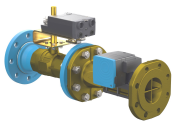
BACnet Protocol Implementation Conformance Statement (PICS)

Referring to *dynamx*™ series:

- DXC_B
- DXMB_C
- DXMBP_C
- DXM_C
- DXMP_C
- DXUB_C
- DXU_C
- DXUP_C
- DXU_D

					
DXC_B	**DXMB_C**	**DXM_C**	**DXUB_C**	**DXU_C**	**DXU_D**
	DXMBP_C	**DXMP_C**		**DXUP_C**	

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1 Introduction

DX is a motorized 2-port or 3-port control valve with an integrated closed-loop flow controller and optionally a differential pressure controller, a temperature controller or a room temperature controller.

2 DX electronic pressure independent 2- and 3-port valves

Date	December 2023
Vendor name	Belparts NV
Vendor Id	932
Product name	*dynamx™*
Product model number	DX… (see table below)
Application software version	4.07.10 and higher
Firmware revision	0.8.3
Product description	Dynamic flow control system with 2-way or 3-way valve
BACnet protocol revision	135-2016

2.1 Product model number

DXMB and DXU is a series of 2-port or 3-port valves. Depending on the version, some variables may or may not be present in the device. The DXC, DXMB and DXM are threaded, DXU and DXUB are flanged, all use the same PICS.

Product	Description
DXC_B . _ _ _ _ 0 _	2-port version without IRC without energy measurement DN20
DXC_B . _ _ _ _ 2 _	2-port version without IRC with energy measurement DN20
DXC_B00 . _ _ _ _ 0 _	2-port version with IRC without energy measurement DN20
DXMB_C . _ _ _ _ 2 _	2-port or 3-port version with energy measurement DN15-DN50
DXMBP_ C . _ _ _ _ 2 _	2-port version with Δp control with energy measurement DN15-DN50
DXMB4_C . _ _ _ _ 0 _	Quattro version change/over without energy measurement DN15-DN50
DXMB4_C . _ _ _ _ 2 _	Quattro version change/over with energy measurement DN15-DN50
DXUB_ C . _ _ _ _ 2 _	2-port or 3-port version with energy measurement DN65-DN150
DXU_ C . _ _ _ _ 2 _	2-port or 3-port version with energy measurement DN65-DN150
DXUP_ C . _ _ _ _ 2 _	2-port version with Δp control with energy measurement DN65-DN150
DXU_ D . _ _ _ _ 2 _	2-port or 3-port version with energy measurement DN100-DN300

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2.2. BACnet Standardized device profile (Annex L)

- BACnet Application Specific Controller (B-ACS)

2.3. Supported BACnet interoperability building blocks (Annex K)

- Data Sharing-ReadProperty (DS-RP-B)
- Data Sharing-WriteProperty (DS-WP-B)
- Device Management-DynamicDeviceBindings(DM-DDB-B)

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2.4. Supported Object types and Objects

Object instantiation is static; objects cannot be created or deleted.
Important note! Each overview of objects in this chapter only describe the objects that apply to this series of *dynamx*™ valves.

RW Read/Write
R Read Only

2.4.1. Binary input

Binary value	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- InactiveText
- ActiveText

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	DI1 State	0..1	0 Inactive 1 Active	Present Value, R[1]
1	DI2 State	0..1	0 Inactive 1 Active	Present Value, R[1]
2	DI3 State	0..1	0 Inactive 1 Active	Present Value, R[1]

[1] Objects accessible / implemented depending on product type

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2.4.2. Binary value

Binary value	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- InactiveText
- ActiveText

