WE TAKE BUILDING
AUTOMATION PERSONALLY

MANUAL
EXPANSION UNITS

REGIN
THE CHALLENGER

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1.1 CONFIGURING THE EXPANSION UNIT

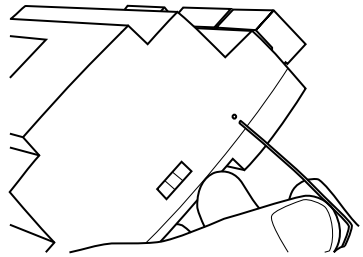
An external display is needed to configure the expansion units, for example an E3-DSP. See the documentation for each display for more information about buttons/LEDs etc.

1.1.1 CONFIGURING THE EXPANSION UNIT FOR EXOLINE

The expansion unit is pre-configured as EXOline Expansion unit 1. For more information about configuration see the manual for each product, for example Exigo, Corrigo.

1.1.2 CONFIGURING THE EXPANSION UNIT FOR EXOLINE WITH EXOCOMPACT OR EXOCLEVER

1. Power up the expansion unit.
2. Reset the unit using by pressing the reset button accessed through the small hole on the right side of the unit. Use for example a paper clip to access the reset button.



3. After reset, in the factory application, go to the menu **Application**.
4. Activate the Modbus/EXOline/BACnet application to use the expansion unit with EXOcompact.
5. Through the display, go to **Communications ▸ General ▸ Communications mode.**
6. Select **Communications mode ▸ EXOline 485**
7. Under **Communications ▸ Address ▸** , set the EXOline-adress.
8. Under **Communications ▸ RS485 ▸** , set the format and speed, if needed.

You can see the application version if you are in the top of the menu and click the right arrow ▸.

There are communication blocks in Controller Builder to use with IO-A15MIXW-3-BEM 1.0-1-05, IO-A28MIXW-3-BEM 1.0-1-05, and IO-V19MIXW-1-BEM.

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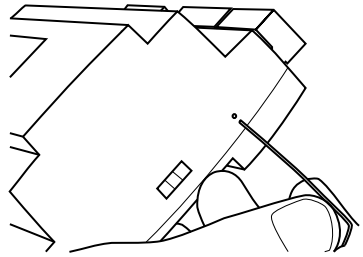
1.1.3 CONFIGURING THE EXPANSION UNIT FOR MODBUS/BACNET

1. Power up the expansion unit.
2. Reset the unit using by pressing the reset button accessed through the small hole on the right side of the unit. Use for example a paper clip to access the reset button.



3. Load the application.

5. Select an address depending on the chosen communication mode, found under

   Communications ▸ Address ▸ .
6. Configure RS485 or TCP/IP settings depending on the chosen communication mode

   Communications ▸ RS485 ▸ or **Communications ▸ TCP/IP ▸** .

1.1.4 MENU STRUCTURE

The start screen shows the model name and the number of I/O:s.

```
IO-A28MIXW-3-BEM


     Regin controls
```

The main menu contains three items; **Communications**, **Configurations** and **Debug**.

```
Communications
Configurations
Debug
```

Communication

The **Communications** menu contains all settings for configuring the communication for the expansion unit.

