

BACnet Protocol EXact/EXact2

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1. Introduction

1.1 Aperçu

Appareil de traitement de l'air (AHU) équipé d'une unité de commande EXact/EXact2. La fonction BACnet est implémentée dans le serveur web EXact avec le logiciel version 3.0-xxxx ou plus récente. EXact est un BACnet Application Specific Controller (B-ASC) avec des possibilités de choix par couches liaison de données de soutien : BACnet IP ou BACnet MSTP.

De plus, nous vous conseillons de consulter le document "EXact_EDE_ddmmy" (Engineering Data Exchange).

1.2 Communication

TCP/IP : 1 x 10/100 Mbit Ethernet, contact RJ45.

MSTP : 1 x RS-485

1.3 BACnet Interoperability Building Blocks de soutien

Partage des données	DS-RP-B	Data Sharing-ReadProperty-B
Partage des données	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B
Partage des données	DS-WP-B	Data Sharing-WriteProperty-B
Partage des données	DS-WPM-B	Data Sharing-WritePropertyMultiple-B
Maniement de l'unité	DM-DDB-B	Device Management-DynamicDeviceBinding-B
Maniement de l'unité	DM-DOB-B	Device Management-DynamicObjectBinding-B
Maniement de l'unité	DM-DCC-B	Device Management-DeviceCommunicationControl-B
Maniement de l'unité	DM-RD-B	Device Management-ReinitializeDevice-B

1.4 Types d'objets standard BACnet IP de soutien

Types d'objets standard RO = Read only RW = Read / Write	Propriétés
Unité	Object_Identifier Object_Name Object_Type System_Status Vendor_Name Vendor_Identifier Model_Name Firmware_Revision Application_Software_Version Protocol_Version Protocol_Revision Protocol_Services_Supported Protocol_Object_Types_Supported Object_List Max_APDU_Length_Accepted Segmentation_Supported APDU_Timeout Number_Of_APDU_Retries Device_Address_Binding Database_Revision
Entrée analogique AI (RO)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units
Valeurs analogiques AO (RW)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Units
Entrée binaire DI (RO)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Polarité

Types d'objets standard RO = Read only RW = Read / Write	Propriétés
Valeur binaire DO (RW)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service
Entrée Multistate (RO)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Number_Of_States
Valeur Multistate (RW)	Object_Identifier Object_Name Object_Type Present_Value Status_Flags Event_State Out_Of_Service Number_Of_States

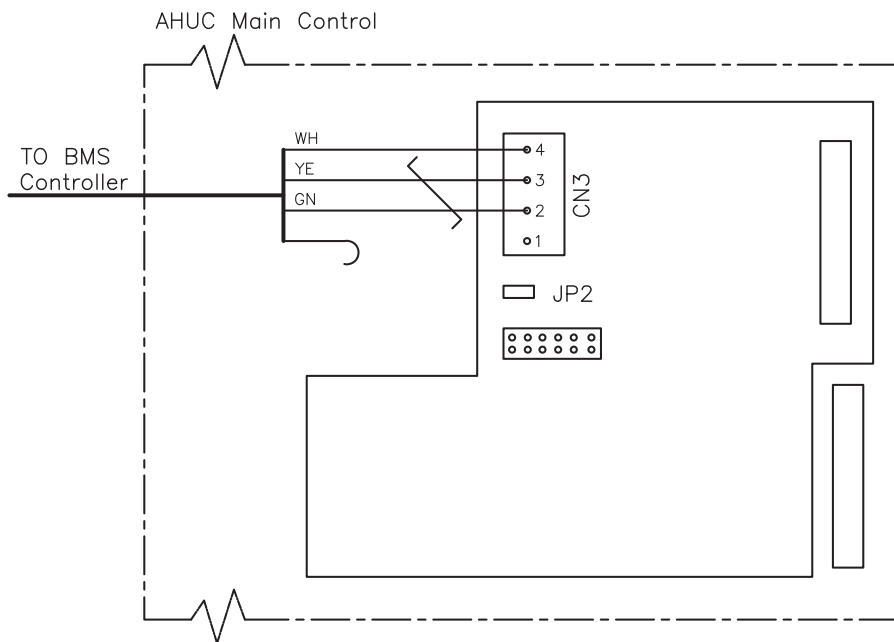
2. Raccordement

2.1 Raccordement MSTP

Câble Le câble MSTP de BACnet doit être un câble à paire torsadée 2 x 2 x 0,25².

La connexion BACnet MSTP est raccordée à la commande principale CN3. Monter uniquement BACnet MSTP A, B et la mise à la terre. Voir diagramme.