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	Ctrl Sig	0..1	0 Analog mode 1 Digital mode	Present Value, RW
1	Meas Sig	0..1	0 Analog mode 1 Digital mode	Present Value, RW[1]
2	Flush	0..1	0 Inactive 1 Active	Present Value, RW
4	Night Mode	0..1	0 Night Mode disabled 1 Night Mode enabled	Present Value, RW[1]
5	Dp CalProc	0..1	0 Inactive 1 Active	Present Value, RW[1]
6	DI1 Type	0..1	0 Normally Closed 1 Normally Open	Present Value, RW[1]
7	DI2 Type	0..1	0 Normally Closed 1 Normally Open	Present Value, RW[1]
8	Treturn	0..1	0 Tam1 in supply 1 Tam1 in return	Present Value, RW[1]
9	OpenLoop	0..1	0 Closed loop 1 Open loop	Present Value, RW[1]
10	CO_Control	0..1	0 Inactive 1 Active	Present Value, RW[1]
11	DP_calAuto	0..1	0 Inactive 1 Active	Present Value, RW[1]
12	Reboot	0..1	0 Inactive 1 Reboot	Present Value, RW[1]
13	DI3 Type	0..1	0 Normally Closed 1 Normally Open	Present Value, RW[1]
14	X1 Mode	0..1	0 Analog mode 1 Digital mode	Present Value, RW[1]
15	ObjectValues MB based	0..1	0 Default Multistate Values 1 Multistate Values MBbased	Present Value, RW
16	Temp Unit	0..1	0 °C 1 °F	Present Value, RW
17	Frost Protection	0..1	0 Disabled 1 Enabled	Present Value, RW[1]

[1] Objects accessible / implemented depending on product type

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2.4.3. Analog input

Analog input	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- N/A

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	Vam	N/A	Real	Present Value, R
1	Tam1	N/A	Real	Present Value, R[1]
2	Tam2	N/A	Real	Present Value, R[1]
3	dP meas	N/A	Real	Present Value, R[1]
4	Text 1	N/A	Real	Present Value, R[1]
5	Text 2	N/A	Real	Present Value, R[1]
6	Y1	N/A	Real	Present Value, R[1]
7	Y2	N/A	Real	Present Value, R[1]
8	Warning	N/A	Real	Present Value, R
9	Error	N/A	Real	Present Value, R
10	Warning2	N/A	Real	Present Value, R
11	Error2	N/A	Real	Present Value, R
12	Vr	N/A	Real	Present Value, R

[1] Objects accessible / implemented depending on product type

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Description Analog Input [8] - Warning

Bit	Value	Name	Explanation
b0	1	Temperature	One of the Tam temperature sensors returns an invalid reading
b1	2	*Not Used*	
b2	4	*Not Used*	
b3	8	Negative Flow	Flow direction is wrong (only on B-sensor)
b4	16	Manual Mode	Actuator is on manual (only on DXMB)

Description Analog Input [9] - Error

Bit	Value	Name	Explanation
b0	1	CRC Error	Internal Error, contact manufacturer
b1	2	EE	Internal Error, contact manufacturer
b2	4	Parameter error	In this case, one or more parameters are written over the BACnet, which are not valid. When the parameter is correctly written again, the error automatically resets
b3	8	ChangeOver	Error during changeover
b4	16	CO Supply	Only for DXMB-Quattro : one of the supply valves didn't close correctly on change-over
b5	32	CO Return	Only for DXMB-Quattro : one of the return valves didn't close correctly on
b6	64	DP Calibration	Only for dP valves, No dP calibration done
b7	128	ADC Calibration	ADC Calibration not done
b8	256	Range Error	Ranges of Y1h/c are incorrectly defined in split-range systems
b9	512	No Flow sensor	Connection with flow sensor is lost
b10	1024	Quattro Error	Only for DXMB-Quattro : config or comm error

Description Analog Input [10] – Warning2

Bit	Value	Name	Explanation
b0	1	TAM1	Measurement Tam1 out of range (warning 1)
b1	2	TAM2	Measurement Tam2 out of range (warning 1)
b2	4	TEXT1	Measurement Text1 out of range (warning 1)
b3	8	TEXT2	Measurement Text2 out of range (warning 1)