Parameters

Name	Default	Min	Max	Description	Menu path
Communication mode				The communication protocol the expansion should use. Alternatives: **- Modbus RTU** **- BACnet MS/TP** **- EXOline RS485** **- Modbus TCP** **- BACnet/IP**	**Communications ▸ General ▸**
Modbus address		0	255	The Modbus address of the expansion unit. Used for communication mode **Modbus RTU** and **Modbus TCP**.	**Communications ▸ Address ▸**
BACnet MAC		0	255	The MAC address of the expansion unit. This needs to be unique only to the subnet to which the unit is attached. Used for communication mode **BACnet MS/TP** and **BACnet/IP**.	**Communications ▸ Address ▸**
BACnet ID		0	8000	The ID of the expansion unit, used to identify it on the BACnet network. The ID number must be unique and can not be duplicated anywhere on the BACnet network. Used for communication mode **BACnet MS/TP** and **BACnet/IP**.	**Communications ▸ General ▸**
Exoline PLA		0	254	PLA address Used for communication mode **EXOline RS485**.	**Communications ▸ General ▸**
Exoline ELA		0	254	ELA address Used for communication mode **EXOline RS485**.	**Communications ▸ General ▸**
Baudrate				Baudrate. Alternatives: **- 1200** **- 2400** **- 4800** **- 9600** **- 14400** **- 19200**	**Communications ▸ RS485 ▸**
Parity				Sets the type of parity. Can be one of the following: **- Odd** **- Even**	**Communications ▸ RS485 ▸**
IP				The IP address of the expansion unit consisting of four numbers between 0 and 255.	**Communications ▸ TCP/IP ▸ Config ▸**
Subnet Mask				Subnet mask consisting of four numbers between 0 and 255.	**Communications ▸ TCP/IP ▸ Config ▸**
Default Gateway				Default gateway consisting of four numbers between 0 and 255.	**Communications ▸ TCP/IP ▸ Config ▸**
DHCP				Enables DHCP. Yes or No	**Communications ▸ TCP/IP ▸ Config ▸**
DNS				IP address of the DNS server consisting of four numbers between 0 and 255.	**Communications ▸ TCP/IP ▸ Config ▸**

Configuration

The **Configurations** menu contains settings for all inputs and outputs of the expansion unit.

Parameters

Name	Default	Min	Max	Description	Menu path
Mode (DIx)				The type of function for digital inputs. Alternatives: **- Logic** **- Counter**	**Configurations ▸ DI ▸**
Mode (UIx)				The type of function for universal inputs. Alternatives: **- Digital** **- PT1000** **- Ni1000LG** **- Ni1000** **- 0-10 V** **- 800-1600 Ohm** **- 0-20 mA** **- Counter**	**Configurations ▸ UI ▸**
Scale (UIx)				The scaling factor for converting measured values to application units.	**Configurations ▸ UI ▸**
Offset (UIx)				The offset for converting measured values to application units.	**Configurations ▸ UI ▸**
Mode (DOx)				The type of function for digital outputs. Alternatives: **- Logic** **- PWM**	**Configurations ▸ DO ▸**
Period (DOx)		1	60	Period for pulse proportioning, for PWM (in seconds).	**Configurations ▸ DO ▸**
Scale (AOx)				The scaling factor for converting to application units.	**Configurations ▸ AO ▸**
Offset (AOx)				The offset for converting to application units.	**Configurations ▸ AO ▸**

Debug

The **Debug** menu shows the status of all inputs and outputs.

2. MODBUS COMMUNICATION

2.1 SIGNAL TYPES

All signals accessible from a SCADA system are described further in this document. Signals with a default value are settings that can be changed via a SCADA system. Signals without a default value are actual values which cannot be changed using a SCADA system.

2.1.1 MODBUS TYPE

The Modbus type of the signals:

1 = Coil Status Register (Modbus function = 1, 5 and 15)
2 = Input Status Register (Modbus function = 2)
3 = Holding Register (Modbus function = 3, 6 and 16)
4 = Input Register (Modbus function = 4)

Supported Modbus functions:

1 = Read Coils
2 = Read Discrete Input
3 = Read Holding Register
4 = Read Input Register
5 = Write Single Coil
6 = Write Single Register
15 = Write Multiple Coils
16 = Write Multiple Registers

2.1.2 MODBUS

Communication limitations

The Modbus master must wait for a minimum of 3.5 character times (4 ms at 9600 bps) between two messages. When the Modbus master communicates with more than one Exigo controller on the same communication line (RS485), the Modbus master must wait for a minimum of 14 character times (16 ms at 9600 bps) between the answer and the first question for the next controller.

The Exigo controller is limited to 10 fast communications every 30 seconds. Any other communication will have a delayed answer time of approximately 1 second.

Modbus wiring etc.

A protocol like Modbus consists of several layers (OSI-model). The bottom layer is always the physical layer; the number of wires and signal levels. The next layer describes the communication digits (number of data bits, stop-bits, parity etc.). Next are the layers describing the Modbus-specific functions (number of digits per message, the meaning of different messages, etc.).