EXact/EXact2



RD12697-01

Explication du diagramme

CN3 : BACnet MSTP (RS-485)

Borne	Description du signal
1	Ne doit pas être raccordé
2	RS485 + (A)
3	RS485 - (B)
4	0V DC (mise à la terre)

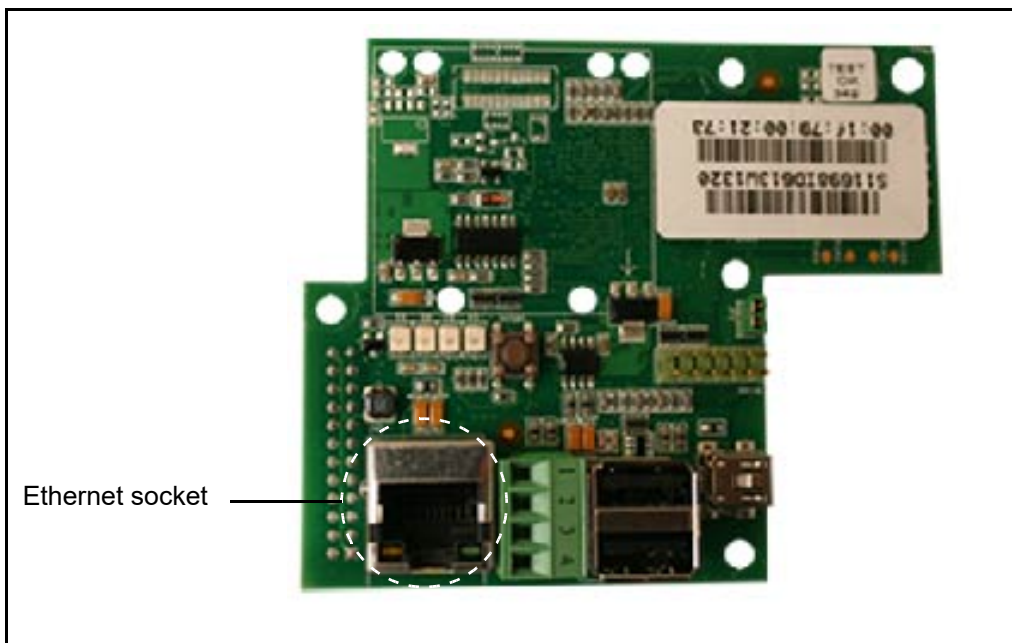
Le signal A et B (borne 2 - 3) doit être à paire torsadée.

Connecteur d'extrémité

Si la commande EXact/EXact2 est la dernière unité sur le câble, monter une résistance de terminaison de 120 Ω. Pour ce faire, utiliser le jumper JP2 sur le serveur web.

2.2 Raccordement IP BACnet

Raccordement du réseau Monter le raccordement de réseau dans le connecteur Ethernet Si le serveur web doit être raccordé directement au niveau du PC, utiliser un câble de réseau croisé. Cela n'est toutefois pas nécessaire avec des modèles d'ordinateurs récents.



Adresse MAC L'adresse MAC du serveur web peut être consultée sur la platine du serveur web ainsi que dans le menu 3.6 dans le panneau HMI.

Type et longueur de câble

Câble	Longueur de câble
Câble CAT5E STP (câble isolé)	ALDES recommande une longueur de câble max. : 70 m

2.2.1 Configuration du serveur web

Le serveur web soutient aussi bien les adresses IP statiques que dynamiques. La configuration s'effectue dans le menu 3.6 dans le panneau HMI.

Exemple

```

3.6 Seveur Web
DHCP > Non
Adresse IP
> 192.168.001.180
Masque de sous-réseau
> 255.255.255.000
Accès standard
> 192.168.001.001
Numéro port > 80
Adresse MAC
00:1F:79:00:00:D0
Réinit. mot passe >Non
    
```

Consulter les instructions de base dans EXact pour :

- modifier les réglages
- sauvegarder les réglages modifiés

Numéro de port*) Si plusieurs installations sont raccordées sur le même routeur, il est possible de leur attribuer des numéros de port différents et d'utiliser le transfert de port.

2.2.2 Configuration de BACnet

Exemple

3.5 BMS	
BMS >	Aucun
Configuration >	

- Sélectionner BACnet MSTP ou BACnet IP depuis BMS dans le menu 3.5.

Uniquement pour BACnet MSTP

3.5.2 Configuration	
ID d'unité >	0
Nom d'unité :	
Numéro de réseau >	0
Adresse >	Aucun
Débit baud >	9

Régler les valeurs suivantes telles que définies par le responsable de système :

- ID d'unité (0 - 4194303)
- Norm d'unité - Remarque : peut uniquement être réglé dans le serveur web
- Numéro de réseau (1 - 65535)
- Adresse (0 - 127)
- Débit baud (9600, 19200, 115200)

Uniquement pour BACnet IP

3.5.2 Configuration	
ID d'unité >	0
Nom d'unité :	
Port UDP	47808

Régler les valeurs suivantes telles que définies par le responsable de système :

