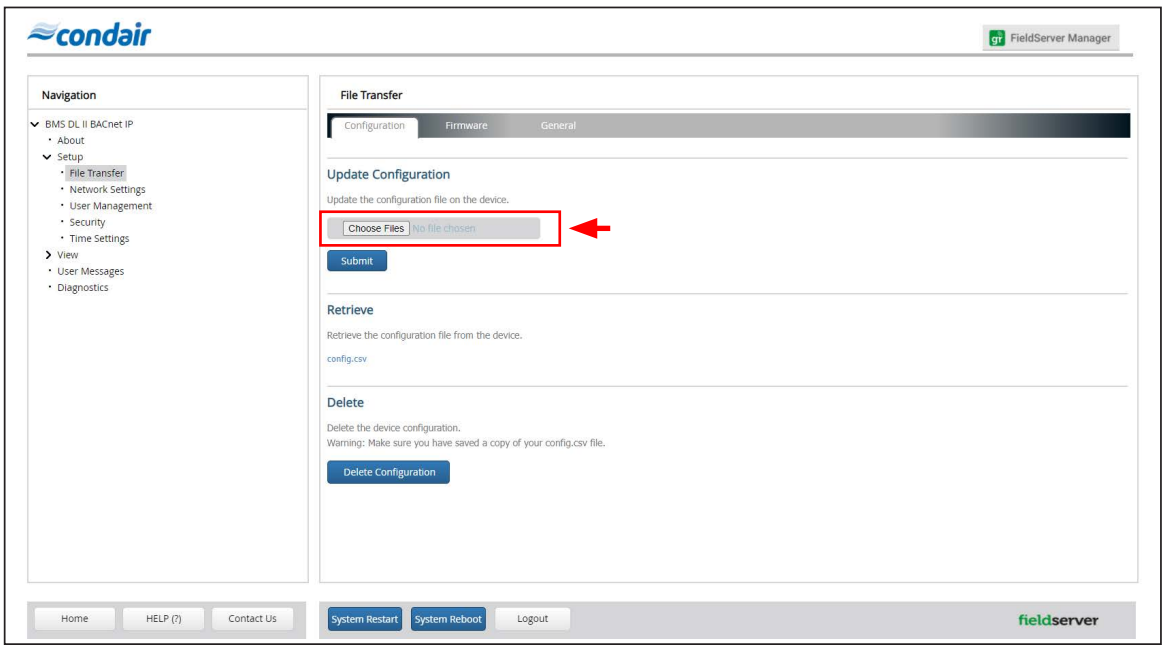
- Change a Master unit to a Slave unit: Change in the section "**Server Side Connections**" of the window the "**MSTP_Master_Mode**" to "**MSTP_Slave_Mode**". If a Master unit is changed to a Slave unit the "**System_Station_Address**" must be adjusted to a value between 1 and 254 (see first step in this section).

```
//=============================================================================
//   Server Side Connections
Connections
Port,Baud,Parity,Data_Bits,Stop_Bits,Protocol,Connection_Type
R1,9600,None,8,1,Bacnet_MSTP,MSTP_Master_Mode
//=============================================================================
```

- Save the configuration file after all settings have been done.

Upload config.csv file:

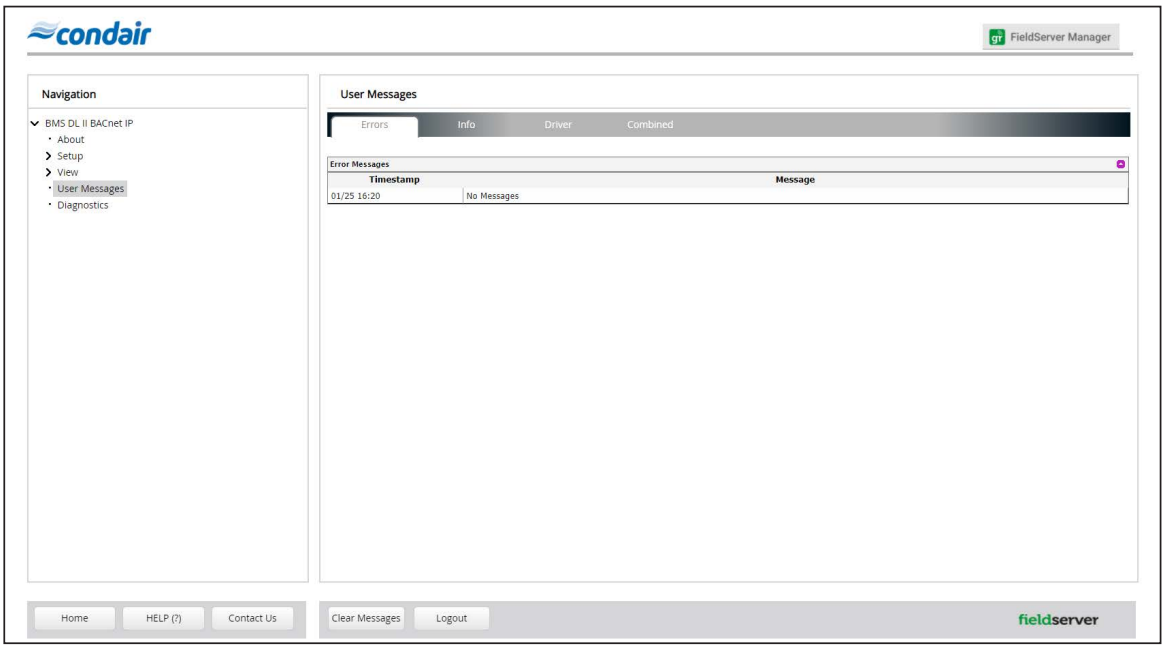
4. Select the menu point "**Setup > File Transfer**" in the "**Navigation Tree**". Click in the "**Update**" section on the button **<Choose Files>** and select the configuration file you have modified. Then, click on the button **<Submit>** in order to upload the configuration file into the gateway board.



As soon as the update is finished a corresponding message appears in the upper part of the window. Click on the button **<System Restart>** to restart the system with the new settings. After restart the Node ID or MAC address is changed to the new value.

Important: If the red LED on the gateway board lights for more than 15 seconds after the update of the configuration file, a false input was done during adjustment of the configuration file! The appropriate error message can be viewed in the "**Navigation Tree**" of FS-GUI under "**User Messages > Errors**".

Note: The message "No Messages" indicates an error-free configuration file.



4 Communication tables

The following table shows the variables and their BACnet / LonWorks equivalents.

4.1 DL - BACnet

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Virtual_BCU_DL	Humidifier DL	—	DEV	300 (see *Section 3.3.2*)	—
MI_HumStatus	Device Status	1 = Initializing / Offline 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	01	R
MI_ServStatus	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	02	R
MI_HumType	DL Type	1 = Humidifier 2 = Humidifier + FC 3 = Humidifier + FC - Off	MI	03	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AI_ErrorCode [1)]	Error or Warning Code	0 = no Error	AI	01	R
AI_OperatHours	Operating Hours	0 - 1200000 h	AI	02	R
AI_HoursToServ	Next Maintenance	0 - 10000 h	AI	03	R
AI_RHorDemand	Actual Humidity or Demand	0 - 100 %	AI	04	R
AI_MaxHumOut [2)]	Max. Humidification Capacity	2 - 1000 kg/h 4 - 2573 lb/hr	AI	05	R
AI_ActCapHum [2)]	Actual Humidification Capacity	0 - 1000 kg/h 0 - 2573 lb/hr	AI	06	R
AI_RemCapSilv	Remaining Ag-Ion Capacity	0 - 58.4 Ah	AI	07	R
AI_TaAgCurrent	Target Ag-Ion Current	0 - 29.2 mA	AI	08	R
AI_PressInlet [2)]	PS4 Inlet Pressure	0 - 10.0 bar 0 - 145.0 psi	AI	09	R
AI_PressNozzle [2)]	PS5 Nozzle Pressure	0 - 10.0 bar 0 - 145.0 psi	AI	10	R
AI_ActPermTemp [2) 5)]	Water Temperature	°C or °F	AI	11	R
AI_ActPermCond	Water Conductivity	µS/cm	AI	12	R
AI_PumpCurrent	Pump current	0 - 6.0 A	AI	13	R
AI_AgCurrent	Ag-Ion Current	mA	AI	14	R