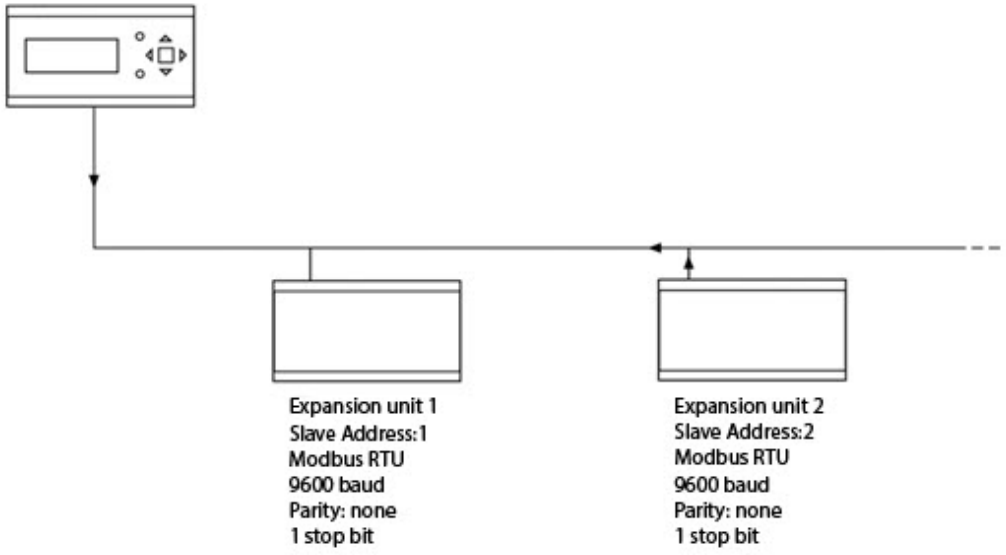
For Modbus, the bottom layer can be RS485, RS422 or RS232.

Max. 47 registers

A maximum of 47 registers can be read in one message.

Visualised example

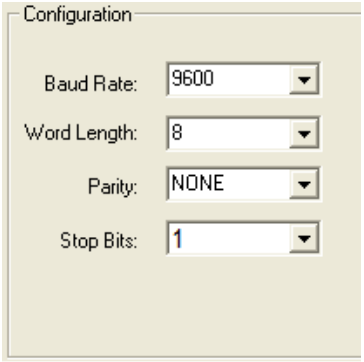
The simplified example below visualises the Master/Slave relation. In addition to the figure, checksums for message validation are also transmitted in both query and answer.



3.1 CONFIGURATION

The communication parameters for the Modbus line are the most important thing to configure first. As described earlier, these parameters must be identical in both the master unit and slave units, since they define the structure of messages and the transmission speed.

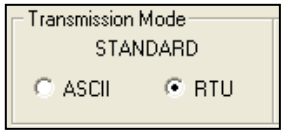
The default configuration values of an expansion unit are shown in the figure below.



The expansion unit is set to Slave Address 1 as a default. If more units are added, a new Modbus address can be set for each unit using an external display.

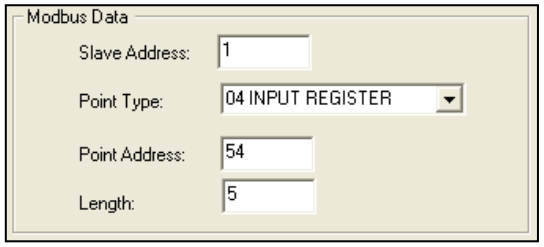
3.2 TRANSMISSION MODE

The expansion unit uses the RTU transmission mode; not to be confused with the ASCII mode in the settings. The settings for the transmission mode must be the same in the master unit and the slave units, since Modbus/RTU cannot understand Modbus ASCII messages. The configuration parameter Word length is always 8 for Modbus RTU.



3.3 READING VALUES

An effective way to read values is to read multiple variables simultaneously. To, for example, read all analogue outputs, set the Modbus query to the values shown in the figure below. The first analogue output variable starts at address 54 (QAnaOut.AQ1). To read address 54 to 58, set the length to 5. The Modbus answer will then communicate all 5 values in just one message, making the communication more effective.



4. MODBUS COIL STATUS REGISTER

Not all variables are available for all models. The columns A15, A28 and V19 shows whether the variable is available for each model.

