E-BACNET2-V manual

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Revision A, October 2012

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Chapter 1 About E-BACNET2-V

E-BACNET2-V is a pre-configured converter for connecting a Corrigo E running a ventilation application version 3.0 or later to a SCADA system. The converter has a pre-configured *device id* and a fixed IP address of 192.168.92.92. Communication with Corrigo E takes place via the PLA:ELA address 254:254. To change these settings, see chapter 3.

The Corrigo E controller is connected to the converter with the supplied cable and communicates with the SCADA system via the Ethernet port on the converter.

Technical data

Supply voltage	12...48 V DC
Power consumption	4.5 W
Dimensions	77 x 111 x 26 mm
Weight	190 g
Mounting	Wall
Ambient temperature	-10...+60°C
Storage temperature	-20...+80°C
Ambient humidity	5…95 % RH
Ethernet connections	Two, automatic change-over 10/100 Mbps
Serial connections	Two RS-232/422/485 (9-pole D-sub)

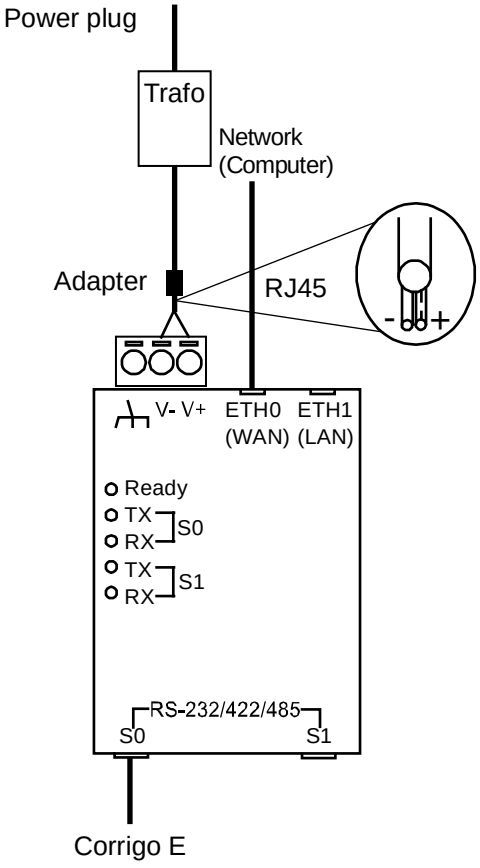
Chapter 2 **Wiring**

Mount the converter directly on a flat surface, e.g. using a mounting screw (not included). A kit for DIN-mounting is also available as an option. The transformer should preferably be mounted using a cable tie.

Connect the RS485 cable marked *E-CABLE-BACNET* to the S0 port on the converter and to the B, A and N terminals (50, 51 and 52) on the Corrigo. Connect E-BACNET2-V to the local network by connecting the RJ45 cable between the ETH0 (WAN) port of the converter and a network port. The converter may also be connected directly to a computer, but this requires a crossover RJ45 cable (not included).

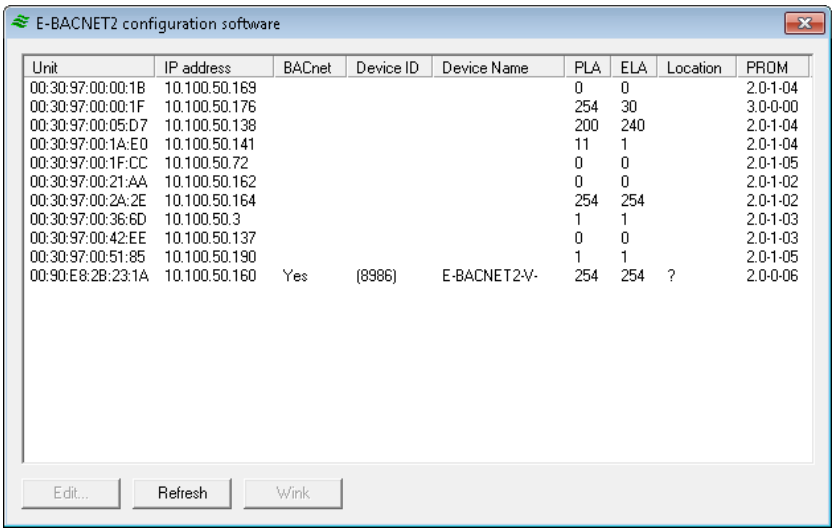
Connect the power supply to the converter and to the Corrigo E. Please note when wiring the supply voltage into the converter: V + is marked while V - is entirely black.