[1)] Refer to malfunction list in the Condair DL operation manual for a description of the malfunction codes
[2)] According to the settings <Imperial> or <Metric> in the DL controller software
[5)] optional

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AV_SetPointHum	Setpoint	0 - 95 %	AV	01	R/W
AV_PropBand	P-Band	6 - 65 %	AV	02	R/W
AV_IntTime	I-Time	1 - 60 min	AV	03	R/W
AV_CapLimit	Capacity Limitation	20 - 100 %	AV	04	R/W
AV_RemoteFlush	Remote Flush	Read: 100 = Off 0 - 99 = Progress flushing in % Write: 0 = Stop flushing 1 = Start flushing	AV	05	R/W
AV_CeramicWashOver	Remote Ceramic Wash Over	Read: 100 = Off 0 - 99 = Progress ceramic wash over in % Write: 0 = Stop ceramic wash over 1 = Start ceramic wash over	AV	06	R/W
AO_RemRHorDem [3)]	Actual Humidity or Demand via BACnet	0 - 100 % Relinquish Default = 0	AO	01	R/W

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
BI_ExtSChSta	Safety Loop	0 = Open 1 = Closed (ok)	BI	01	R
BI_ValveY1	Y1 Inlet Valve	0 = Closed 1 = Open	BI	02	R
BI_ValveY2	Y2 Reserve	0 1	BI	03	R
BI_ValveY3 [5)]	Y3 Valve Air Cleaning	0 = Closed 1 = Open	BI	04	R
BI_ValveY4 [5)]	Y4 Valve External Pipe Flush	0 = Closed 1 = Open	BI	05	R
BI_StageValveY5	Y5 Spray Valve	0 = Closed 1 = Open	BI	06	R
BI_StageValveY6	Y6 Spray Valve	0 = Closed 1 = Open	BI	07	R
BI_StageValveY7	Y7 Spray Valve	0 = Closed 1 = Open	BI	08	R
BI_StageValveY8	Y8 Spray Valve	0 = Closed 1 = Open	BI	09	R
BI_StageValveY9	Y9 Spray Valve	0 = Closed 1 = Open	BI	10	R
BI_DrainValY10	Y10 Drain Valve	0 = Open 1 = Closed	BI	11	R
BI_ValveY11 [5)]	Y11 Auxiliary Outlet Valve	0 = Open 1 = Closed	BI	12	R
BI_Pump	Frequency Converter Enable	0 = Disable 1 = Enable	BI	13	R
BI_FCstatus	Frequency Converter Status	0 = Off 1 = On	BI	14	R
BI_Connection	Node Status	0 = Node Offline 1 = Node Online	BI	15	R
BV_RemEnable [4)]	Remote Enable	0 = Off 1 = On	BV	16	R/W

[4)] The object is only active if the parameters are configured according to *Section 3.3.1.4*. Software version 1.4.0 or higher and gateway configuration version 2.0a or higher required.

[5)] optional

4.2 DL - LonWorks

Variable Name	Description	Range	SNVT	#SNVT	Index
nviRequest	Requesting the status		SNVT_obj_request	92	0
nvoStatus	Current status		SNVT_obj_status	93	1
nvoHumStatus	Device Status	0 = Initializing / Offline 1 = Diagnostic 2 = Stopped 3 = Flushing 4 = Standby 5 = Humidifying 6 = Ready 7 = Air Cleaning 8 = Filling 9 = Conductivity Flush 10 = Switched Off 11 = Remote Off 12 = Temperature Flush 13 = Ceramic Wash Over	SNVT_count	8	2
nvoServStatus	Maintenance and Error Status	0 = No Info 1 = Warning 2 = Activation Code 3 = Out of Commissioning 4 = Refill Disinfection 5 = Maintenance 6 = Error 7 = Replace Ag Cartridge 8 = Disinfection	SNVT_count	8	3
nvoHumType	DL Type	0 = Humidifier 1 = Humidifier + FC 2 = Humidifier + FC - Off	SNVT_count	8	4
nvoErrorCode [1)]	Error or Warning Code	0 = no Error	SNVT_count	8	5
nvoOperatHours	Operating Hours	0 - 65535 h	SNVT_time_hour	124	6
nvoHoursToServ	Next Maintenance	0 - 10000 h	SNVT_time_hour	124	7
nvoRHorDemand	Actual Humidity or Demand	0 - 100 %	SNVT_lev_percent	81	8
nvoMaxHumOut [2)]	Max. Humidification Capacity	2 - 1000 kg/h 4 - 2573 lb/hr	SNVT_count_f	51	9
nvoActCapHum [2)]	Actual Humidification Capacity	0 - 1000 kg/h 0 - 2573 lb/hr	SNVT_count_f	51	10
nvoRemCapSilv	Remaining Ag-Ion Capacity	0 - 58.4 Ah	SNVT_count_f	51	11
nvoTaAgCurrent	Target Ag-Ion Current	0 - 29.2 mA	SNVT_amp_mil	2	12
nvoPressInlet [2)]	PS4 Inlet Pressure	0 - 10.0 bar 0 - 145.0 psi	SNVT_count_f	51	13
nvoPressNozzle [2)]	PS5 Nozzle Pressure	0 - 10.0 bar 0 - 145.0 psi	SNVT_count_f	51	14
nvoActPermTemp [2) 5)]	Water Temperature	°C or °F	SNVT_count_f	51	15

[1)] Refer to malfunction list in the Condair DL operation manual for a description of the malfunction codes
[2)] According to the settings <Imperial> or <Metric> in the DL controller software
[5)] optional

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoActPermCond	Water Conductivity	µS/cm	SNVT_count_f	51	16
nvoPumpCurrent	Pump current	0 - 6.0 A	SNVT_amp	1	17
nvoAgCurrent	Ag-Ion Current	mA	SNVT_amp_mil	2	18
nvoSetPointHum nviSetPointHum	Setpoint	0 - 95 %	SNVT_lev_percent	81	19 20
nvoPropBand nviPropBand	P-Band	6 - 65 %	SNVT_lev_percent	81	21 22
nvoIntTime nviIntTime	I-Time	1 - 60 min	SNVT_time_min	123	23 24
nvoCapLimit nviCapLimit	Capacity Limitation	20 - 100 %	SNVT_lev_percent	81	25 26
nvoRemoteFlush nviRemoteFlush	Remote Flush	Read: 100 = Off 0 - 99 = Progress flushing in % Write: 0 = Stop flushing 1 = Start flushing	SNVT_count	8	27 28
nvoCerWashOver nviCerWashOver	Remote Ceramic Wash Over	Read: 100 = Off 0 - 99 = Progress ceramic wash over in % Write: 0 = Stop ceramic wash over 1 = Start ceramic wash over	SNVT_count	8	29 30
nvoRemRHorDem nviRemRHorDem [3)]	Actual Humidity or Demand via LonWorks	0 - 100 %	SNVT_lev_percent	81	31 32

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoExtSChSta	Safety Loop	0 = Open 1 = Closed (ok)	SNVT_switch	95	33
nvoValveY1	Y1 Inlet Valve	0 = Closed 1 = Open	SNVT_switch	95	34
nvoValveY2	Y2 Reserve	0 1	SNVT_switch	95	35
nvoValveY3 [5)]	Y3 Valve Air Cleaning	0 = Closed 1 = Open	SNVT_switch	95	36
nvoValveY4 [5)]	Y4 Valve External Pipe Flush	0 = Closed 1 = Open	SNVT_switch	95	37
nvoStageY5	Y5 Spray Valve	0 = Closed 1 = Open	SNVT_switch	95	38
nvoStageY6	Y6 Spray Valve	0 = Closed 1 = Open	SNVT_switch	95	39
nvoStageY7	Y7 Spray Valve	0 = Closed 1 = Open	SNVT_switch	95	40
nvoStageY8	Y8 Spray Valve	0 = Closed 1 = Open	SNVT_switch	95	41
nvoStageY9	Y9 Spray Valve	0 = Closed 1 = Open	SNVT_switch	95	42
nvoDrainValY10	Y10 Drain Valve	0 = Open 1 = Closed	SNVT_switch	95	43
nvoValveY11 [5)]	Y11 Auxiliary Outlet Valve	0 = Open 1 = Closed	SNVT_switch	95	44
nvoPump	Frequency Converter Enable	0 = Disable 1 = Enable	SNVT_switch	95	45
nvoFCstatus	Frequency Converter Status	0 = Off 1 = On	SNVT_switch	95	46
nvoConnection	Node Status	0 = Node Offline 1 = Node Online	SNVT_switch	95	47
nvoRemEnable nviRemEnable [4)]	Remote Enable	0 = Disable 1 = Enable	SNVT_switch	95	48 49

[4)] The object is only active if the parameters are configured according to *Section 3.3.1.4*. Software version 1.4.0 or higher and gateway configuration version 2.0a or higher required.