A15 = Ardo with 15 I/O:s, A28 = Ardo with 28 I/O:s, V19 = Vido with 19 I/O:s

Modbus address	A28	A15	V19	Description
1	✓	✓	✓	DI1 Input
2	✓	✓	✓	DI2 Input
3	✓	✓		DI3 Input
4	✓	✓		DI4 Input
5	✓			DI5 Input
6	✓			DI6 Input
7	✓			DI7 Input
8	✓			DI8 Input
11	✓	✓	✓	DO1 Output
12	✓	✓	✓	DO2 Output
13	✓	✓	✓	DO3 Output
14	✓	✓	✓	DO4 Output
15	✓		✓	DO5 Output
16	✓		✓	DO6 Output
17	✓		✓	DO7 Output
21	✓	✓	✓	DI1 Reset counter
22	✓	✓	✓	DI2 Reset counter
23	✓	✓		DI3 Reset counter
24	✓	✓		DI4 Reset counter
25	✓			DI5 Reset counter
26	✓			DI6 Reset counter
27	✓			DI7 Reset counter
28	✓			DI8 Reset counter
31	✓	✓	✓	AI1 Reset counter
32	✓	✓	✓	AI2 Reset counter
33	✓	✓	✓	AI3 Reset counter
34	✓	✓	✓	AI4 Reset counter
35	✓		✓	UI1/AI5 Reset counter
36	✓		✓	UI2/AI6 Reset counter
37	✓		✓	UI3/AI7 Reset counter
38	✓		✓	UI4/AI8 Reset counter

5. MODBUS HOLDING REGISTER

Not all variables are available for all models. The columns A15, A28 and V19 shows whether the variable is available for each model.

A15 = Ardo with 15 I/O:s, A28 = Ardo with 28 I/O:s, V19 = Vido with 19 I/O:s

Modbus address	A28	A15	V19	Scale	Description
1	✓	✓	✓	1	DI1 Counter
2	✓	✓	✓	1	DI2 Counter
3	✓	✓		1	DI3 Counter
4	✓	✓		1	DI4 Counter
5	✓			1	DI5 Counter
6	✓			1	DI6 Counter
7	✓			1	DI7 Counter
8	✓			1	DI8 Counter
11	✓	✓	✓	10	AI1 Input
12	✓	✓	✓	10	AI2 Input
13	✓	✓	✓	10	AI3 Input
14	✓	✓	✓	10	AI4 Input
15	✓		✓	10	UI1/AI5 Input
16	✓		✓	10	UI2/AI6 Input
17	✓		✓	10	UI3/AI7 Input
18	✓		✓	10	UI4/AI8 Input
19			✓	10	AI9 Input
20			✓	10	AI10 Input
21	✓	✓		1	DO1 PWM width (s)
22	✓	✓		1	DO2 PWM width (s)
23	✓	✓		1	DO3 PWM width (s)
24	✓	✓		1	DO4 PWM width (s)
25	✓			1	DO5 PWM width (s)
26	✓			1	DO6 PWM width (s)
27	✓			1	DO7 PWM width (s)
31	✓	✓	✓	1	AO1 Output
32	✓	✓	✓	1	AO2 Output
33	✓	✓		1	AO3 Output
34	✓			1	AO4 Output
35	✓			1	AO5 Output
101	✓	✓	✓	1	DI1 Mode (0 = logical, 1 = counter)
102	✓	✓	✓	1	DI2 Mode (0 = logical, 1 = counter)
103	✓	✓		1	DI3 Mode (0 = logical, 1 = counter)
104	✓	✓		1	DI4 Mode (0 = logical, 1 = counter)
105	✓			1	DI5 Mode (0 = logical, 1 = counter)
106	✓			1	DI6 Mode (0 = logical, 1 = counter)
107	✓			1	DI7 Mode (0 = logical, 1 = counter)
108	✓			1	DI8 Mode (0 = logical, 1 = counter)
111	✓	✓	✓	10	AI1 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)