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Description Analog Input [11] – Error2

Bit	Value	Name	Explanation
b0	1	Y1_0V	Calibration value not present for Y1 0V (error 128)
b1	2	Y1_10V	Calibration value not present for Y1 10V (error 128)
b2	4	Y2_0V	Calibration value not present for Y2 0V (error 128)
b3	8	Y2_10V	Calibration value not present for Y2 10V (error 128)
b4	16	X1_10V	Calibration value not present for X1 10V (error 128)
b5	32	Quattro_Config	One or more Quattro slaves config is missing (error 1024)
b6	64	Comm Supply H	BLE Communication with Supply Heating Valve failed (error 1024)
b7	128	Comm Supply C	BLE Communication with Supply Cooling Valve failed (error 1024)
b8	256	Comm Return H	BLE Communication with Return Heating Valve failed (error 1024)
b9	512	Comm Return C	BLE Communication with Return Cooling Valve failed (error 1024)

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2.4.4. Analog value

Analog value	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- N/A

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	Y1h	Y1minh .. Y1maxh; 0,1	Real	Present Value, RW[2]
	Y1minh	0..10; 0,1	Real	Low Limit, RW
	Y1maxh	0..10; 0,1	Real	High Limit, RW
1	Y1c	Y1minc .. Y1maxc; 0,1	Real	Present Value, RW[2]
	Y1minc	0..10; 0,1	Real	Low Limit, RW
	Y1maxc	0..10; 0,1	Real	High Limit, RW
2	Vsh	Type dependent	Real	Present Value, RW[2]
	Vs minhd	0..Vsmaxhd	Real	Low Limit, RW
	Vs maxhd	Vsminhd..Vnomh	Real	High Limit, RW
3	Vsc	Type dependent	Real	Present Value, RW[2]
	Vs mincd	0..Vsmaxcd	Real	Low Limit, RW
	Vs maxcd	Vsmincd..Vnomc	Real	High Limit, RW
4	Tset	14..35°C; 0,1	Real	Present Value, RW[1]
5	Tsetcalc	0,1	Real	Present Value, R[1]
6	Setp Modif	N/A	1: Window Open 2: Away Mode 4: Night Mode 8: Condensation 16: Frost protection 32: Control Max Heating 64: Control Max Cooling	Present Value, R[1]
7	Tcoolmin	9..35°C; 0,1	Real	Present Value, RW[1]
8	dPsh	dPsminh .. dPsmaxh; 0,1	Real	Present Value, RW[1]
	dPsminh	0..10; 0,1	Real	Low Limit, RW[1]
	dPsmaxh	0..10; 0,1	Real	High Limit, RW[1]
9	dPsc	dPsminc .. dPsmaxc; 0,1	Real	Present Value, RW[1]
	dPsminc	0..10; 0,1	Real	Low Limit, RW[1]
	dPsmaxc	0..10; 0,1	Real	High Limit, RW[1]
10	EnerHeat	DXC = Wh : 1 DN15-65 = Wh : 10 DN80-200 = Wh : 100	Real	Present Value, R[1]
11	EnerCool	DXC = Wh : 1 DN15-65 = Wh : 10 DN080-200 = Wh : 100	Real	Present Value, R[1]
12	Tmeas	Tmeas min .. Tmeas max	Real	Present Value, RW[1,2]
	Tmeas min	0..90°C; 0,1	Real	Low Limit, RW[1]
	Tmeas max	0..90°C; 0,1	Real	High Limit, RW[1]