[5)] optional

4.3 ME - BACnet

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Virtual_BCU_ME	Humidifier ME	—	DEV	410 (see *Section 3.3.2*)	—
MI_HumStatus	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	01	R
MI_ServStatus	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	02	R
AI_ErrorCode [1)]	Code of the latest pending error or warning	0 = no Error	AI	01	R
AI_OperatHours	Total hours of operation since commissioning	0 - 1200000 h	AI	02	R
AI_NextSySvc	Due date of next maintenance in operating hours	0 - 10000 h	AI	03	R
AI_NextUVSvc [5)]	Due date of next UV Lamp exchange in days	0 - 450 d	AI	04	R
AI_NextAgSvc [5)]	Due date of next PureFlo exchange in days	0 - 365 d	AI	05	R
AI_RHorDemand	Actual humidity or demand	0 - 100 %	AI	06	R

[1)] See Error code description in the malfunction list in the ME operation manual.
[5)] optional

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AI_Temp [2)]	Actual air temperature	°C or °F	AI	07	R
AI_UVCurrA [5)]	Actual UV current	0 - 4.0 A	AI	08	R
AI_Stage1Cap [2)]	Water capacity stage 1	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	09	R
AI_Stage2Cap [2)]	Water capacity stage 2	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	10	R
AI_Stage3Cap [2)]	Water capacity stage 3	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	11	R
AI_Stage4Cap [2)]	Water capacity stage 4	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	12	R
AI_Stage5Cap [2)]	Water capacity stage 5	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	13	R
AI_Stage6Cap [2)]	Water capacity stage 6	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	14	R
AI_Stage7Cap [2)]	Water capacity stage 7	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	AI	15	R
AI_SpeedPump1	Actual speed pump 1	0 - 100 %	AI	16	R
AI_SpeedPump2	Actual speed pump 2	0 - 100 %	AI	17	R
AI_SpeedPump3	Actual speed pump 3	0 - 100 %	AI	18	R
AI_SpeedPump4	Actual speed pump 4	0 - 100 %	AI	19	R
AI_SpeedPump5	Actual speed pump 5	0 - 100 %	AI	20	R
AI_SpeedPump6	Actual speed pump 6	0 - 100 %	AI	21	R
AI_SpeedPump7	Actual speed pump 7	0 - 100 %	AI	22	R
AI_ConductLp [5)]	Water conductivity tank	µS/cm	AI	23	R
AI_WtrTmp [2) 5)]	Actual water temperature	°C or °F	AI	24	R
AI_AirTmp [2) 5)]	Incoming air temperature	°C or °F	AI	25	R
AI_NumStgAct	Number of running stages	0 - 7 stages	AI	26	R
AI_Level	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	27	R

[2)] According to the settings <Imperial> or <Metric> in the ME controller software
[5)] optional

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AV_SetPointHum	Setpoint humidity control	0 - 95 %	AV	01	R/W
AV_PropBandH	Proportional band humidity control	6 - 65 %	AV	02	R/W
AV_IntTimeH	Integral time humidity control	1 - 60 min	AV	03	R/W
AV_SetPointTmp [2)]	Setpoint temperature control	0 - 40 °C 32 - 104 °F	AV	04	R/W
AV_PropBandT [2)]	Proportional band temperature control	1 - 50 °C 1.8 - 89.9 °F	AV	05	R/W
AV_IntTimeT	Integral time temperature control	1 - 60 min	AV	06	R/W
AV_HumDrainCmd	Remote Draining	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining	AV	07	R/W
AV_MatrixWashCmd	Remote Matrix Wash Over	Read: 100 = Off 0 - 99 = Progress matrix wash over in % Write: 0 = Stop matrix wash over 1 = Start matrix wash over	AV	08	R/W
AV_Reset	Remote Error/Warning Reset	0 = Off 1 = On	AV	09	R/W
AO_RemRHorDem [3)]	Actual humidity or demand via BACnet	0 - 100% Relinquish Default = 0	AO	01	R/W
AO_RemTemp [2) 6)]	Actual temperature via BACnet	-25 - 100 °C -12.9 - 211.9 °F Relinquish Default = 20	AO	02	R/W

[2)] According to the settings <Imperial> or <Metric> in the ME controller software.

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

[6)] The object is only active if the parameters are configured according to *Section 3.3.1.1* and the Condair ME is operated in system mode "Cooling".

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
BI_ExtSChLSta	Safety loop	0 = Open 1 = Closed (ok)	BI	01	R
BI_DosLvl [5)]	WET tank level	0 = Empty 1 = Ok	BI	02	R
BI_Leak [5)]	Leakage sensor	0 = Leakage 1 = Ok	BI	03	R
BI_DrainValLp	Drain valve	0 = Open 1 = Closed	BI	04	R
BI_FillValLp	Inlet valve	0 = Closed 1 = Open	BI	05	R
BI_DrainPump	Drain pump	0 = Off 1 = On	BI	06	R
BI_Pump1Err	Fault pump 1	0 = Fault 1 = Ok	BI	07	R
BI_Pump2Err	Fault pump 2	0 = Fault 1 = Ok	BI	08	R
BI_Pump3Err	Fault pump 3	0 = Fault 1 = Ok	BI	09	R
BI_Pump4Err	Fault pump 4	0 = Fault 1 = Ok	BI	10	R
BI_Pump5Err	Fault pump 5	0 = Fault 1 = Ok	BI	11	R
BI_Pump6Err	Fault pump 6	0 = Fault 1 = Ok	BI	12	R
BI_Pump7Err	Fault pump 7	0 = Fault 1 = Ok	BI	13	R
BI_InletErr	Fault water inlet	0 = Fault 1 = Ok	BI	14	R
BI_TempErr [5)]	Fault water temperature	0 = Fault 1 = Ok	BI	15	R
BI_OutletErr	Fault water outlet	0 = Fault 1 = Ok	BI	16	R
BI_LevSenErr	Fault level sensor	0 = Fault 1 = Ok	BI	17	R
BI_CondErr [5)]	Fault water conductivity	0 = Fault 1 = Ok	BI	18	R
BI_IoMeDiLevelDis [5)]	Disinfection tank level	0 = Empty 1 = Ok	BI	19	R
BI_Connection	Node status	0 = Node offline 1 = Node online	BI	20	R

[5)] optional

4.4 ME- LonWorks

Variable Name	Description	Range	SNVT	#SNVT	Index
nviRequest	Requesting the status		SNVT_obj_request	92	0
nvoStatus	Current status		SNVT_obj_status	93	1
nvoHumStatus	Actual device status	0 = Initializing 1 = Diagnostic 2 = Stopped 3 = Humidifying 4 = Cooling 5 = Holding 6 = Draining 7 = Refreshing 8 = Filling 9 = Standby 10 = Diluting 11 = Assisted Draining 12 = Bleeding 13 = Softstart 14 = Switched Off 15 = Remote Off 16 = Purging 17 = Drain Check	SNVT_count	8	2
nvoServStatus	Maintenance and error status	0 = No Info 1 = Warning 2 = Maintenance 3 = WET Tank empty 4 = Replace PureFlo Cartridge 5 = Replace UV Lamp 6 = Matrix Wash Over 7 = Out of Commissioning 8 = Activation Code 9 = Error 10 = Disinfection Tank empty	SNVT_count	8	3
nvoErrorCode [1)]	Error or Warning Code	0 = no Error	SNVT_count	8	4
nvoOperatHours	Operating hours	0 - 1200000 h	SNVT_time_hour	124	5
nvoNextSySvc	Next Maintenance	0 - 10000 h	SNVT_time_hour	124	6
nvoNextUVSvc [5)]	Next UV Lamp Exchange	0 - 450 d	SNVT_count	8	7
nvoNextAgSvc [5)]	Next PureFlo Exchange	0 - 365 d	SNVT_count	8	8
nvoRHorDemand	Actual humidity or demand	0 - 100 %	SNVT_lev_percent	81	9