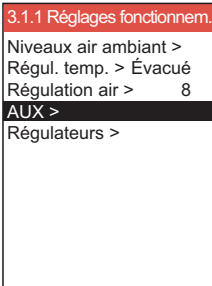
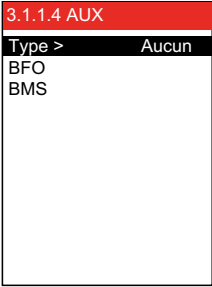
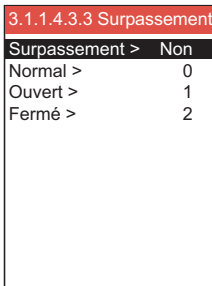
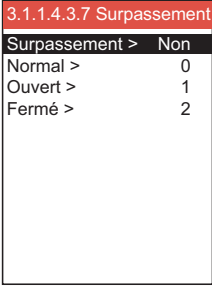
- ID d'unité (0 - 4194303)
- Norm d'unité - Remarque : peut uniquement être réglé dans le serveur web
- Port UDP (47808-47823)

2.3 Commande asservie du registre externe

Lors de l'application de la méthode de régulation de l'air 8 "Commande externe des vitesses du ventilateur", il peut arriver, dans certaines situations de service, qu'il devienne nécessaire d'asservir le registre externe dans le système du conduit. Un registre externe est par ex. le registre VAV.

En cas d'incendie, de gel ou de rafraîchissement nocturne, le VEX peut envoyer un signal à l'installation BMS pour ouvrir ou fermer le registre dans le conduit d'air soufflé ou d'air extrait.

2.3.1 Réglage de la fonction d'asservissement (uniquement pour la méthode de régulation de l'air 8)

Action	Handling	L'écran affiche...
1	<ul style="list-style-type: none"> Passer au menu Réglages"->Installation->Réglages de service" Régler "Rég air." sur "8" 	 <p>3.1.1 Réglages fonctionnem. Niveaux air ambiant > Régul. temp. > Évacué Régulation air > 8 AUX > Régulateurs ></p>
2	<ul style="list-style-type: none"> Passer au menu "AUX" Régler "Type" sur "BMS" 	 <p>3.1.1.4 AUX Type > Aucun BFO BMS</p>
3	<ul style="list-style-type: none"> Passer au menu "BMS" Passer au menu "Asservissement" sous "Air extrait" Régler "Asservissement" sur "Oui" Régler "Normal" à la valeur que vous souhaitez envoyer lorsque le VEX ne nécessite pas un asservissement du registre d'air extrait Régler "Ouvert" à la valeur que vous souhaitez envoyer lorsque le VEX nécessite l'ouverture du registre d'air extrait Régler "Fermer" à la valeur que vous souhaitez envoyer lorsque le VEX nécessite la fermeture du registre d'air extrait Retourner au menu "BMS" 	 <p>3.1.1.4.3.3 Surpassement Surpassement > Non Normal > 0 Ouvert > 1 Fermé > 2</p>
3	<ul style="list-style-type: none"> Passer au menu "Asservissement" sous "Air soufflé" Régler "Asservissement" sur "Oui" Régler "Normal" à la valeur que vous souhaitez envoyer lorsque le VEX ne nécessite pas un asservissement du registre d'air soufflé Régler "Ouvert" à la valeur que vous souhaitez envoyer lorsque le VEX nécessite l'ouverture du registre d'air soufflé Régler "Fermer" à la valeur que vous souhaitez envoyer lorsque le VEX nécessite la fermeture du registre d'air soufflé Veillez noter que les valeurs pour Normal, Ouvert et Fermé ne doivent pas être identiques. 	 <p>3.1.1.4.3.7 Surpassement Surpassement > Non Normal > 0 Ouvert > 1 Fermé > 2</p>
Si vous ne souhaitez pas d'asservissement pour l'un ou les deux conduits, réglez "Asservissement" sur "Non".		

2.4 Exemple de commande de l'installation

2.4.1 Commande du débit d'air, de la température de l'air extrait et du programme manuel mode/heure

Réglage du débit d'air

Étape	Opération
1	Régler Object type AV - Index 06 - BMSInValue.AirSP sur une valeur située entre 0 et 100%. La valeur 0% coupe l'appareil.

Réglage de la température de l'air extrait

Étape	Opération
1	Régler Object type AV - Index 07 - BMSInValue.TempSP sur une valeur située entre 10 et 35°C. Remarque : le point de réglage de la température peut être limité par d'autres réglages et fonctions.

Programme heure Régler Object type BV - Index 00 - BMSInValue.CtrlMode sur "1", si l'appareil doit être commuté sur le programme heure.