It will take approx. one minute for the converter to start up. When the unit is ready, the *Ready* light will be lit. If the Corrigo connected has the PLA:ELA address 254:254, the converter will begin communicating. This is indicated by the S0 *TX* and *RX* lights blinking. The unit is now also available in the BACnet network.



Chapter 3 **Configuration**

All configuration takes place via the software tool *E-BACNET2 configuration software* for Microsoft Windows (XP, Vista or Windows 7). Once the program is started, it will scan the network for E-BACNET2-V units. All available converters connected to the network are displayed.



Refresh

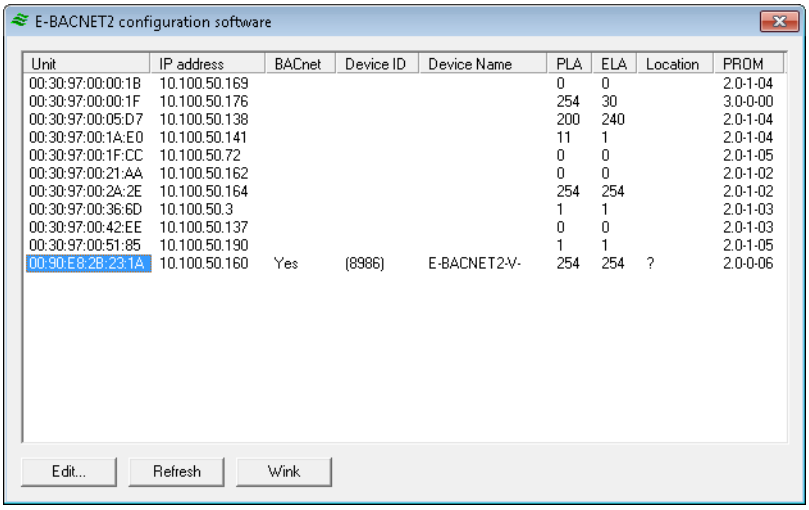
Pressing the Refresh button will update the list of converters.

Wink

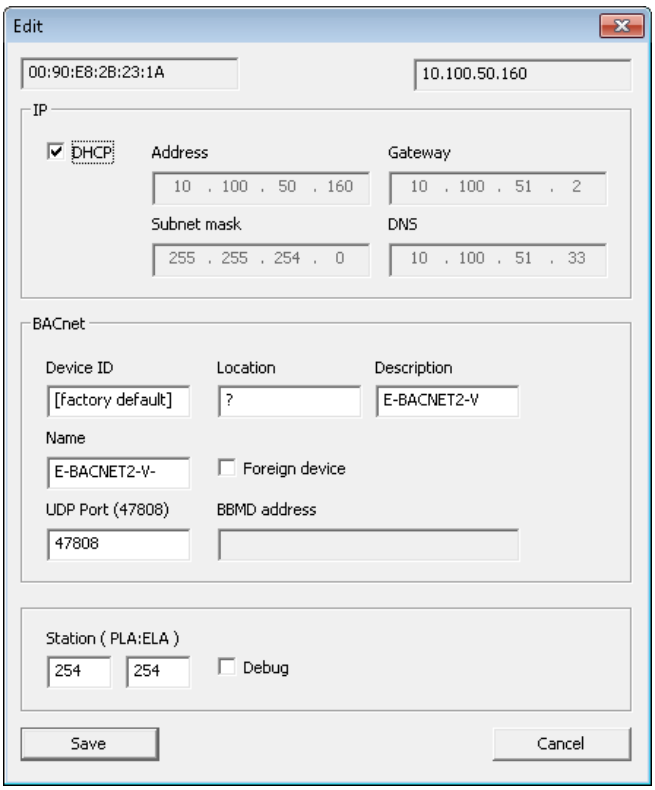
Wink is a function that can be used to ensure that the correct physical converter has been selected in the configuration tool. By selecting a converter in the list and clicking the Wink button, the LED:s on the converter will blink and a short beep will be heard.

Edit / Change settings

Only a converter with the value BACnet = “Yes” can be edited. To edit the settings of a unit, select it in the list of available converters and click Edit.



This will display the following window, containing the settings that can be made:



IP

It is possible either to let the network's DHCP server assign the converter an IP address or to assign it a fixed IP address.

BACnet

Permits setting of:

- *Device ID*: The device ID number of the object.
- *Location*: Place, e.g. "room23".
- *Description*: Description, e.g. "AHU01" (air handling unit 01).
- *Name*: The desired name of the converter. If adding a dollar sign ($) after the name, device ID will be automatically added after it.