[1)] See Error code description in the malfunction list in the ME operation manual.
[5)] optional

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoTemp [2]	Actual air temperature [1]	°C or °F	SNVT_count_f	51	10
nvoUVCurrA [5]	Actual UV current	0 - 4.0 A	SNVT_amp	1	11
nvoStage1Cap [2]	Water capacity stage 1	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	12
nvoStage2Cap [2]	Water capacity stage 2	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	13
nvoStage3Cap [2]	Water capacity stage 3	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	14
nvoStage4Cap [2]	Water capacity stage 4	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	15
nvoStage5Cap [2]	Water capacity stage 5	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	16
nvoStage6Cap [2]	Water capacity stage 6	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	17
nvoStage7Cap [2]	Water capacity stage 7	1.0 - 360.0 kg/h 2.2 - 793.7 lb/hr	SNVT_count_f	51	18
nvoSpeedPump1	Actual speed pump 1	0 - 100 %	SNVT_count	8	19
nvoSpeedPump2	Actual speed pump 2	0 - 100 %	SNVT_count	8	20
nvoSpeedPump3	Actual speed pump 3	0 - 100 %	SNVT_count	8	21
nvoSpeedPump4	Actual speed pump 4	0 - 100 %	SNVT_count	8	22
nvoSpeedPump5	Actual speed pump 5	0 - 100 %	SNVT_count	8	23
nvoSpeedPump6	Actual speed pump 6	0 - 100 %	SNVT_count	8	24
nvoSpeedPump7	Actual speed pump 7	0 - 100 %	SNVT_count	8	25
nvoConductLp [5]	Water conductivity tank	µS/cm	SNVT_count	8	26
nvoWtrTmp [2] [5]	Actual water temperature	°C or °F	SNVT_count_f	51	27
nvoAirTmp [2] [5]	Incoming air temperature	°C or °F	SNVT_count_f	51	28
nvoNumStgAct	Number of running stages	0 - 7 stages	SNVT_count	8	29
nvoLevel	Water level in tank	0 - 7	SNVT_count	8	30

[2] According to the settings <Imperial> or <Metric> in the ME controller software.
[5] optional

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoSetPointHum nviSetPointHum	Setpoint humidity control	0 - 95 %	SNVT_lev_percent	81	31 32
nvoPropBandH nviPropBandH	P-Band humidity control	6 - 65 %	SNVT_lev_percent	81	33 34
nvoIntTimeH nviIntTimeH	I-Time humidity control	1 - 60 min	SNVT_time_min	123	35 36
nvoSetPointTmp nviSetPointTmp [2)]	Setpoint temperature control	0 - 40 °C 32 - 104 °F	SNVT_count_f	51	37 38
nvoPropBandT nviPropBandT [2)]	P-Band temperature control	1 - 50 °C 1.8 - 89.9 °F	SNVT_count_f	51	39 40
nvoIntTimeT nviIntTimeT	I-Time temperature control	1 - 60 min	SNVT_time_min	123	41 42
nvoHumDrainCmd nviHumDrainCmd	Remote draining	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining	SNVT_count	8	43 44
nvoRemRHorDem nviRemRHorDem [3)]	Actual humidity or demand via LON	0 - 100 %	SNVT_lev_percent	81	45 46
nvoRemTemp nviRemTemp [2) 6)]	Actual temperature via LON	0 - 100 °C 0 - 212 °F	SNVT_count_f	51	47 48
nvoMatrixWash nviMatrixWash	Remote matrix wash over	Read: 100 = Off 0 - 99 = Progress matrix wash over in % Write: 0 = Stop matrix wash over 1 = Start matrix wash over	SNVT_count	8	49 50
nvoReset nviReset	Remote Error/Warning Reset	0 = Off 1 = On	SNVT_count	8	51 52

[2)] According to the settings <Imperial> or <Metric> in the ME controller software.

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

[6)] The object is only active if the parameters are configured according to *Section 3.3.1.1* and the Condair ME is operated in system mode "Cooling".

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoExtSChLSta	Safety loop	0 = Open 1 = Closed (ok)	SNVT_switch	95	53
nvoDosLvl [5)]	WET tank level	0 = Empty 1 = Ok	SNVT_switch	95	54
nvoLeak [5)]	Leakage sensor	0 = Leakage 1 = Ok	SNVT_switch	95	55
nvoDrainValLp	Drain valve	0 = Open 1 = Closed	SNVT_switch	95	56
nvoFillValLp	Inlet valve	0 = Closed 1 = Open	SNVT_switch	95	57
nvoDrainPump	Drain pump	0 = Off 1 = On	SNVT_switch	95	58
nvoPump1Err	Fault pump 1	0 = Fault 1 = Ok	SNVT_switch	95	59
nvoPump2Err	Fault pump 2	0 = Fault 1 = Ok	SNVT_switch	95	60
nvoPump3Err	Fault pump 3	0 = Fault 1 = Ok	SNVT_switch	95	61
nvoPump4Err	Fault pump 4	0 = Fault 1 = Ok	SNVT_switch	95	62
nvoPump5Err	Fault pump 5	0 = Fault 1 = Ok	SNVT_switch	95	63
nvoPump6Err	Fault pump 6	0 = Fault 1 = Ok	SNVT_switch	95	64
nvoPump7Err	Fault pump 7	0 = Fault 1 = Ok	SNVT_switch	95	65
nvoInletErr	Fault water inlet	0 = Fault 1 = Ok	SNVT_switch	95	66
nvoTempErr [5)]	Fault water temperature	0 = Fault 1 = Ok	SNVT_switch	95	67
nvoOutletErr	Fault water outlet	0 = Fault 1 = Ok	SNVT_switch	95	68
nvoLevSenErr	Fault level sensor	0 = Fault 1 = Ok	SNVT_switch	95	69
nvoCondErr [5)]	Fault water conductivity	0 = Fault 1 = Ok	SNVT_switch	95	70
nvoIoMeDiLevelDis [5)]	Disinfection tank level	0 = Empty 1 = Ok	SNVT_switch	95	71
nvoConnection	Node status	0 = Node offline 1 = Node online	SNVT_switch	95	72

[5)] optional

4.5 RS - BACnet

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Virtual_BCU_RS	Humidifier RS	—	DEV	720 (see *Section 3.3.2*)	—
MI_UnitStatusA	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	01	R
MI_UnitStatusB	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	02	R
MI_ServStatusA	Maintenance and error status	1 = Service Info 2 = Warning 3 = RO Service 4 = Extended Maintenance 5 = Small Maintenance 6 = Activation Code 7 = Error	MI	03	R
MI_NomVoltage	Nominal Voltage	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	04	R
MI_LevelA	Water level cylinder A	1 = no level 2 = low 3 = low-mid 4 = mid 5 = mid-high 6 = high	MI	05	R
MI_LevelB	Water level cylinder B	1 = no level 2 = low 3 = low-mid 4 = mid 5 = mid-high 6 = high	MI	06	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AI_ErrorCode [1)]	Error Warning Code	0 = No Error	AI	01	R
AI_OperatHours	Operating Hours	0 - 1'200'000 h	AI	02	R
AI_HoursCylA	Operating Hours Cyl. A	0 - 6000 h	AI	03	R
AI_HoursCylB	Operating Hours Cyl. B	0 - 6000 h	AI	04	R
AI_SystemDemand	System Demand	0 - 100 %	AI	05	R
AI_InputA1	Actual humidity or demand signal CH1	0 - 100 %	AI	06	R
AI_InputA2	Actual humidity or demand signal CH2	0 - 100 %	AI	07	R
AI_MaxHumOut [2)]	Max Hum. Capacity	5 - 160 kg/h 10 - 360 lb/hr	AI	08	R
AI_CylMaxCapA [2)]	Max Hum. Capacity Cyl. A	5 - 40 kg/h 10 - 90 lb/hr	AI	09	R
AI_CylMaxCapB [2)]	Max Hum. Capacity Cyl. B	5 - 40 kg/h 10 - 90 lb/hr	AI	10	R
AI_ActCapHum [2)]	Actual Hum. Capacity	5 - 160 kg/h 10 - 360 lb/hr	AI	11	R
AI_CylActCapA [2)]	Actual Hum. Capacity Cyl. A	5 - 40 kg/h 10 - 90 lb/hr	AI	12	R
AI_CylActCapB [2)]	Actual Hum. Capacity Cyl. B	5 - 40 kg/h 10 - 90 lb/hr	AI	13	R
AI_SmallMaintenance	Next Maintenance Small Cyl. A	0 - 6000 h	AI	14	R
AI_SmallMaintenance	Next Maintenance Small Cyl. B	0 - 6000 h	AI	15	R
AI_ExtendeMainte-nance	Next Maintenance Ex-tended Cyl. A	0 - 6000 h	AI	16	R
AI_ExtendeMainte-nance	Next Maintenance Ex-tended Cyl. B	0 - 6000 h	AI	17	R