3. Appendix - Complete list of Registers - in English

3.1 Appendix

3.1.1 Object type AV

Index	Name	Default value	Poll interval	Unit	Description
00	BMSInValue.TimeSecond	60.0	30	73/Seconds	Second from internal real time clock
01	BMSInValue.TimeMinute	60.0	30	72/Minutes	Minute from internal real time clock
02	BMSInValue.TimeHour	24	30	71/Hours	Hour from internal real time clock
03	BMSInValue.TimeDay	0	30	70/Day	Day in month from internal real time clock
04	BMSInValue.TimeMonth	0	30	68/Month	Month from internal real time clock
05	BMSInValue.TimeYear	2099	30	67/Year	Year from internal real time clock
06	BMSInValue.AirSP	1001	30	98/%	Airflow set point. This register sets the airflow set point.
07	BMSInValue.TempSP	0	30	62/°C	Temperature set point: This register is used to set the temperature set point to the supply air or room temperature regulator, depending the configuration.
08	BMSInValue.AirSPFixed	10001	30	87/ l/s	Fixed airflow set point: This register sets the airflow set point for the extract air air fan or supply air fan, when using air regulation method 4 or 3.
09	BMSInValue.Balance	0	30	95	Air balance: This register indicates the balance set point between supply air and extract air set point.
10	BMSInValue.RH	0	30	98/%	Relative humidity: This register holds the measured RH value for the compensation function.
11	BMSInValue.CO2	0	30	96/ppm	CO2: This register holds the measured CO2 value for the compensation function.
12	BMSInValue.OutDTemp	1500	30	62/°C	Outdoor temperature compensation of supply air: This register holds the measured temperature for the compensation function.
13	BMSInValue.AirRedTemp	1500	30	62/°C	Supply temperature controlled air reduction: This register holds the measured temperature for the compensation function.
14	BMSInValue.EFdPWarn	256	30	53/Pa	Extract air filter warning level: This register holds the value for the extract air filter warning level.
15	BMSInValue.EFdPAlm	256	30	53/Pa	Extract air filter alarm level: This register holds the value for the extract air filter alarm level.
16	BMSInValue.SFdPWarn	256	30	53/Pa	Supply air filter warning level: This register holds the value for the supply air filter warning level.