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13	Tsetadj	0..Tsetj max; 0,1	Real	Present Value, RW[1,2]
	Tseadj max	00..90° C; 0,1	Real	High Limit, RW[1]
14	Test Reg	Limited to test command values	Real	Present Value, RW
15	Command Reg	Limited to command value, to change settings	Real	Present Value, RW
16	Y2	Y2min ..Y2max	Real	Present Value, RW[1]
17	Vs maxh d	Vsminhd ..Vsnomh	Real	Present Value, RW
18	Vs maxc d	Vsmincd .. Vsnomc	Real	Present Value, RW
19	Water Mixture	0..18 0 = water 1-9 = 10%-90% Propylene Glycol 10-18 = 10%-90% Ethylene Glycol	Real	Present Value, RW[1]
20	XM	0..10,0 ; 0,1	Real	Present Value, R[1]
21	T1 Correction	-5..+5; 0,1	Real	Present Value, RW[1]
22	T2 Correction	-5..+5; 0,1	Real	Present Value, RW[1]
23	Temp Dead band	0,2..6°C; 0,1	Real	Present Value, RW[1]
24	Temp Db Night	0,2..20°C; 0,1	Real	Present Value, RW[1]
25	Window Open MinTemp	6..35°C; 0,1	Real	Present Value, RW[1]
26	Window Open MaxTemp	6..40°C; 0,1	Real	Present Value, RW[1]
27	Prop band Heating	0,5..6°C; 0,1	Real	Present Value, RW[1]
28	Prop band Cooling	0,5..6°C; 0,1	Real	Present Value, RW[1]
29	Integration Time	50..50000 sec; 1	Real	Present Value, RW[1]
30	Power Consumption	DXC = kW : 1000 DN15-32 = kW : 100 DN40-125 = kW : 10 DN150-200 = kW : 1	Real	Present Value, R[1]

[1] Objects accessible / implemented depending on product type
[2] Write enabled depending on the Control Signal or Measuring Signal status

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2.4.5. Analog output

Analog Output	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- N/A

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	X1	N/A	Real	Present Value, R[1]

[1] Objects accessible / implemented depending on product type

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2.4.6. Multistate value

Multistate Value	
Dynamically creatable using CreateObject service?	No
Dynamically deletable using DeleteObject service?	No
Writable properties that are not otherwise required by the standard	N/A
Conditionally writable properties that are otherwise not required by the standard	N/A
Proprietary properties	N/A

Supported optional properties

- NumberOfStates
- StateText

Supported Objects

Instance ID	Object Name	Restrictions	Resolution	Value Access Type
0	SysType	1..8[1]	1 Heating 2 Cooling 3 *Not used for this device type* 4 RC Heating 5 RC Cooling 6 *Not used for this device type* 7 Dpheating 8 Dpcooling	Present Value, RW
1	ClimStatus	1..6	1 Heating 2 Cooling 3 Not defined 4 Error 5 Check flow 6 Flush mode	Present Value, R
3	6WayFlush	1..3	1 Inactive 2 Flush cooling 3 Flush heating	Present Value, RW[1]
4	Control Char	1..2	1 Linear 2 Equal percentage	Present Value, RW
5	DI1 Usage	1..9	1 DI1 Not used 2 Window open 3 Away mode 4 Counter 5 Night mode 6 Control on max heating 7 Control on max cooling 8 *Not used for this device type* 9 Condensation	Present Value, RW[1]

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6	DI2 Usage	1..9	1 DI1 Not used 2 Window open 3 Away mode 4 Counter 5 Night mode 6 Control on max heating 7 Control on max cooling 8 *Not used for this device type* 9 Condensation	Present Value, RW[1]
7	Dp CalStat	1..4	1 idle 2 in progress 3 succeeded 4 failed	Present Value, R
8	DI3 Usage	1..9	1 DI3 Not used 2 Window open 3 Away mode 4 Counter 5 Night mode 6 Control on max heating 7 Control on max cooling 8 *Not used for this device type* 9 Condensation	Present Value, RW[1]
9	Text1 Usage	1..3	1 Pt500 2 Pt1000 3 Potentiometer 10k	Present Value, RW[1]
10	Text2 Usage	1..3	1 Pt500 2 Pt1000 3 Potentiometer 10k	Present Value, RW[1]
11	X1 type	1..4	1 Flow 2 *Not used for this device type* 3 Y2 Controlled 4 Y1 Controlled	Present Value, RW[1]
12	X1 char	1..2	1 Linear 2 Equal percentage	Present Value, RW[1]
13	Temp Control Type	1..2	1 P 2 PI	Present Value, RW[1]