[1)] Refer to malfunction list in the Condair RS operation manual for a description of the malfunction codes
[2)] According to the settings <Imperial> or <Metric> in the RS controller software

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AV_SetPointA1	Setpoint CH1	0 - 95 %	AV	01	R/W
AV_SetPointA2	Setpoint CH2	10 - 95 %	AV	02	R/W
AV_PropBandA1	P-Band CH1	6 - 65 %	AV	03	R/W
AV_PropBandA2	P-Band CH2	6 - 65 %	AV	04	R/W
AV_IntTimeA1	I-Time CH1	1 - 60 min	AV	05	R/W
AV_DampTimeA2	I-Time CH2	0 - 60 s	AV	06	R/W
AV_CapLimitA	Capacity Limitation	20 - 100 %	AV	07	R/W
AV_RemoteDrain	Remote RS Drain	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder A + B	AV	08	R/W
AV_RemoteDrainA	Remote RS Drain Cyl. A	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder A	AV	09	R/W
AV_RemoteDrainB	Remote RS Drain Cyl. B	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder B	AV	10	R/W
AO_RemRHorDe-mA1 [3)]	Actual humidity or Demand CH1 via Bacnet	0 - 100% Relinquish Default = 0	AO	01	R/W
AO_RemRHorDe-mA2 [7)]	Actual humidity or Demand CH2 via Bacnet	0 - 100% Relinquish Default = 0	AO	02	R/W

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

[7)] The object is only active if the parameters are configured according to *Section 3.3.1.1* and the dual signal control (supply air limitation) is activated.

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
BI_BlowerPackA	Blower Pack Cyl. A	0 = Off 1 = On (ready)	BI	01	R
BI_BlowerPackB	Blower Pack Cyl. B	0 = Off 1 = On (ready)	BI	02	R
BI_ExtSChStaA	External Safety Loop Cyl. A	0 = Open 1 = Closed (=ok)	BI	03	R
BI_ExtSChStaB	External Safety Loop Cyl. B	0 = Open 1 = Closed (=ok)	BI	04	R
BI_IntSChStaA	Overheat Switch Cyl. A	0 = Open 1 = Closed (=ok)	BI	05	R
BI_IntSChStaB	Overheat Switch Cyl. B	0 = Open 1 = Closed (=ok)	BI	06	R
BI_HeatVoltageA	Heating Voltage Cyl. A	0 = Off 1 = On	BI	07	R
BI_HeatVoltageB	Heating Voltage Cyl. B	0 = Off 1 = On	BI	08	R
BI_LevelSafetyA	Security Floater Cyl. A	0 = Open 1 = Closed (=ok)	BI	09	R
BI_LevelSafetyB	Security Floater Cyl. B	0 = Open 1 = Closed (=ok)	BI	10	R
BI_LeakA [5)]	Leakage Sensor	0 = Leak 1 = OK	BI	11	R
BI_MainContactA	Main Contactor Cyl. A	0 = Off 1 = On	BI	12	R
BI_MainContactB	Main Contactor Cyl. B	0 = Off 1 = On	BI	13	R
BI_PumpA	Relay Pump Cyl. A	0 = Off 1 = On	BI	14	R
BI_PumpB	Relay Pump Cyl. B	0 = Off 1 = On	BI	15	R
BI_InletA1	Inlet Valve 1 Cyl. A	0 = Closed 1 = Open	BI	16	R
BI_InletB1	Inlet Valve 1 Cyl. B	0 = Closed 1 = Open	BI	17	R
BI_InletA2	Inlet Valve 2 Cyl. A	0 = Closed 1 = Open	BI	18	R
BI_InletB2	Inlet Valve 2 Cyl. B	0 = Closed 1 = Open	BI	19	R
BI_DrainA1	Drain Cooling Valve Cyl. A	0 = Closed 1 = Open	BI	20	R
BI_DrainB1	Drain Cooling Valve Cyl. B	0 = Closed 1 = Open	BI	21	R
BI_DrainA2 [5)]	Complete Drain Valve Cyl. A	0 = Closed 1 = Open	BI	22	R
BI_DrainB2 [5)]	Complete Drain Valve Cyl. B	0 = Closed 1 = Open	BI	23	R
BI_FlushValveA [5)]	Condair CE: Ext. Pipe Flush Condair UL: Furnace Fan	0 = Off 1 = On	BI	24	R
BI_Connection	Node Status	0 = Node offline 1 = Node online	BI	25	R

[5)] optional

4.6 RS - LonWorks

Variable Name	Description	Range	SNVT	#SNVT	Index
nviRequest	Requesting the status		SNVT_obj_request	92	0
nvoStatus	Current status		SNVT_obj_status	93	1
nvoUnitStatusA	Actual device status cylinder A	0 = Initializing 1 = Diagnostic 2 = Stopped 3 = Break 4 = Level Test 5 = Standby 6 = Humidifying 7 = Filling 8 = Idle 9 = Draining 10 = Remote Off 11 = Keep Warm	SNVT_count	8	2
nvoUnitStatusB	Actual device status cylinder B	0 = Initializing 1 = Diagnostic 2 = Stopped 3 = Break 4 = Level Test 5 = Standby 6 = Humidifying 7 = Filling 8 = Idle 9 = Draining 10 = Remote Off 11 = Keep Warm	SNVT_count	8	3
nvoServStatusA	Maintenance and error status	0 = Service Info 1 = Warning 2 = RO Service 3 = Extended Maintenance 4 = Small Maintenance 5 = Activation Code 6 = Error	SNVT_count	8	4
nvoNomVoltage	Nominal Voltage	0 = 200 V 1 = 208 V 2 = 230 V 3 = 240 V 4 = 380V 5 = 400 V 6 = 415 V 7 = 440 V 8 = 460 V 9 = 480 V 10 = 500 V 11 = 550 V 12 = 600 V	SNVT_volt	44	5
nvoLevelA	Water level cylinder A	0 = no level 1 = low 2 = low-mid 3 = mid 4 = mid-high 5 = high	SNVT_count	8	6
nvoLevelB	Water level cylinder B	0 = no level 1 = low 2 = low-mid 3 = mid 4 = mid-high 5 = high	SNVT_count	8	7