3.1.1 Object type AV

Index	Name	Default value	Poll interval	Unit	Description
17	BMSInValue.SFdPALm	256	30	53/Pa	Supply filter alarm level: This register holds the value for the supply air filter Alarm level.
18	VEXConfig.HeatRegType	0	30	95	Heat regulator type: This variable holds the value for the current heat regulator type. 0 = Supply temperature regulation. 1 = Room temperature regulation.
19	BMSInValue.AUXExtSet	1001	30	98/%	Extract fan speed setpoint when controlling VEX unit from BMS. 0-1000 = 0.0-100.0%. 1001 = default value. Air reg. = 8 (menu 3.1.1) and AUX = BMS (menu 3.1.14).
20	BMSInValue.AUXSupSet	1001	30	98/%	Supply fan speed setpoint when controlling VEX unit from BMS. 0-1000 = 0.0-100.0%. 1001 = default value. Air reg. = 8 (menu 3.1.1) and AUX = BMS (menu 3.1.14).
21	BMSOutValue.AUXExtOr	65535	30	95	BMS override output for dampers in extract duct. This variable holds a user specified value, that indicates weather external dampers must be open, closed or free running. See "EXact menuguide" for instructions.
22	BMSOutValue.AUXSupOr	65535	30	95	BMS override output for dampers in supply duct. This variable holds a user specified value, that indicates weather external dampers must be open, closed or free running. See "EXact menuguide" for instructions.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
0	BMSOutValue.IpAdr3	0.0	30	95	IP Address 1: This register indicates the IP address for the onboard webserver.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
01	BMSOutValue.IpAdr2	0.0	30	95	IP Address 2: This register indicates the IP address for the onboard webserver.
02	BMSOutValue.IpAdr1	0.0	30	95	IP Address 3: This register indicates the IP address for the onboard webserver.
03	BMSOutValue.IpAdr0	0.0	30	95	IP Address 4: This register indicates the IP address for the onboard webserver.
04	BMSOutValue.IpMask3	0.0	30	95	IP Mask 1: This register indicates the IP mask for the onboard webserver.
05	BMSOutValue.IpMask2	0.0	30	95	IP Mask 2: This register indicates the IP mask for the onboard webserver.
06	BMSOutValue.IpMask1	0.0	30	95	IP Mask 3: This register indicates the IP mask for the onboard webserver.
07	BMSOutValue.IpMask0	0.0	30	95	IP Mask 4: This register indicates the IP mask for the onboard webserver.
08	BMSOutValue.IpGateway3	0.0	30	95	IP Gateway 1: This register indicates the IP gateway for the onboard webserver.
09	BMSOutValue.IpGateway2	0.0	30	95	IP Gateway 2: This register indicates the IP gateway for the onboard webserver.
10	BMSOutValue.IpGateway1	0.0	30	95	IP Gateway 3: This register indicates the IP gateway for the onboard webserver.
11	BMSOutValue.IpGateway0	0.0	30	95	IP Gateway 4: This register indicates the IP gateway for the onboard webserver.
12	FC1.WFreqRef	0.0	30	95	MC1 setpoint: Depends on the motortype; Hz for FC-motors and rpm for EC-motors. This register indicates the current frequency output from the FC.
13	FC1.OutPower	0.0	30	47/W	FC1 power: This register indicates the current power output from the FC.
14	FC2.WFreqRef	0.0	30	95	MC2 setpoint: Depends on the motortype; Hz for FC-motors and rpm for EC-motors. This register indicates the current frequency output from the FC.
15	FC2.OutPower	0.0	30	47/W	FC2 power: This register indicates the current power output from the FC.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
16	RHX2M.Setpoint	0.0	30	98/%	RHX2M set point: This register indicates is the set point for the rotary heat exchanger unit.
17	MHC1.Setpoint	0.0	30	98/%	Heating unit 1 set point: This register indicates the set point for the heating unit.
18	MHC1.ValveSet	0.0	30	98/%	Heating unit 1 status: This register indicates the status of the heating unit. Value: 0 = Heat retention mode 1 = Normal operation, with frost safety surveillance activated.
19	MHC1.MHCE_Out	0.0	30	98/%	Heating unit 1 valve set point: This register indicates the set point to the valve.
20	MHC4.Setpoint	0.0	30	98/%	External cooling unit set point This register indicates the set point to the cooling unit.
21	MHC4.ValveSet	0.0	30	98/%	External cooling unit valve set point This register indicates the set point to the valve.
22	MCUC.Setpoint	0.0	30	98/%	Cooling unit set point: This register indicates the set point to the cooling unit.
23	Air.Setpoint	0.0	30	98/%	Airflow set point: This register indicates the actual airflow set point in percent.
24	Air.SetpointFix	0.0	30	87/ l/s	Fixed airflow set point This register indicates the airflow set point for the extract air fan or supply fan, when using air-flow regulation methode 4 or 3.
25	Air.ExtSpeed	0.0	30	98/%	Extract air fan speed: This register indicates the fan speed.
26	Air.ExtSpeedMin	0.0	30	98/%	Minimum extract air fan speed: This register indicates the minimum fan speed.
27	Air.ExtSpeedMax	0.0	30	98/%	Maximum extract air fan speed: This register indicates the maximum fan speed.
28	Air.SupSpeed	0.0	30	98/%	Supply air fan speed: This register indicates the fan speed.
29	Air.SupSpeedMin	0.0	30	98/%	Minimum supply air fan speed: This register indicates the minimum fan speed.
30	Air.SupSpeedMax	0.0	30	98/%	Maximum supply air fan speed: This register indicates the maximum fan speed.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
31	Air.SetpComp	0.0	30	98/%	Airflow set point compensated: This register is used to indicate the compensated air set point. CO2 and RH level affects this value.
32	Air.SetpExt	0.0	30	98/%	Extract air set point: This register indicates the set point to the extract airflow regulator. This is the output from either fixed speed, constant flow or constant pressure regulator.
33	Air.SetpSup	0.0	30	98/%	Supply air set point: This register indicates the set point to the supply airflow regulator. This is the output form either fixed speed, constant flow or constant pressure regulator.
34	Air.Mode	0.0	30	95	Airflow regulator mode: This register indicates the state of the airflow regulator. Value: 0 = OFF 1 = Starting 2 = Dampers opening 3 = Extract air fan starting 4 = Supply air fan starting 5 = Unit is running 6 = Unit is stopping but is doing post ventilation 7 = Dampers are closing
35	Air_Qv.ExtP_InLet	0.0	30	53/Pa	Extract air fan inlet pressure: This register indicates the pressure drop across the extract air fan inlet. This pressure is converted to temperature compensated flow in index 36.
36	Air_Qv.Ext_Qv	0.0	30	87/ l/s	Extract air flow: This register indicates flow in the extract air duct.
37	Air_Qv.SupP_Inlet	0.0	30	53/Pa	Supply air fan inlet pressure: This register indicates the pressure drop across the supply air fan inlet. This pressure is converted to temperature compensated flow in index 38.
38	Air_Qv.Sup_Qv	0.0	30	87/ l/s	Supply airflow: This register indicates airflow in the supply air duct.
39	Air_Filter.Extract	0.0	30	53/Pa	Extract air filter pressure drop: This register indicates the pressure drop across the extract air filter.
40	Air_Filter.Supply	0.0	30	53/Pa	Supply air filter pressure drop: This register indicates the pressure drop across the supply air filter.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
41	Air_Duct.Extract	0.0	30	53/Pa	Extract air duct pressure. This register indicates the pressure in extract air duct.
42	Air_Duct.Supply	0.0	30	53/Pa	Supply air duct pressure. This register indicates the pressure in supply air duct.
43	AirCFExt.SP_Unit	0.0	30	87/ l/s	Constant extract airflow regulator set point: This register indicates the set point for the extract air flow regulator.
44	AirCFExt.PV_Unit	0.0	30	87/ l/s	Constant extract airflow regulator feedback: This register indicates the set point for the extract air flow regulator.
45	AirCFSup.SP_Unit	0.0	30	87/ l/s	Constant supply airflow regulator set point: This register indicates the set point for the supply air flow regulator.
46	AirCFSup.PV_Unit	0.0	30	87/ l/s	Constant supply airflow regulator feedback: This register indicates the set point for the supply air flow regulator.
47	AirCSExt.SP_Unit	0.0	30	98/ %	Constant extract air speed regulator set point: This register indicates the set point for the extract air speed regulator.
48	AirCSSup.SP_Unit	0.0	30	98/ %	Constant supply air speed regulator set point: This register indicates the set point for the supply air speed regulator.
49	AirCPExt.SP_Unit	0.0	30	53/Pa	Constant extract air pressure regulator set point: This register indicates the set point for the extract air pressure regulator.
50	AirCPExt.PV_Unit	0.0	30	53/Pa	Constant extract air pressure regulator feedback: This register indicates the set point for the extract air pressure regulator.
51	AirCPSup.SP_Unit	0.0	30	53/Pa	Constant supply air pressure regulator set point: This register indicates the set point for the supply air pressure regulator.
52	AirCPSup.PV_Unit	0.0	30	53/Pa	Constant supply air pressure regulator feedback: This register indicates the set point for the supply air pressure regulator.
53	Alarm.Alarm0	0.0	30	95	Current active alarm 1 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
54	Alarm.Alarm1	0.0	30	95	Current active alarm 2 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
55	Alarm.Alarm2	0.0	30	95	Current active alarm 3output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
56	Alarm.Alarm3	0.0	30	95	Current active alarm 4 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
57	Alarm.Alarm4	0.0	30	95	Current active alarm 5 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
58	Alarm.Alarm5	0.0	30	95	Current active alarm 6 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
59	Alarm.Alarm6	0.0	30	95	Current active alarm 7 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
60	Alarm.Alarm7	0.0	30	95	Current active alarm 8 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
61	Alarm.Alarm8	0.0	30	95	Current active alarm 9 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
62	Alarm.Alarm9	0.0	30	95	Current active alarm 10 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
63	Alarm.Alarm10	0.0	30	95	Current active alarm 11 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
64	Alarm.Alarm11	0.0	30	95	Current active alarm 12 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
65	Alarm.Alarm12	0.0	30	95	Current active alarm 13 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
66	Alarm.Alarm13	0.0	30	95	Current active alarm 14 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
67	Alarm.Alarm14	0.0	30	95	Current active alarm 15 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
68	Alarm.Alarm15	0.0	30	95	Current active alarm 16 output: The register shows there is an active alarm. See also EXact control menu 4.5 "Current List".
69	Balance.Balance	0.0	30	95	Air balance: This register indicates balance set point between supply air and extract air set point.
70	Comp_Room.SP_Comp	0.0	30	62/°C	Outdoor temperature compensation of room temperature set point: This register indicates the set point for starting of room temperature compensation
71	Comp_Supply.SP_Comp	0.0	30	62/°C	Outdoor temperature compensation of supply air temperature set point: This register indicates the set point for beginning of supply air temperature compensation