[1] Objects accessible / implemented depending on product type

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2.4.7. Network port

Supported properties

Property Identifier	Datatype	Restrictions
Object_Identifier	BACnetObjectIdentifier	
Object_Name	CharacterString	
Object_Type	BACnetObjectType	
Description	CharacterString	
Status_Flags	BACnetStatusFlags	
Reliability	BACnetReliability	
Out_Of_Service	Boolean	
Network_Type	BACnetNetworkType	
Protocol_Level	BACnetProtocolLevel	
Network_Number	Unsigned16	
Network_Number_Quality	BACnetNetworkNumberQuality	
Changes_Pending	Boolean	
Command	BACnetNetworkPortCommand	
MAC_Address	Octet String	
Link_Speed	Real	
Link_Speeds	BACnetARRAY[N] of Real	

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2.4.8. List of Proprietary Properties

Generally, *dynamx*™ BACNet implements the open BACNet communication using standard objects and properties. The following proprietary properties may be used to retrieve additional information from the device.

Supported properties

Property Name	Identifier	Datatype	Value Access Type
Device FreeText	514	Character String	RW
BACNet address	515	Unsigned	RW
Production Number	516	Character String	RW
FSB Serial number	517	Character String	R

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2.5. Segmentation capability

- Segmentation requests are not supported
- Segmentation responses are not supported

2.6. Data Link layer options

- MS/TP master (Clause 9), Baud rates : 9600/19200/38400
- MS/TP slave (Clause 9), Baud rates : 9600/19200/38400

2.7. Device address binding

- Static device binding is not supported

2.8. Networking options

N/A

2.9. Character sets supported

- ANSI X34

2.10. Network Security Options

- Non secure device, is capable of operating without BACnet Network security

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3. Annex A : Variables description list

BACNet Address	Network address (1..127)	Proprietary Property
ClimStatus	Status of the current working mode.	Multistate value
Command reg	Internal command register. (to be used by Belparts only)	Analog value
Control char	Defines whether the control characteristic, i.e. the relation between Y1 and Vsh is linear or equal percentage.	Multistate value
Control Sig	Sets the flow mode of the device to analog (accepts setpoint from external analog input signal) or digital (accepts setpoint from internal parameter). After Ctrl Sig is changed, the control loop state is reset.	Binary value
CO_control	Defines whether the valve will automatically change from heating to cooling mode and vice-versa depending on the two external temperatures (Tam1 & Tam2)	Binary value
Device FreeText	Free to use 20 character text string	Proprietary Property
DI1 State	Logical, current state of the digital input	Binary input
DI1 Type	It defines the digital input 1 contact has normally open or normally closed. It has no impact if the digital input 1 is defined as a counter.	Binary value
DI1 Usage	It defines the usage of digital input 1. It can be of type window contact, presence detection, night mode active, forced control on maximum flow setpoint (heating or cooling) and condensation. It will have an impact on the SetpModif value. If the user choose the counter, pulses received in the digital input will be recorded into Counter 1 (no effect on SetpModif)	Multistate value
DI2 State	Logical, current state of the digital input	Binary input
DI2 Type	It defines the digital input 2 contact has normally open or normally closed. It has no impact if the digital input 2 is defined as a counter.	Binary value
DI2 Usage	It defines the usage of digital input 2. It can be of type window contact, presence detection, night mode active, forced control on maximum flow setpoint (heating or cooling) and condensation. It will have an impact on the SetpModif value. If the user choose the counter, pulses received in the digital input will be recorded into Counter 1 (no effect on SetpModif)	Multistate value
DI3 State	Logical, current state of the digital input	Binary input
DI3 Type	It defines the digital input 3 contact has normally open or normally closed. It has no impact if the digital input 3 is defined as a counter	Binary value
DI3 Usage	It defines the usage of digital input 3. It can be of type window contact, presence detection, night mode active, forced control on maximum flow setpoint (heating or cooling) and condensation. It will have an impact on the SetpModif value. If the user choose the counter, pulses received in the digital input will be recorded into Counter 1 (no effect on SetpModif)	Multistate value
dPCalAuto	If the flag is active, then a calibration process will occurs every 6 month on the dp sensor. It will result by closing and opening the valve for a few minutes.	Binary value
dPCalProc	If the flag is active, then a calibration process will directly occurs and will not take into account current parameters like dpsh etc. (until the calibration is completed).	Binary value