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoErrorCode [1]	Error Warning Code	0 = No Error	SNVT_count	8	8
nvoOperatHours	Operating Hours	0 - 1'200'000 h	SNVT_time_hour	124	9
nvoOpHoursCylA	Operating Hours Cyl. A	0 - 6000 h	SNVT_time_hour	124	10
nvoOpHoursCylB	Operating Hours Cyl. B	0 - 6000 h	SNVT_time_hour	124	11
nvoSystemDemandA	System Demand	0 - 100 %	SNVT_lev_percent	81	12
nvoInputA1	Actual humidity or demand signal CH1	0 - 100 %	SNVT_lev_percent	81	13
nvoInputA2	Actual humidity or demand signal CH2	0 - 100 %	SNVT_lev_percent	81	14
nvoMaxHumOut [2]	Max Hum. Capacity	5 - 160 kg/h 10 - 360 lb/hr	SNVT_count_f	51	15
nvoCylMaxCapA [2]	Max Hum. Capacity Cyl. A	5 - 40 kg/h 10 - 90 lb/hr	SNVT_count_f	51	16
nvoCylMaxCapB [2]	Max Hum. Capacity Cyl. B	5 - 40 kg/h 10 - 90 lb/hr	SNVT_count_f	51	17
nvoActCapHum [2]	Actual Hum. Capacity	5 - 160 kg/h 10 - 360 lb/hr	SNVT_count_f	51	18
nvoCylActCapA [2]	Actual Hum. Capacity Cyl. A	5 - 40 kg/h 10 - 90 lb/hr	SNVT_count_f	51	19
nvoCylActCapB [2]	Actual Hum. Capacity Cyl. B	5 - 40 kg/h 10 - 90 lb/hr	SNVT_count_f	51	20
nvoHoursServSmaA	Next Small Maintenance Cyl. A	0 - 6000 h	SNVT_time_hour	124	21
nvoHoursServSmaB	Next Small Maintenance Cyl. B	0 - 6000 h	SNVT_time_hour	124	22
nvoHoursServExtA	Next Extended Maintenance Cyl. A	0 - 6000 h	SNVT_time_hour	124	23
nvoHoursServExtB	Next Extended Maintenance Cyl. B	0 - 6000 h	SNVT_time_hour	124	24

[1] Refer to malfunction list in the Condair RS operation manual for a description of the malfunction codes
[2] According to the settings <Imperial> or <Metric> in the RS controller software

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoSetPointA1 nviSetPointA1	Setpoint CH1	0 - 95 %	SNVT_lev_percent	81	25 26
nvoSetPointA2 nviSetPointA2	Setpoint CH2	10 - 95 %	SNVT_lev_percent	81	27 28
nvoPropBandA1 nviPropBandA1	P-Band CH1	6 - 65 %	SNVT_lev_percent	81	29 30
nvoPropBandA2 nviPropBandA2	P-Band CH2	6 - 65 %	SNVT_lev_percent	81	31 32
nvoIntTimeA1 nviIntTimeA1	I-Time CH1	1 - 60 min	SNVT_time_min	123	33 34
nvoDampTimeA2 nviDampTimeA2	I-Time CH2	0 - 60 s	SNVT_time_sec	107	35 36
nvoCapLimitA nviCapLimitA	Capacity Limitation	20 - 100 %	SNVT_lev_percent	81	37 38
nvoRemoteDrain nviRemoteDrain	Remote RS Drain	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder A + B	SNVT_count	8	43 44
nvoRemDrainCylA nviRemDrainCylA	Remote RS Drain Cyl. A	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder A	SNVT_count	8	45 46
nvoRemDrainCylB nviRemDrainCylB	Remote RS Drain Cyl. B	Read: 100 = Off 0 - 99 = Progress draining in % Write: 0 = Stop draining 1 = Start draining cylinder B	SNVT_count	8	47 48
nvoRemRHorDemA1 nviRemRHorDemA1 [3)]	RH or Demand CH1 via Lonworks	0 - 100 % Relinquish Default=0	SNVT_lev_percent	81	39 40
nvoRemRHorDemA2 nviRemRHorDemA2 [7)]	RH or Demand CH2 via Lonworks	0 - 100 % Relinquish Default=0	SNVT_lev_percent	81	41 42

[3)] The object is only active if the parameters are configured according to *Section 3.3.1.1*.

[7)] The object is only active if the parameters are configured according to *Section 3.3.1.1* and the dual signal control (supply air limitation) is activated.

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoBlowerPackA	Blower Pack Cyl. A	0 = Off 1 = On (ready)	SNVT_switch	95	49
nvoBlowerPackB	Blower Pack Cyl. B	0 = Off 1 = On (ready)	SNVT_switch	95	50
nvoExtSChStaA	External Safety Loop Cyl. A	0 = Open 1 = Closed (=ok)	SNVT_switch	95	51
nvoExtSChStaB	External Safety Loop Cyl. B	0 = Open 1 = Closed (=ok)	SNVT_switch	95	52
nvoIntSChStaA	Overheat Switch Cyl. A	0 = Open 1 = Closed (=ok)	SNVT_switch	95	53
nvoIntSChStaB	Overheat Switch Cyl. B	0 = Open 1 = Closed (=ok)	SNVT_switch	95	54
nvoHeatVoltageA	Heating Voltage Cyl. A	0 = Off 1 = On	SNVT_switch	95	55
nvoHeatVoltageB	Heating Voltage Cyl. B	0 = Off 1 = On	SNVT_switch	95	56
nvoLevelSafetyA	Security Floater Cyl. A	0 = Open 1 = Closed (=ok)	SNVT_switch	95	57
nvoLevelSafetyB	Security Floater Cyl. B	0 = Open 1 = Closed (=ok)	SNVT_switch	95	58
nvoLeakA [5)]	Leakage Sensor	0 = Leak 1 = OK	SNVT_switch	95	59
nvoMainContactA	Main Contactor Cyl. A	0 = Off 1 = On	SNVT_switch	95	60
nvoMainContactB	Main Contactor Cyl. B	0 = Off 1 = On	SNVT_switch	95	61
nvoPumpA	Relay Pump Cyl. A	0 = Off 1 = On	SNVT_switch	95	62
nvoPumpB	Relay Pump Cyl. B	0 = Off 1 = On	SNVT_switch	95	63
nvoInletA1	Inlet Valve 1 Cyl. A	0 = Closed 1 = Open	SNVT_switch	95	64
nvoInletB1	Inlet Valve 1 Cyl. B	0 = Closed 1 = Open	SNVT_switch	95	65
nvoInletA2	Inlet Valve 2 Cyl. A	0 = Closed 1 = Open	SNVT_switch	95	66
nvoInletB2	Inlet Valve 2 Cyl. B	0 = Closed 1 = Open	SNVT_switch	95	67
nvoDrainA1	Drain Cooling Valve Cyl. A	0 = Closed 1 = Open	SNVT_switch	95	68
nvoDrainB1	Drain Cooling Valve Cyl. B	0 = Closed 1 = Open	SNVT_switch	95	69
nvoDrainA2 [5)]	Complete Drain Valve Cyl. A	0 = Closed 1 = Open	SNVT_switch	95	70
nvoDrainB2 [5)]	Complete Drain Valve Cyl. B	0 = Closed 1 = Open	SNVT_switch	95	71
nvoFanA [5)]	Condair CE: Ext. Pipe Flush Condair UL: Furnace Fan	0 = Off 1 = On	SNVT_switch	95	72
nvoConnection	Node Status	0 = Node offline 1 = Node online	SNVT_switch	95	73

[5)] optional

4.7 RO-E - BACnet

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
Virtual_BCU_ROE	Wasseraufbereitung RO-E	—	DEV	300 (siehe *Section 3.3.2*)	—
MI RO Type	RO Type	0 = RO-E 1 = RO-E+	MI	101	R
MI RO Device Status	RO Status	1 = Initializing 2 = Diagnostic 3 = Stopped 4 = Hold 5 = Filling 6 = Standby 7 = Flushing 8 = Draining	MI	102	R
MI RO Service Status	UO Maintenance status	1 = No Info 2 = Warning 3 = Warning Sys 4 = Warning Commissioning 5 = Warning Activation 6 = Error 7 = Warning Disinfection	MI	103	R
MI RO Capacity	UO Kapazität	1 = 20 l/h / 5.3 gal/hr 2 = 40 l/h / 10.6 gal/hr 3 = 100 l/h / 26.4 gal/hr 4 = 200 l/h / 52.8 gal/hr 5 = 300 l/h / 79.3 gal/hr	MI	104	R