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
72	Manager.ActProfile	0.0	30	95	Active profile: This register indicates which profile is active. Value: -1 = Off 0 = Comfort 1 = Standby 2 = Economy
73	Counter.Heat1	0.0	30	95	Hour count heating unit 1: This register indicates the hour count for the unit.
74	Counter.Rotor	0.0	30	95	Hour count rotary heat exchanger unit: This register indicates the hour count for the unit.
75	Counter.Cool	0.0	30	95	Hour count cooling unit: This register indicates the hour count for the unit.
76	Counter.ExtractFan	0.0	30	95	Hour count extract air fan unit: This register indicates the hour count for the unit.
77	Counter.SupplyFan	0.0	30	95	Hour count supply air fan unit: This register indicates the hour count for the unit.
78	Temp_Set.Setpoint	0.0	30	62/°C	Temperature set point: This register indicates the current temperature set point.
79	Temp_Set.Setpoint	0.0	30	62/°C	Compensated temperature set point: This register indicates the compensated temperature regulator set point.
80	Temp_Set.State	0.0	30	95	Temperature regulator status: This register indicates if the temperature regulator is active. State: 0 = Not active, 1 = Active
81	Temp_Set.Mode	0.0	30	95	Temperature regulator mode: This register indicates the current mode of the temperature regulator. Value 0 = Automatic. Automatic switching between heating, recovery and cooling. Value 4 = Night cooling active. Value 6 = Unit is in Master OFF. Value 10 = Cooling recovery is active. Value 13 = Unit has been temporarily forced into Economy mode (during start-up only). Value 255 = Non-initialised value (during power-up only).
82	Temp_Output.Heat1	0.0	30	98/%	Heating unit 1 set point: This register indicates the set point for heating unit 1.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
83	Temp_Output.Recov_Heat	0.0	30	98/%	Heat recovery unit set point: This register indicates the set point for the heat recovery unit.
84	Temp_Output.Recov_Cool	0.0	30	98/%	Cool recovery unit set point: This register indicates the set point for the cool recovery unit.
85	Temp_Output.Cool	0.0	30	98/%	Cooling unit set point: This register indicates the set point for the cooling unit.
86	TempCSupply.Setpoint	0.0	30	62/°C	Constant supply temperature regulator set point: This register indicates the set point for the supply air temperature regulator
87	TempCSupply.Feedback	0.0	30	62/°C	Constant supply air temperature regulator feedback: This register indicates the feedback for the supply air temperature regulator
88	TempCSupply.Sp_Heat1	0.0	30	62/°C	Heating unit 1 regulator set point: This register indicates the set point for the heating unit 1 regulator
89	TempCSupply.Sp_Recover	0.0	30	62/°C	Recovery unit regulator set point: This register indicates the set point for the recovery unit regulator.
90	TempCSupply.Sp_Cool	0.0	30	62/°C	Cooling unit regulator set point: This register indicates the set point for the cooling unit regulator.
91	TempCRoom.Setpoint	0.0	30	62/°C	Constant room temperature regulator set point: This register indicates the set point for the room temperature regulator
92	TempCRoom.Feedback	0.0	30	62/°C	Constant room temperature regulator feedback: This register indicates the feedback for the room temperature regulator
93	TempCRoom.Output	0.0	30	62/°C	Constant room temperature regulator: This register indicates the output of the room temperature regulator
94	Temp_Sensor.Supply	0.0	30	62/°C	Supply air temperature sensor: This register indicates the value of the current active supply air temperature sensor.
95	Temp_Sensor.SupplyInt	0.0	30	62/°C	Supply air temperature sensor internal: This register indicates the value of the internal supply air temperature sensor.
96	Temp_Sensor.SupplyHeat1	0.0	30	62/°C	Supply air temperature sensor heating unit 1: This register indicates the value of the supply air temperatur sensor in heating unit 1.
97	Temp_Sensor.SupplyCool	0.0	30	62/°C	Supply air temperature sensor cooling unit: This register indicates the value of the supply air temperatur sensor in the cooling unit.
98	Temp_Sensor.Outdoor	0.0	30	62/°C	Outdoor air temperature sensor: This register indicates the value of the current active outdoor air temperatur sensor.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
99	Temp_Sensor.OutdoorInt	0.0	30	62/°C	Outdoor air temperature sensor internal: This register indicates the value of the internal outdoor air temperatur sensor.
100	Temp_Sensor.OutdoorExt	0.0	30	62/°C	Outdoor air temperature sensor external: This register indicates the value of the external outdoor air temperatur sensor.
101	Temp_Sensor.Exhaust	0.0	30	62/°C	Exhaust air temperature sensor: This register indicates the value of the exhaust air temperatur sensor.
102	Temp_Sensor.Extract	0.0	30	62/°C	Extract air temperature sensor: This register indicates the value of the current active extract air temperatur sensor.
103	Temp_Sensor.ExtractInt	0.0	30	62/°C	Extract air temperature sensor internal: This register indicates the value of the internal extract air temperatur sensor.
104	Temp_Sensor.ExtractRoom	0.0	30	62/°C	Extract air temperature sensor external: This register indicates the value of the External extract air temperatur sensor.
105	Temp_Sensor.RetPipe1	0.0	30	62/°C	Return pipe temperature heating coil 1: This register indicates the temperature on the internal return pipe on water heating coil 1 (TE-RPT).
106	Temp_Sensor.RetPipeX1	0.0	30	62/°C	Return pipe temperature external heating coil 1: This register indicates the temperature on the external return pipe on water heating coil 1 (TE-RPT-X).
107	Temp_Sensor.SupPipe1	0.0	30	62/°C	Supply pipe temperature heating coil 1: This register indicates the temperature on the internal supply air pipe on water heating coil 1 (TE-SPT).
108	Delce.HeatExPress	0.0	30	53/Pa	Pressure across the heat exchanger in the extract air. This variable indicates the current pressure across the heat exchanger. A increasing pressure at a constant air flow can indicate either moisture or ice build up inside the heat exchanger.
109	Delce.PressInc	0.0	30	98/%	Heat exchanger pressure increase in %. This variable indicates how much the pressure has increased, across the heat exchanger compared to the normal pressure drop, when the heat exchanger is dry. Values over 0% indicates build up of moisture or ice.
110	Temp_Sensor.TIce	0.0	30	62/°C	Temperature inside the heat exchanger. This variable shows the temperature inside the heat exchanger. This is used to control the deice function, when the Delce function is set to TIce.