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dP CalStat	Value indicating the current status of the dp calibration.	Multistate Value
dPmeas	Actual dp measured by the dp sensor	Analog Input
dPsc	dP setpoint when climate status is in cooling mode.	Analog value
dPs minc	The value of dpsc at which the dp control loop starts to operate.	Analog value
dPs maxc	The value of dpsc at which the dp control loop still operates.	Analog value
dPsh	dP setpoint when climate status is in heating mode.	Analog value
dPs minh	The value of dpsh at which the dp control loop starts to operate.	Analog value
dPs maxh	The value of dpsh at which the dp control loop still operates.	Analog value
Ener. cool	Cumulative energy consumption in climate status cooling mode.	Analog value
Ener. heat	Cumulative energy consumption in climate status heating mode.	Analog value
Error	Bitfield that displays error code.	Analog Input
Error 2	Bitfield that displays details of error code	Analog Input
Flush	If 1 then device is in commissioning (flush) mode, if 0 in regular mode. Can be written to force the device in commissioning mode.	Binary value
Flush 6-way	In the Quattro valves (DXMB4), the "Flush 6 way" parameter will replace the default "Flush" parameter. Setting to Flush cooling will force the device in commissioning mode on the cooling port. Setting to Flush heating will force the device in commissioning mode on the heating port. If it's inactive, the valve will follow the set points	Multistate value
FSB Serial Number	Serial number of the flow sensor board	Proprietary Property
Integration Time	Integration time of the RC/Temperature control	Analog value
Meas Sig	Set Meas Sig in analog mode (by default) will accept values on Troom from external input signal. In digital mode values for Troom will be defined either via BACNet	Binary Value
Night mode	Night mode disabled / enabled	Binary Value
ObjectValues MB based	When active, the values of Mutistate Value Objects will be the same as used in the MODBUS driver	Binary Value
OpenLoop	Enables or disables the flow control loop	Binary value
Power Consumption	Current power calculation based on flow and temperature measurements	Analog value

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Production Number	Free to use 12 character text string for customer production number	Proprietary Property
Prop band Cooling	Width of proportional band for cooling	Analog value
Prop band Heating	Width of proportional band for heating	Analog value
Reboot	Setting this to True causes the device to reboot.	Binary Value
Setp modif	Bitfield which represents the different states, set by digital inputs or over the bus, that can effect the IRC or flow setpoint.	Analog value
Sys type	The mode will determine whether the energy consumption will be added to the heating energy variable EnerHeat or the cooling energy variable EnerCool.	Multistate value
T1 Correction	Adjustable offset for measurement Text1	Analog value
T2 Correction	Adjustable offset for measurement Text2	Analog value
Tam 1	Actual medium temperature. Reporting Unit can be °C or °F, depending on value of Tunit.	Analog Input
Tam 2	Actual medium temperature from the 2nd built-in sensor. Reporting Unit can be °C or °F, depending on value of Tunit. Only used when 2 temperature sensors present.	Analog Input
Tcoolmin	Minimum cooling setpoint	Analog value
Temp Control Type	Control type of room controller: P or PI	Multistate value
Temp Dead band	Controller dead band of the RC/Temperature control	Analog value
Temp Db Night	Controller dead band of the RC/Temperature control in Night mode	Analog value
Temp Unit	Reporting unit of Tam. Can be degrees Celsius (°C) or degrees Fahrenheit (°F)	Binary Value
Test Reg	Setting this value is used to perform specific tests.	Analog Value
Text1	Value of the 1st external temperature sensor or corresponding potentiometer value.	Analog Input
Text2	Value of the 2nd external temperature sensor or corresponding potentiometer value.	Analog Input
Text 1 Type	Used to define what Text1 functions as, can be set as PT500, PT1000 or a potentiometer	Multistate Value
Text 2 Type	Used to define what Text2 functions as, can be set as PT500, PT1000 or a potentiometer	Multistate Value
Tmeas	Actual measured temperature	Analog value
Tmeas max	Max measured temperature	Analog value