Modbus address	A28	A15	V19	Scale	Description
112	✓	✓	✓	10	AI2 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
113	✓	✓	✓	10	AI3 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
114	✓	✓	✓	10	AI4 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
115	✓		✓	10	UI1/AI5 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
116	✓		✓	10	UI2/AI6 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
117	✓		✓	10	UI3/AI7 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
118	✓		✓	10	UI4/AI8 Mode (0 = Digital, 1 = PT1000, 2 = Ni1000LG, 3 = NI1000, 4 = 0-10 V, 5 = 800-1600 Ohm, 6 = 0-20 mA, 7 = Counter)
121	✓	✓	✓	1	AI1 Scale
122	✓	✓	✓	1	AI2 Scale
123	✓	✓	✓	1	AI3 Scale
124	✓	✓	✓	1	AI4 Scale
125	✓		✓	1	UI1/AI5 Scale
126	✓		✓	1	UI2/AI6 Scale
127	✓		✓	10	UI3/AI7 Scale
128	✓		✓	10	UI4/AI8 Scale
129			✓	10	AI9 Scale
130			✓	10	AI10 Scale
131	✓	✓	✓	10	AI1 Offset
132	✓	✓	✓	10	AI2 Offset
133	✓	✓	✓	10	AI3 Offset
134	✓	✓	✓	10	AI4 Offset
135	✓		✓	10	UI1/AI5 Offset
136	✓		✓	10	UI2/AI6 Offset
137	✓		✓	10	UI3/AI7 Offset
138	✓		✓	10	UI4/AI8 Offset
139			✓	10	AI9 Offset
140			✓	10	AI10 Offset
141	✓	✓		1	DO1 Mode (0 = logical, 1 = PWM)
142	✓	✓		1	DO2 Mode (0 = logical, 1 = PWM)
143	✓	✓		1	DO3 Mode (0 = logical, 1 = PWM)
144	✓	✓		1	DO4 Mode (0 = logical, 1 = PWM)
145	✓			1	DO5 Mode (0 = logical, 1 = PWM)
146	✓			1	DO6 Mode (0 = logical, 1 = PWM)
147	✓			1	DO7 Mode (0 = logical, 1 = PWM)
151	✓	✓		1	DO1 PWM Period
152	✓	✓		1	DO2 PWM Period
153	✓	✓		1	DO3 PWM Period
154	✓	✓		1	DO4 PWM Period
155	✓			1	DO5 PWM Period
156	✓			1	DO6 PWM Period
157	✓			1	DO7 PWM Period
161	✓	✓	✓	10	AO1 Scale
162	✓	✓	✓	10	AO2 Scale
163	✓	✓		10	AO3 Scale
164	✓			10	AO4 Scale
165	✓			10	AO5 Scale

Modbus address	A28	A15	V19	Scale	Description
171	✓	✓	✓	10	AO1 Offset
172	✓	✓	✓	10	AO2 Offset
173	✓	✓		10	AO3 Offset
174	✓			10	AO4 Offset
175	✓			10	AO5 Offset
181			✓	1	UA1 Mode (0 = Input, 1 = Output)
182			✓	1	UA2 Mode (0 = Input, 1 = Output)
201	✓	✓	✓	1	DO1 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
202	✓	✓	✓	1	DO2 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
203	✓	✓	✓	1	DO3 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
204	✓	✓	✓	1	DO4 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
205	✓		✓	1	DO5 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
206	✓		✓	1	DO6 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
207	✓		✓	1	DO7 Manual/Auto (0 = Manual Off, 1 = Manual On, 2 = Auto)
211	✓	✓	✓	1	AO1 Manual/Auto (0 = Off, 1 = Manual mode, 2 = Auto)
212	✓	✓	✓	1	AO2 Manual/Auto (0 = Off, 1 = Manual mode, 2 = Auto)
213	✓	✓		1	AO3 Manual/Auto (0 = Off, 1 = Manual mode, 2 = Auto)
214	✓			1	AO4 Manual/Auto (0 = Off, 1 = Manual mode, 2 = Auto)
215	✓			1	AO5 Manual/Auto (0 = Off, 1 = Manual mode, 2 = Auto)
221	✓	✓	✓	1	AO1 Manual value
222	✓	✓	✓	1	AO2 Manual value
223	✓	✓		1	AO3 Manual value
224	✓			1	AO4 Manual value
225	✓			1	AO5 Manual value

6. BACNET ANALOG VALUE

Not all variables are available for all models. The columns A15, A28 and V19 shows whether the variable is available for each model.