3.1.2 Object type AI

Index	Name	Default value	Poll interval	Unit/ Active text	Description
111	VEXConfig.AirRegType	0.0	30	95	Air regulations method. This variable shows which air regulation current is active. 1 - Manual control 2 - Airflow control 3 - Constant pressure regulation of extract air 4 - Constant pressure regulation of supply air 5 - Constant pressure regulation of extract air 6 - Constant pressure regulation of supply air 7 - Constant pressure regulation of both extract air and supply air 8 - External control of fan speeds
112	NightCool.Status	0.0	30	95	Night-time cooling status: This output network variable indicates if the night cooling function is active State: 0 = Inactive, 1 = Active.
113	Delce.State	0.0	30	95	Active Delce state. This variable indicates which Delce state currently is active. 0 = Off. No Ice is detected. 1 = Idle. Ice is preset, but delce is not yet active. 2 = Return Air (VEX340 Only) or Bypass deice function is active. 3 = Balanced air reduction is active. 4 = Unbalanced supply air reduction is active. 5 = Unbalanced extract air increase is active. 6 = Hibernation. VEX unit is temporarily in hibernation. 7 = Hibernation restart. VEX unit is attempting to restart after hibernation. 8 = Deice falied. The pressure across the heat exchanger has exceeded maximum allowed pressure or the number of restart attempts has been exceeded.