- *UDP Port*. BACnet IP standard is 47808.

The checkbox "Foreign device" is used when E-BACNET2-V is to be connected to another IP network. It is then neccessary to state the BBMD address. An example of this is when E-BACNET2-V is stand-alone and connecting to a SCADA system over the Internet. The BBMD address is handled by the network administrator.

Station

Used to state the PLA:ELA address for Corrigo E on the RS485 side. The Corrigo E standard address is 254:254.

The "Debug" checkbox is used to set the converter to debug mode. This function requires a special version of the converter, and is not normally used.

Once all settings has been made, press "Save" in order to upload the settings to the converter.

Appendix I

Appendix 1 List of variables for E-BACNET2-V

E-BACNET2-V contains a total of 184 objects. These are distributed over different categories in accordance with the following list:

- Analog Input = 40
- Analog Value = 41
- Binary Input = 98
- Binary Value = 1
- Multistate Input = 1
- Multistate Value = 2
- Device = 1

Analog Inputs

Object name	Object ID	Description	Unit	Adjustable
Cor_SupplyAirTemp	Analog Input, 0	Supply air temperature	°C	No
Cor_ExtractAirTemp	Analog Input, 1	Extract air temperature	°C	No
Cor_RoomTemp1	Analog Input, 2	Room temperature 1	°C	No
Cor_RoomTemp2	Analog Input, 3	Room temperature 2	°C	No
Cor_ExhaustAirTemp	Analog Input, 4	Exhaust air temperature	°C	No
Cor_ExtraSensor	Analog Input, 5	External sensor/setpoint device, depending on the configuration.	°C	No
Cor_SAFPressure	Analog Input, 6	Current pressure, supply air	Pa	No
Cor_EAFPressure	Analog Input, 7	Current pressure, extract air	Pa	No
Cor_DeIcingTemp	Analog Input, 8	De-icing temperature	°C	No
Cor_FrostprotectionTemp	Analog Input, 9	Frost protection temperature	°C	No
Cor_CO2Sensor	Analog Input, 10	CO_2 sensor	ppm	No
Cor_HumidityRoom	Analog Input, 11	Humidity, room	RH	No
Cor_HumidityDuct	Analog Input, 12	Humidity, duct	RH	No
Cor_ExtraUnitTemp	Analog Input, 13	Extra controller, temperature	°C	No
Cor_ExtSAFControl	Analog Input, 14	Frequency control, manual SAF	%	No
Cor_ExtEAFControl	Analog Input, 15	Frequency control, manual EAF	%	No
Cor_HumidityOutDoor	Analog Input, 16	Humidity outdoor	RH	No
Cor_SAFAirFlow	Analog Input, 17	Frequency control, air flow SAF	m^3/h	No
Cor_EAFAirFlow	Analog Input, 18	Frequency control, air flow EAF	m^3/h	No
Cor_HeatCV1	Analog Input, 19	Current output Y1-heating	V	No
Cor_ExchCV1	Analog Input, 20	Current output Y2-exchanger	V	No
Cor_CoolCV1	Analog Input, 21	Current output Y3-cooling	V	No
Cor_SAF	Analog Input, 22	Current output frequency converter SAF	V	No

Object name	Object ID	Description	Unit	Adjustable
Cor_EAF	Analog Input, 23	Current output EAF	V	No
Cor_Humidity	Analog Input, 24	Current output dehumidification/humidification	V	No
Cor_Split	Analog Input, 25	Current output split	V	No
Cor_ExtraSeqCV1	Analog Input, 26	Current output Y4-extra sequence	V	No
Cor_Efficiency	Analog Input, 27	Heat exchanger efficiency	%	No
Cor_SAFRunTime	Analog Input, 28	Running time SAF	h	No
Cor_EAFRunTime	Analog Input, 29	Running time EAF	h	No
Cor_SupplyPID_SetP	Analog Input, 30	Calculated supply air setpoint at outdoor compensated setpoint	°C	No
Cor_SupplyPID_Output	Analog Input, 31	Supply air controller output signal	%	No
Cor_ExhaustPID_Output	Analog Input, 32	Extract air controller output signal	%	No
Cor_SAFPID_Output	Analog Input, 33	Output signal SAF	%	No
Cor_EAFPID_Output	Analog Input, 34	Output signal EAF	%	No
Cor_FrostPID_Output	Analog Input, 35	Warming controller output signal	%	No
Cor_CO2PID_Output	Analog Input, 36	CO_2 controller output signal	%	No
Cor_RoomPID_Output	Analog Input, 37	Room controller output signal	%	No
Cor_DeIcePID_Output	Analog Input, 38	De-icing controller output signal	%	No
Cor_HumidityPID_Output	Analog Input, 39	Humidity controller output signal	%	No