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AI Error Warning Code [1)]	Error Warning Code	0 = No Error	AI	101	R
AI RO Next Disinfection	Next Disinfection	0 - 365 [Days]	AI	102	R
AI RO Inlet Pressure [2)]	Inlet pressure	0 - 6 bar 0 - 87.0 psi	AI	103	R
AI RO Tank Pressure [2)]	Tank pressure	0 - 6 bar 0 - 87.0 psi	AI	104	R
AI RO Membrane Pressure [2)]	Membrane pressure	0 - 20 bar 0 - 290.0 psi	AI	105	R
AI_ROPermeate-Conductivity [8)]	Permeate conductivity	0 - 100 µS/cm	AI	106	R
AI RO Permeate Temperature [2) 5)]	Permeate temperature	0 - 60 °C 32 - 140 °F	AI	107	R
AI RO Permeate Flow [2) 5)]	Permeat flow	0 - 400 l/h 0 - 106 gal/hr	AI	108	R
AI RO Next Maintenance	Next maintenance	0 - 4000 h	AI	109	R
AI RO Operating Hours	Operating hours	0 - 1200000 h	AI	110	R

[1)] Refer to malfunction list in the Condair RO-E operation manual for a description of the malfunction codes
[2)] According to the settings <Imperial> or <Metric> in the RO-E controller software
[5)] optional
[8)] RO-E optional, RO-E+ inclusive

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
AV RO Tank Pressure Start [2]	Minimum tank pressure	0 - 5 bar 0 - 72.5 psi	AV	101	R/W
AV RO Tank Pressure End [2]	Maximum tank pressure	0 - 5 bar 0 - 72.5 psi	AV	102	R/W
AV Error/Warning Reset	Error/Warning Reset	—	AV	103	R/W

[2] According to the settings <Imperial> or <Metric> in the RO-E controller software

Object Name	Description	Range	Object-Type	Object-ID	Read (R) Write (W)
BI Inlet Valve	Y11 Inlet valve	0 = Closed 1 = Open	BI	101	R
BI Drain Valve [8]	Y12 Drain valve	0 = Open 1 = Closed	BI	102	R
BI Outlet Valve [5]	Y13 Outlet valve	0 = Open 1 = Closed	BI	103	R
BI Permeate Valve [9]	Y15 Permeate valve	0 = Drain 1 = Tank	BI	104	R
BI Concentrate Valve [5]	Y16 Concentrate valve	0 = Closed 1 = Open	BI	105	R

[5] optional
[8] RO-E optional, RO-E+ inclusive
[9] RO-E+ only

4.8 RO-E - LonWorks

Variable Name	Description	Range	SNVT	#SNVT	Index
nviRequest	Requesting the status		SNVT_obj_request	92	0
nvoStatus	Current status		SNVT_obj_status	93	1
nvoRoType	RO Type	0 = RO-E 1 = RO-E+	SNVT_count	8	2
nvoRoDevStatus	RO Status	0 = Initializing 1 = Diagnostic 2 = Stopped 3 = Hold 4 = Filling 5 = Standby 6 = Flushing 7 = Draining	SNVT_count	8	3
nvoRoServStatus	UO Maintenance status	0 = No Info 1 = Warning 2 = Warning Sys 3 = Warning Commissioning 4 = Warning Activation 5 = Error 6 = Warning Disinfection	SNVT_count	8	4
nvoRoCapacity	UO Capacity	0 = 20 l/h / 5.3 gal/hr 1 = 40 l/h / 10.6 gal/hr 2 = 100 l/h / 26.4 gal/hr 3 = 200 l/h / 52.8 gal/hr 4 = 300 l/h / 79.3 gal/hr	SNVT_count	8	5

Variable Name	Description	Range	SNVT	#SNVT	Index
nvoErrorCode [1]	Error Warning Code	0 = No Error	SNVT_count	8	6
nvoRoNextDisinf	Next Disinfection	0 - 365 [Days]	SNVT_count	8	7
nvoRoInlPres [2]	Inlet pressure	0 - 6 bar 0 - 87.0 psi	SNVT_count_f	51	8
nvoRoTankPres [2]	Tank pressure	0 - 6 bar 0 - 87.0 psi	SNVT_count_f	51	9
nvoRoMembPres [2]	Membrane pressure	0 - 20 bar 0 - 290.0 psi	SNVT_count_f	51	10
nvoRoCondu [8]	Permeate conductivity	0 - 100 µS/cm	SNVT_count_f	51	11
nvoRoTemp [2] [5]	Permeate temperature	0 - 60 °C 32 - 140 °F	SNVT_count_f	51	12
nvoRoFlow [2] [5]	Permeat flow	0 - 400 l/h 0 - 106 gal/hr	SNVT_count_f	51	13
nvoRoNextMaint	Next maintenance	0 - 4000 h	SNVT_count_f	51	14
nvoRoOpHours	Operating hours	0 - 1200000 h	SNVT_time_hour	124	15
nvoRoTankPrSta nviRoTankPrSta [2]	Minimum tank pressure	0 - 5 bar 0 - 72.5 psi	SNVT_count_f	51	16 17
nvoRoTankPrEnd nviRoTankPrEnd [2]	Maximum tank pressure	0 - 5 bar 0 - 72.5 psi	SNVT_count_f	51	18 19
nvoErrorReset nviErrorReset	Error/Warning Reset	—	SNVT_count	8	20 21
nvoRoInletValve	Y11 Inlet valve	0 = Closed 1 = Open	SNVT_count	8	22
nvoRoDrainValve [8]	Y12 Drain valve	0 = Open 1 = Closed	SNVT_count	8	23
nvoRoOutlValve [5]	Y13 Outlet valve	0 = Open 1 = Closed	SNVT_count	8	24
nvoRoPermValve [9]	Y15 Permeate valve	0 = Drain 1 = Tank	SNVT_count	8	25
nvoRoConcValve [5]	Y16 Concentrate valve	0 = Closed 1 = Open	SNVT_count	8	26

[1] Refer to malfunction list in the Condair RO-E operation manual for a description of the malfunction codes
[2] According to the settings <Imperial> or <Metric> in the RO-E controller software
[5] optional
[8] RO-E optional, RO-E+ inclusive
[9] RO-E+ only

5 Troubleshooting

5.1 Operating trouble list

Problem	Solutions
Cannot establish communication	– Check communication parameters (see *Section 3.3.1.3*). – Check if jumper is set on JP8. – Verify Hardware connections to BACnet or LonWorks gateway board (see *Section 3.2.2*). – **With BACnet IP**: 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. – **With BACnet MS/TP Master**: 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.. – **With BACnet MS/TP Slave**: MS/TP slave devices can not be detected automatically via the "Who-is" BACnet service and therefore have to be manually added to the network.
Only some objects/parameters report data	– Check the software version of the Integrated Controller. The configuration on the gateway board must match with the software version of Integrated Controller.
Condair Integrated Controller will not respond to set point/sensor values/ demand values written over BACnet/ LonWorks.	– Check that Condair Integrated Controller is configured correctly (see *Section 3.3.1.1*). 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.
"MI_HumStatus" or "MI_UnitStatusA" show always "Initializing"	Probably the communication between humidfier and gateway board is interupted! – Check the communication parameters (see *Section 3.3.1.3*). – Ensure jumper is set on JP8. – Ensure the gateway board is correctly inserted into the socket of the Integrated Controller.
The device will not respond to control signal connected to the driver board.	– Check that "Signal Source" in the controller settings is configured for "Analog" control. Note: If the "Signal Source" is set to "Modbus", the Condair Integrated Controller will look for a control value sent via the gateway board.

Problem	Solutions
Intermittent Communications.	– Check whether the wire type and run length meet the requirements of the corresponding network. – Look for wire runs in close proximity to equipment generating significant electrical noise (such as VFD's, medical equipment, X-ray machinery, servers, etc). – Check that wire shield is terminated at one end only. – Confirm correct polarity of conductors at each device. – Check BACnet/LonWorks addresses for conflicts with any device. Note: Each device on the network must have a unique address.
Invalid data	– Check BACnet/LonWorks addresses for conflicts with any device. Note: Each device on the network must have a unique address. – Check correct setting of Modbus parameter <Register sequence> according to *Section 3.3.1.3*.
Wrong values (e.g. temperature, pressure, mass flow) are shown.	– Check software version of the Integrated Controller. – Check the "Units" setting under "Menu > Password: 8808 > General > Region".
Meaningless values outside the expected value range are displayed.	– Check the register order under "Menu > Password: 8808 > Network > Modbus Settings". The register order must be set to "MSR First".
Humidifier type is not shown on top of the navigation tree of the FS-GUI.	– Probably the configuration has not been uploaded into the gateway board. Contact Condair Technical Services for additional support.
More variables or additional information is required from the Condair Integrated Controller.	– Contact Condair Technical Services for additional support.