3.1.3 Object type BV

Index	Name	Default value	Poll interval	Unit/Active text	Unit/Inactive text	Description
00	BMSInValue.CtrlMode	0	30	On	Off	Control mode: This register holds the value for the control mode of the Unit. Value: Off = Manual, Value: On = Weekly plan
01	BMSInValue.ResetAlarm	0	30	On	Off	Alarm reset: This register holds the value for the alarm reset flag. Value: Off = Not active, Value: On = Active
02	BMSInValue.NightCoolEn	0	30	On	Off	Night-time cooling enabled: This register holds the enable value for the night cooling function. Value: Off = Disabled, On = Enabled

3.1.4 Object type BI

Index	Name	Default value	Poll interval	Unit/Active text	Unit/Inactive text	Description
01	Alarm.A_Alarm	0	30	On	Off	A Alarm. This variable shows if an A alarm is active. A Alarm is set when alarms codes ending on 3, 4 or 5 are active.
02	Alarm.B_Alarm	0	30	On	Off	B Alarm (Warning). This variable shows if a B alarm is active. B Alarm is set when alarm codes ending on 2 are active.
03	BMS_Config.UseDHCP	0	30	Yes	No	Use DHCP: This register indicates if the onboard webserver uses DHCP. State: Off = Does not use DHCP , On = Uses DHCP
04	FC1.Operation	0	30	On	Off	FC1 operation: This register indicates if the FC is running or not. State: Off = Not running, On = Running
05	FC2.Operation	0	30	On	Off	FC2 operation: This register indicates if the FC is running or not. State: Off = Not running, On = Running
06	RHX2M.On_Off	0	30	On	Off	DRHX status: This register indicates if the rotary heat exchanger unit is online or not. State: Off = Not running, On = Running

3.1.4 Object type BI

Index	Name	Default value	Poll interval	Unit/Active text	Unit/Inactive text	Description
07	MHC1.Run	0	30	On	Off	Heating unit 1 status: This register indicates the status of the heating unit. Value: Off = Heat retention mode, On = Normal operation, with frost safety surveillance activated.
08	MHC1.PumpState	0	30	On	Off	Heating unit 1 pump state This register indicates the current state of the pump.
09	MHC4.Run	0	30	On	Off	External cooling unit status This register indicates the status of the cooling unit.
10	MHC4.PumpState	0	30	On	Off	External cooling unit pump status: This register indicates the current state of the pump.
11	MCUC.State	0	30	On	Off	Cooling unit status: This register indicates the status of the cooling unit.
12	Air.LSA	0	30	On	Off	Extract air damper status: This register indicates the state of the extract air damper. State: Off = Closed, On = Open
13	Air.LSF	0	30	On	Off	Supply air damper status: This register indicates the state of the supply air damper. State: Off = Closed, On = Open
14	Air.State	0	30	On	Off	State: This register indicates if the unit is running or not.
15	Comp_RH.Active	0	30	On	Off	Relative humidity compensation status: This register indicates if RH compensation is active. State: Off = Inactive, On = Active
16	Comp_CO2.Active	0	30	On	Off	CO2 compensation status: This register indicates if CO2 compensation is active. State: Off = Inactive, On = Active
17	Comp_OutD.Active	0	30	On	Off	Outdoor temperature compensation of supply air status: This register indicates if outdoor temperature compensation of supply air is active. State: Off = Inactive, On = Active
18	Comp_AirR.Active	0	30	On	Off	Supply air temperature controlled air reduction status: This register indicates if supply air temperature controlled air reduction is active. State: Off = Inactive, On = Active

3.1.4 Object type BI

Index	Name	Default value	Poll interval	Unit/Active text	Unit/Inactive text	Description
19	Comp_Room.Active	0	30	On	Off	Outdoor temperature compensation of room temperature status: This register indicates if outdoor air temperature compensation of room temperature is active. State: Off = Inactive, On = Active
20	Comp_Supply.Active	0	30	On	Off	Outdoor temperature compensation of supply air temperature active: This register indicates if outdoor temperature compensation of supply air temperature is active. State: Off = Inactive, On = Active
21	VEXConfig.DST	0	30	On	Off	Daylight savings time: This register indicates if daylight savings time is now. State: Off = No, On = Yes
22	Delce.Allowed	0	30	On	Off	Delce allowed. This variable shows if the Delce function is allowed. Off = Not allowed, On = Allowed
23	MHC1.FS_Activ	0	30	On	Off	Frost safty function for HCW is active. This variable shows if the frost safty function for either MHCW or iHCW currently is active. Off = Inactive , On = Active



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