Analog Values

Object name	Object ID	Description	Unit	Adjustable
Cor_SupplySetpoint	Analog Value, 0	Supply air setpoint if supply air control is selected	°C	Yes
Cor_ExtractSetpoint	Analog Value, 1	Extract air setpoint if extract air control is selected	°C	Yes
Cor_SAFFullspeedPressure	Analog Value, 2	Setpoint normal speed supply air fan, frequency control pressure	Pa	Yes
Cor_SAFHalfspeedPressure	Analog Value, 3	Setpoint reduced speed supply air fan, frequency control pressure	Pa	Yes
Cor_EAFFullspeedPressure	Analog Value, 4	Setpoint normal speed extract air fan, frequency control pressure	Pa	Yes
Cor_EAFHalfspeedPressure	Analog Value, 5	Setpoint reduced speed extract air fan, frequency control pressure	Pa	Yes
Cor_CO2Setpoint	Analog Value, 6	Setpoint CO_2	ppm	Yes
Cor_SAFFullspeedAirFlow	Analog Value, 7	Setpoint normal speed supply air fan flow	m^3/h	Yes
Cor_SAFHalfspeedAirFlow	Analog Value, 8	Setpoint reduced speed supply air fan flow	m^3/h	Yes
Cor_EAFFullspeedAirFlow	Analog Value, 9	Setpoint normal speed extract air fan flow	m^3/h	Yes
Cor_EAFHalfspeedAirFlow	Analog Value, 10	Setpoint reduced speed extract air fan flow	m^3/h	Yes
Cor_NeedHeatStart	Analog Value, 11	Room temperature for start of support control heating	°C	Yes

Object name	Object ID	Description	Unit	Adjustable
Cor_NeedHeatStop	Analog Value, 12	Room temperature for stop of support control heating	°C	Yes
Cor_NeedCoolStart	Analog Value, 13	Room temperature for start of support control cooling	°C	Yes
Cor_NeedCoolStop	Analog Value, 14	Room temperature for stop of support control cooling	°C	Yes
Cor_DeIcingSetpoint	Analog Value, 15	Setpoint de-icing	°C	Yes
Cor_DeIcingHyst	Analog Value, 16	Hysteresis de-icing	°C	Yes
Cor_HumiditySetpoint	Analog Value, 17	Setpoint humidity	RH	Yes
Cor_HumidityMaxDuct	Analog Value, 18	Max. duct humidity	RH	Yes
Cor_HumidityHyst	Analog Value, 19	Hysteresis for start of dehumidification/humidification	RH	Yes
Cor_RoomSetP	Analog Value, 20	Room setpoint if using room control	°C	Yes
Cor_FrostProtSPStop	Analog Value, 21	Setpoint frost protection if the ventilation unit is stopped	°C	Yes
Cor_FrostProtPGain	Analog Value, 22	P-band frost protection function (when running)	°C	Yes
Cor_SupplyMaxDiff	Analog Value, 23	Alarm max. difference between supply air setpoint and actual value	°C	Yes
Cor_SupplyLowAlarmLimit	Analog Value, 24	Alarm low supply air temperature	°C	Yes
Cor_SupplyHighAlarmLimit	Analog Value, 25	Alarm high supply air temperature	°C	Yes
Cor_EfficiencyLowLimit	Analog Value, 26	Alarm low efficiency	%	Yes
Cor_FrostLimit	Analog Value, 27	Alarm limit frost protection	°C	Yes
Cor_RoomHighLimit	Analog Value, 28	Alarm high room temperature	°C	Yes
Cor_RoomLowLimit	Analog Value, 29	Alarm low room temperature	°C	Yes
Cor_ExtractAirTempHigh	Analog Value, 30	Alarm high extract air temperature	°C	Yes
Cor_ExtractAirTempLow	Analog Value, 31	Alarm low extract air temperature	°C	Yes
Cor_SAFMaxDiffPressure	Analog Value, 32	Alarm max. difference between pressure setpoint and actual value SAF	Pa	Yes
Cor_EAFMaxDiffPressure	Analog Value, 33	Alarm max. difference between pressure setpoint and actual value EAF	Pa	Yes
Cor_RecycleSetP	Analog Value, 34	Setpoint recirculation	°C	Yes
Cor_RecycleMaxRoomTemp	Analog Value, 35	Stop recirculation function if the room temperature exceeds the set value	°C	Yes
Cor_RecycleSAFOffset	Analog Value, 36	Pressure/flow setpoint offset for the supply air fan when using recirculation control	Pa	Yes
Cor_OutDoorTemp	Analog Value, 37	Outdoor temperature	°C	Yes
AlaAcknow	Analog Value, 38	Acknowledge alarm by entering the alarm number XX of the alarm in question (AlaPt_XX)	-	Yes
AlaBlock	Analog Value, 39	Block alarm by entering the alarm number of the alarm in question	-	Yes
AlaUnblock	Analog Value, 40	Unblock alarm by entering the alarm number of the alarm in question	-	Yes