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Tmeas min	Min measured temperature	Analog value
Treturn	This parameter determines which temperature sensor is on the supply and which on the return pipes. It is useful if the user wants to activate the change-over function.	Binary value
Tset	Medium temperature setpoint	Analog value
Tsetadj	Adjustment to the medium temperature setpoint	Analog value
Tsetcalc	Temperature setpoint calculated, calculation depends on chosen settings	Analog value
Vam	Actual medium flow reported in the unit defined by Vunit.	Analog Input
Vr	Realtime medium flow measurement reported in the unit defined by Vunit	Analog Input
Vs maxc d	Maximum flow setpoint in climate status cooling mode. Will always mirror Vsminh.	Analog value
Vs maxh d	Maximum flow setpoint in climate status heating mode. Will always mirror Vsminh.	Analog value
Vs minc d	Minimum flow setpoint in climate status cooling mode. Will always mirror Vsminh.	Analog value
Vs minh d	Minimum flow setpoint in climate status heating mode. Will always mirror Vsminh.	Analog value
Vsc	Setpoint used when climate status is in cooling mode.	Analog value
Vsh	Setpoint used when climate status is in heating mode.	Analog value
Water Mixture	Setting register for DXM-valves	Analog value
Warning	Bitfield that displays warning code.	Analog Input
Warning2	Bitfield that displays details of warning code	Analog Input
Window Open MaxTemp	Maximum temperature when window open	Analog value
Window Open MinTemp	Minimum temperature when window open	Analog value
X1	Flow feedback signal or Controlled signal (by Y2 or Y2 digital) Range: 0..10V, representing a flow /Y2 control between 0 and Vsmaxd/Y2max by means of a linear or equal percentage relation between voltage and flow/Y2.	Analog output
X1 type	Defines the type of output for X1. It can be a representation of the flow or controlled by an external device like a CO2 analyzer (linked to Y2 or Y2 digital).	Analog value
X1 char	Defines whether the X1 feedback signal should return a value in relation with the flow in a linear or equal percentage way.	Analog value
X1 mode	In case the X1 output is defined as controlled by Y2, the output will reflect Y2 digital if X1 mode is defined in digital mode.	Binary Value

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Xm	Value indicating the physical drive/valve position	Analog value
Y1	Setpoint voltage level. In analog mode, it's used to define Y1h or Y1c depending on the Sys Type. In digital mode, it's NOT used but it can be read.	Analog Input
Y1 maxc	The value of Y1c at which the flow control loop still operates.	Analog value
Y1 maxh	The value of Y1h at which the flow control loop still operates.	Analog value
Y1 minc	The value of Y1c at which the flow control loop starts to operate.	Analog value
Y1 minh	The value of Y1h at which the flow control loop starts to operate.	Analog value
Y1c	Setpoint cooling. In digital mode this is a read-write parameter. In analog mode it is set by the external analog input signal and read-only on the UI and bus.	Analog value
Y1h	Setpoint heating. In digital mode this is a read-write parameter. In analog mode it is set by the external analog input signal and read-only on the UI and bus.	Analog value
Y2	Voltage level of for example dp controller.	Analog Input

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