A15 = Ardo with 15 I/O:s, A28 = Ardo with 28 I/O:s, V19 = Vido with 19 I/O:s

BACnet ID	A28	A15	V19	Description
1	✓	✓	✓	DI1 Counter
2	✓	✓	✓	DI2 Counter
3	✓	✓		DI3 Counter
4	✓	✓		DI4 Counter
5	✓			DI5 Counter
6	✓			DI6 Counter
7	✓			DI7 Counter
8	✓			DI8 Counter
11	✓	✓	✓	AI1 Input
12	✓	✓	✓	AI2 Input
13	✓	✓	✓	AI3 Input
14	✓	✓	✓	AI4 Input
15	✓		✓	UI1/AI5 Input
16	✓		✓	UI2/AI6 Input
17	✓		✓	UI3/AI7 Input
18	✓		✓	UI4/AI8 Input
19			✓	AI9 Input
20			✓	AI10 Input
21	✓	✓		DO1 PWM width (s)
22	✓	✓		DO2 PWM width (s)
23	✓	✓		DO3 PWM width (s)
24	✓	✓		DO4 PWM width (s)
25	✓			DO5 PWM width (s)
26	✓			DO6 PWM width (s)
27	✓			DO7 PWM width (s)
31	✓	✓		AO1 Output
32	✓	✓		AO2 Output
33	✓	✓		AO3 Output
34	✓			AO4 Output
35	✓			AO5 Output
36			✓	AO1 Output
37			✓	AO2 Output
121	✓	✓	✓	AI1 Scale (value-offset)*scale
122	✓	✓	✓	AI2 Scale (value-offset)*scale
123	✓	✓	✓	AI3 Scale (value-offset)*scale
124	✓	✓	✓	AI4 Scale (value-offset)*scale
125	✓		✓	UI1/AI5 Scale (value-offset)*scale
126	✓		✓	UI2/AI6 Scale (value-offset)*scale
127	✓		✓	UI3/AI7 Scale (value-offset)*scale
128	✓		✓	UI4/AI8 Scale (value-offset)*scale

BACnet ID	A28	A15	V19	Description
129			✓	AI9 Scale (value-offset)*scale
130			✓	AI10 Scale (value-offset)*scale
131	✓	✓	✓	AI1 Offset (value-offset)*scale
132	✓	✓	✓	AI2 Offset (value-offset)*scale
133	✓	✓	✓	AI3 Offset (value-offset)*scale
134	✓	✓	✓	AI4 Offset (value-offset)*scale
135	✓		✓	UI1/AI5 Offset (value-offset)*scale
136	✓		✓	UI2/AI6 Offset (value-offset)*scale
137	✓		✓	UI3/AI7 Offset (value-offset)*scale
138	✓		✓	UI4/AI8 Offset (value-offset)*scale
139			✓	AI9 Offset (value-offset)*scale
140			✓	AI10 Offset (value-offset)*scale
151	✓	✓		DO1 PWM period
152	✓	✓		DO2 PWM period
153	✓	✓		DO3 PWM period
154	✓	✓		DO4 PWM period
155	✓			DO5 PWM period
156	✓			DO6 PWM period
157	✓			DO7 PWM period
161	✓	✓		AO1 Scale
162	✓	✓		AO2 Scale
163	✓	✓		AO3 Scale
164	✓			AO4 Scale
165	✓			AO5 Scale
166			✓	AO1 Scale
167			✓	AO2 Scale
171	✓	✓		AO1 Offset
172	✓	✓		AO2 Offset
173	✓	✓		AO3 Offset
174	✓			AO4 Offset
175	✓			AO5 Offset
176			✓	AO1 Offset
177			✓	AO2 Offset
221	✓	✓	✓	AO1 Manual value
222	✓	✓	✓	AO2 Manual value
223	✓	✓		AO3 Manual value
224	✓			AO4 Manual value
225	✓			AO5 Manual value
226			✓	AO1 I/O Manual value
227			✓	AO2 I/O Manual value

7. BACNET BINARY VALUE

Not all variables are available for all models. The columns A15, A28 and V19 shows whether the variable is available for each model.