Binary Inputs

Object name	Object ID	Description	Unit	Adjustable
Cor_SAFStart1	Binary Input, 0	Start signal SAF normal	-	No
Cor_EAFStart1	Binary Input, 1	Start signal EAF normal	-	No
Cor_SAFStart2	Binary Input, 2	Start signal SAF reduced	-	No
Cor_EAFStart2	Binary Input, 3	Start signal EAF reduced	-	No
Cor_HeatPumpStart	Binary Input, 4	Start signal P1-heater	-	No
Cor_ExchPumpStart	Binary Input, 5	Start signal P1-exchanger	-	No
Cor_CoolPumpStart	Binary Input, 6	Start signal P1-cooler	-	No
Cor_SumAlarm	Binary Input, 7	Sum alarm A + B	-	No
Cor_SumAlarmA	Binary Input, 8	Sum alarm A	-	No
Cor_SumAlarmB	Binary Input, 9	Sum alarm B	-	No
Cor_SAFFrequencyStart	Binary Input, 10	Start signal SAF frequency converter	-	No
Cor_EAFFrequencyStart	Binary Input, 11	Start signal EAF frequency converter	-	No
Cor_NeedHeatActive	Binary Input, 12	Support control heating active	-	No
Cor_NeedCoolActive	Binary Input, 13	Support control cooling active	-	No
Cor_DemandCO2Active	Binary Input, 14	CO_2 running mode active	-	No
Cor_ExtendedRunActiveFull	Binary Input, 15	Extended running normal active	-	No
Cor_ExtendedRunActiveHalf	Binary Input, 16	Extended running reduced active	-	No
Cor_DeIcingActive	Binary Input, 17	De-icing function active	-	No
Cor_RecycleRunActive	Binary Input, 18	Recirculation function active	-	No
Cor_AlaPt_1	Binary Input, 19	Malfunction supply air fan: 0 = No alarm 1 = Alarm	-	No
Cor_AlaPt_2	Binary Input, 20	Malfunction extract air fan	-	No
Cor_AlaPt_3	Binary Input, 21	Run error P1-heater	-	No
Cor_AlaPt_4	Binary Input, 22	Run error P1-cooler	-	No
Cor_AlaPt_5	Binary Input, 23	Run error P1-exchanger	-	No
Cor_AlaPt_6	Binary Input, 24	Filter guard	-	No
Cor_AlaPt_7	Binary Input, 25	Flow guard	-	No
Cor_AlaPt_8	Binary Input, 26	Frost protection	-	No
Cor_AlaPt_9	Binary Input, 27	De-icing pressure guard	-	No
Cor_AlaPt_10	Binary Input, 28	Fire alarm	-	No
Cor_AlaPt_11	Binary Input, 29	External switch	-	No
Cor_AlaPt_12	Binary Input, 30	External alarm	-	No
Cor_AlaPt_13	Binary Input, 31	Control deviation supply air temperature	-	No
Cor_AlaPt_14	Binary Input, 32	Humidity control error	-	No
Cor_AlaPt_15	Binary Input, 33	High supply air temperature	-	No
Cor_AlaPt_16	Binary Input, 34	Low supply air temperature	-	No
Cor_AlaPt_17	Binary Input, 35	Supply air temperature max. limit	-	No
Cor_AlaPt_18	Binary Input, 36	Supply air temperature min. limit	-	No