5.2 LED functions

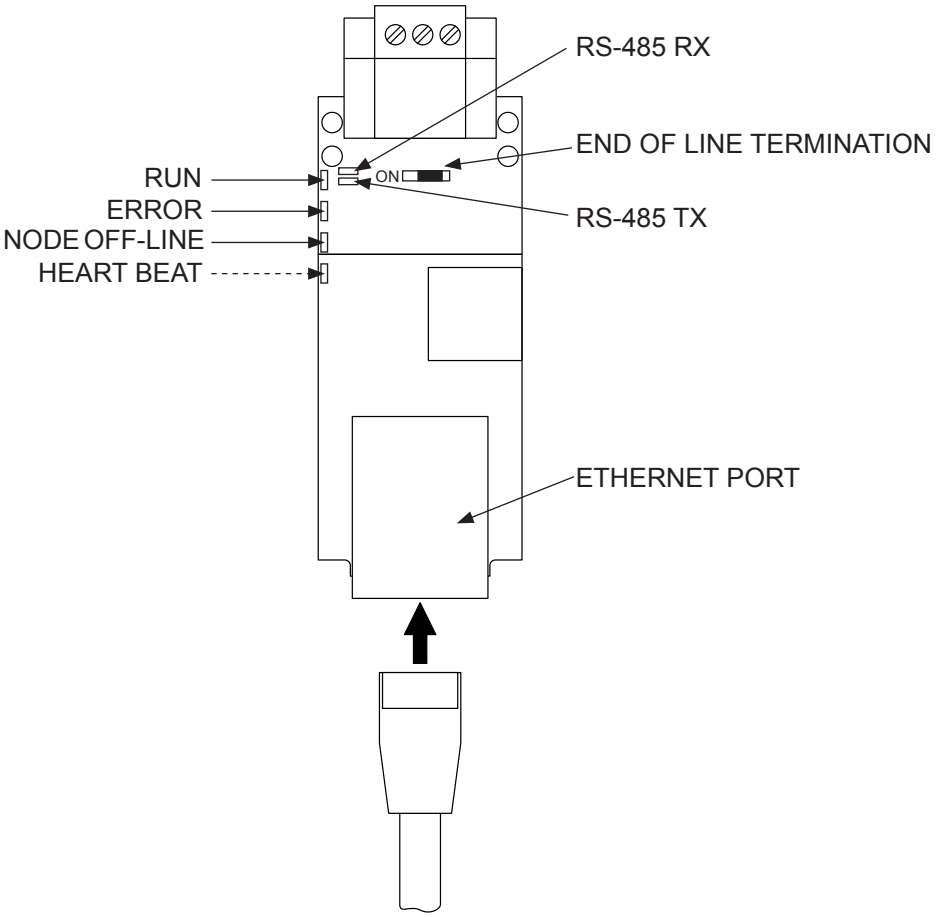


Abb. 8: BACnet IP / BACnet MS/TP LED's

LED	Description
HEART BEAT (amber)	The system indicator LED as indication that the operating system is running
ERROR (red)	The ERROR LED lights up on power up and goes off 15 seconds after power up. A steady red light will indicate there is a system error on the gateway board.The related "system error" is shown in the "User Messages / error screen" of the FS-GUI interface.
NODE OFF-LINE (amber)	The Node Offline LED lights up on power up and goes off 15 seconds after power up. If the Node Offline LED stays on solid, a Node Offline condition has occurred (no communication between Intergrated Controller and gateway board, check Modbus settings of the integrated Controller, and ensure that Jumper JP8 is set).
RUN (green)	The RUN LED will start flashing 20 seconds after power indicating normal operation. The board will be able to access FS-GUI once this LED starts flashing.
TX	RS-485 indicator LED when a message is sent through the port.
RX	RS-485 indicator LED when a message is received by the port.

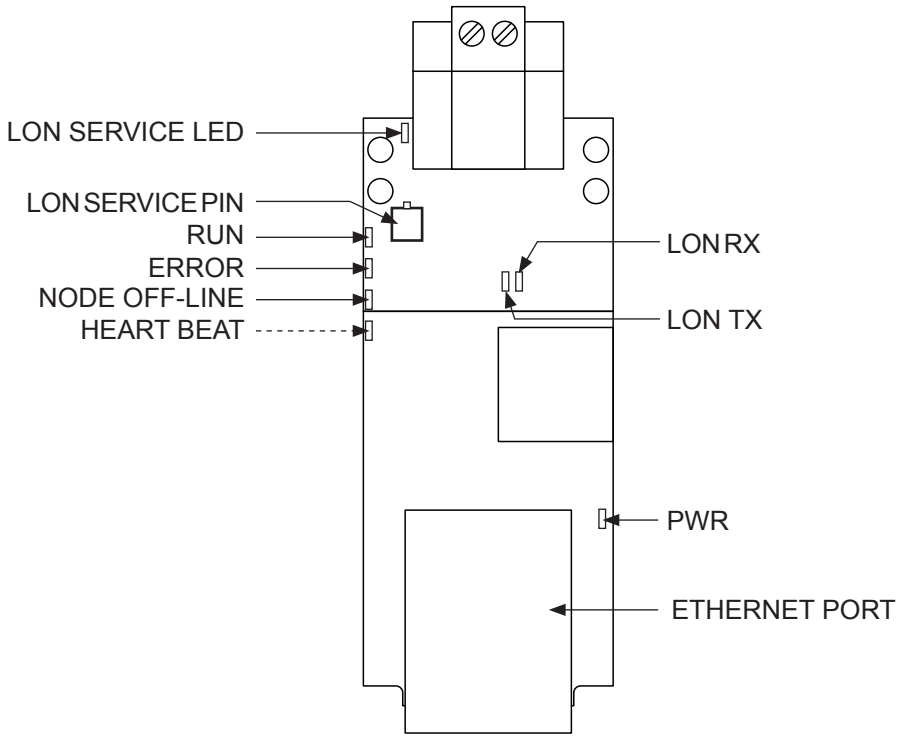


Abb. 9: LonWorks LED's

LED	Description
HEART BEAT (amber)	The system indicator LED as indication that the operating system is running
ERROR (red)	The ERROR LED lights up on power up and goes off 15 seconds after power up. A steady red light will indicate there is a system error on the gateway board.The related "system error" is shown in the "User Messages / error screen" of the FS-GUI interface.
NODE OFF-LINE (amber)	The Node Offline LED lights up on power up and goes off 15 seconds after power up. If the Node Offline LED stays on solid, a Node Offline condition has occurred (no communication between Intergrated Controller and gateway board or no network output variable (nvo) of the LonWorks gateway board has been binded to a network input variable of another Lon device). Check whether binding has been done, check the Modbus settings of the Integrated Controller, and ensure that Jumper JP8 is set.
RUN (green)	The RUN LED will start flashing 20 seconds after power indicating normal operation. The board will be able to access FS-GUI once this LED starts flashing.
PWR (green)	This is the power light and should show steady green at all times when the board is powered.

LED	Description
LON-TX LED	On normal operation of the board, the TX LED will flash when a message is sent on the Lon port of the board.
LON-RX LED	On normal operation of the board, the RX LED will flash when a message is received on the Lon port of the board.
LON SERVICE LED (next to Lon port)	The LON SERVICE LED will flash if the board is configured for implicit addressing and not commissioned. LED will be off if the board is configured for implicit addressing and commissioned or if it is configured for explicit addressing.

6 Appendix

6.1 Object abbreviations

AI = Analog Input	Analog value, readable
AO = Analog Output	Analogue control signal, readable and writable (with priority)
AV = Analog Value	Analogue setting, readable and writable
BI = Binär Input	Binary state value, readable
BV = Binär Value	Binary value, readable and writable
MI = Multistate Input	Multistate status value, readable

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

☐ LonWorks

Settings for BACnet only:

- Default Gateway Address/Name: .....
- BACnet Node ID (Device Instance): .....
- Network Number: .....
- Subnet Mask: .....
- Module IP Address: .....

Settings for BACnet MS/TP only:

- MAC Address BACnet MS/TP: .....
- Baud rate: .....

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