A15 = Ardo with 15 I/O:s, A28 = Ardo with 28 I/O:s, V19 = Vido with 19 I/O:s

BACnet ID	A28	A15	V19	Description
1	✓	✓	✓	DI1 Input
2	✓	✓	✓	DI2 Input
3	✓	✓		DI3 Input
4	✓	✓		DI4 Input
5	✓			DI5 Input
6	✓			DI6 Input
7	✓			DI7 Input
8	✓			DI8 Input
11	✓	✓	✓	DO1 Output
12	✓	✓	✓	DO2 Output
13	✓	✓	✓	DO3 Output
14	✓	✓	✓	DO4 Output
15	✓		✓	DO5 Output
16	✓		✓	DO6 Output
17	✓		✓	DO7 Output
21	✓	✓	✓	DI1 Reset counter
22	✓	✓	✓	DI2 Reset counter
23	✓	✓		DI3 Reset counter
24	✓	✓		DI4 Reset counter
25	✓			DI5 Reset counter
26	✓			DI6 Reset counter
27	✓			DI7 Reset counter
28	✓			DI8 Reset counter
31	✓	✓	✓	AI1 Reset counter
32	✓	✓	✓	AI2 Reset counter
33	✓	✓	✓	AI3 Reset counter
34	✓	✓	✓	AI4 Reset counter
35	✓		✓	UI1/AI5 Reset counter
36	✓		✓	UI2/AI6 Reset counter
37	✓		✓	UI3/AI7 Reset counter
38	✓		✓	UI4/AI8 Reset counter

8. BACNET MULTI-STATE VALUE

Not all variables are available for all models. The columns A15, A28 and V19 shows whether the variable is available for each model.

A15 = Ardo with 15 I/O:s, A28 = Ardo with 28 I/O:s, V19 = Vido with 19 I/O:s

BACnet ID	A28	A15	V19	Description
101	✓	✓	✓	DI1 Mode (1 = Logic, 2 = Counter)
102	✓	✓	✓	DI2 Mode (1 = Logic, 2 = Counter)
103	✓	✓		DI3 Mode (1 = Logic, 2 = Counter)
104	✓	✓		DI4 Mode (1 = Logic, 2 = Counter)
105	✓			DI5 Mode (1 = Logic, 2 = Counter)
106	✓			DI6 Mode (1 = Logic, 2 = Counter)
107	✓			DI7 Mode (1 = Logic, 2 = Counter)
108	✓			DI8 Mode (1 = Logic, 2 = Counter)
111	✓	✓	✓	AI1 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
112	✓	✓	✓	AI2 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
113	✓	✓	✓	AI3 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
114	✓	✓	✓	AI4 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
115	✓		✓	UI1/AI5 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
116	✓		✓	UI2/AI6 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
117	✓		✓	UI3/AI7 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
118	✓		✓	UI4/AI8 Mode (1 = Digital, 2 = PT1000, 3 = Ni1000LG, 4 = NI1000, 5 = 0-10 V, 6 = 800-1600 Ohm, 7 = 0-20 mA, 8 = Counter)
141	✓	✓		DO1 Mode (1 = Logic, 2 = PWM)
142	✓	✓		DO2 Mode (1 = Logic, 2 = PWM)
143	✓	✓		DO3 Mode (1 = Logic, 2 = PWM)
144	✓	✓		DO4 Mode (1 = Logic, 2 = PWM)
145	✓			DO5 Mode (1 = Logic, 2 = PWM)
146	✓			DO6 Mode (1 = Logic, 2 = PWM)
147	✓			DO7 Mode (1 = Logic, 2 = PWM)
201	✓	✓	✓	DO1 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
202	✓	✓	✓	DO2 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
203	✓	✓	✓	DO3 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
204	✓	✓	✓	DO4 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
205	✓		✓	DO5 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
206	✓		✓	DO6 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
207	✓		✓	DO7 Manual/Auto (1 = Manual Off, 2 = Manual On, 3 = Auto)
211	✓	✓	✓	AO1 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
212	✓	✓	✓	AO2 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
213	✓	✓		AO3 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
214	✓			AO4 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
215	✓			AO5 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)

BACnet ID	A28	A15	V19	Description
216			✓	UA1 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
217			✓	UA2 Manual/Auto (1 = Off, 2 = Manual mode, 3 = Auto)
236			✓	UA1 I/O Mode (1 = Input, 2 = Output)
237			✓	UA2 I/O Mode (1 = Input, 2 = Output)