Object name	Object ID	Description	Unit	Adjustable
Cor_AlaPt_19	Binary Input, 37	High room temperature	-	No
Cor_AlaPt_20	Binary Input, 38	Low room temperature	-	No
Cor_AlaPt_21	Binary Input, 39	High extract air temperature	-	No
Cor_AlaPt_22	Binary Input, 40	Low extract air temperature	-	No
Cor_AlaPt_23	Binary Input, 41	Overheating electric heater	-	No
Cor_AlaPt_24	Binary Input, 42	Frost risk	-	No
Cor_AlaPt_25	Binary Input, 43	Low frost protection temperature	-	No
Cor_AlaPt_26	Binary Input, 44	Low efficiency	-	No
Cor_AlaPt_27	Binary Input, 45	Sensor error outdoor temperature	-	No
Cor_AlaPt_28	Binary Input, 46	Analogue de-icing	-	No
Cor_AlaPt_29	Binary Input, 47	Rotation sentinel exchanger	-	No
Cor_AlaPt_30	Binary Input, 48	Fire damper is out of operation	-	No
Cor_AlaPt_31	Binary Input, 49	SAF control error	-	No
Cor_AlaPt_32	Binary Input, 50	EAF control error	-	No
Cor_AlaPt_33	Binary Input, 51	SAF external operation	-	No
Cor_AlaPt_34	Binary Input, 52	EAF external operation	-	No
Cor_AlaPt_35	Binary Input, 53	Unit in manual mode	-	No
Cor_AlaPt_36	Binary Input, 54	Supply air controller in manual mode	-	No
Cor_AlaPt_37	Binary Input, 55	SAF in manual mode	-	No
Cor_AlaPt_38	Binary Input, 56	Frequency converter SAF in manual mode	-	No
Cor_AlaPt_39	Binary Input, 57	EAF in manual mode	-	No
Cor_AlaPt_40	Binary Input, 58	Frequency converter EAF in manual mode	-	No
Cor_AlaPt_41	Binary Input, 59	Heating battery in manual mode	-	No
Cor_AlaPt_42	Binary Input, 60	Exchanger in manual mode	-	No
Cor_AlaPt_43	Binary Input, 61	Cooling battery in manual mode	-	No
Cor_AlaPt_44	Binary Input, 62	P1-heater in manual mode	-	No
Cor_AlaPt_45	Binary Input, 63	P1-exchanger in manual mode	-	No
Cor_AlaPt_46	Binary Input, 64	P1-cooler in manual mode	-	No
Cor_AlaPt_47	Binary Input, 65	Fire damper in manual mode	-	No
Cor_AlaPt_48	Binary Input, 66	Internal battery error	-	No
Cor_AlaPt_49	Binary Input, 67	Sensor error supply air temperature	-	No
Cor_AlaPt_50	Binary Input, 68	Sensor error extract air temperature	-	No
Cor_AlaPt_51	Binary Input, 69	Sensor error room temperature 1	-	No
Cor_AlaPt_52	Binary Input, 70	Sensor error room temperature 2	-	No
Cor_AlaPt_53	Binary Input, 71	Sensor error supply air temperature	-	No
Cor_AlaPt_54	Binary Input, 72	Sensor error extra sensor	-	No
Cor_AlaPt_55	Binary Input, 73	Sensor error SAF pressure	-	No
Cor_AlaPt_56	Binary Input, 74	Sensor error EAF pressure	-	No
Cor_AlaPt_57	Binary Input, 75	Sensor error de-icing temperature	-	No
Cor_AlaPt_58	Binary Input, 76	Sensor error frost protection temperature	-	No
Cor_AlaPt_59	Binary Input, 77	Sensor error CO_2	-	No
Cor_AlaPt_60	Binary Input, 78	Sensor error humidity room	-	No

Object name	Object ID	Description	Unit	Adjustable
Cor_AlaPt_61	Binary Input, 79	Sensor error humidity duct	-	No
Cor_AlaPt_62	Binary Input, 80	Sensor error extra controller temperature	-	No
Cor_AlaPt_63	Binary Input, 81	Sensor error external control SAF	-	No
Cor_AlaPt_64	Binary Input, 82	Sensor error external control EAF	-	No
Cor_AlaPt_65	Binary Input, 83	Sensor error pressure sensor SAF 2	-	No
Cor_AlaPt_66	Binary Input, 84	Sensor error humidity outdoor	-	No
Cor_AlaPt_77	Binary Input, 85	Malfunction of frequency converter SAF	-	No
Cor_AlaPt_78	Binary Input, 86	Malfunction of frequency converter EAF	-	No
Cor_AlaPt_79	Binary Input, 87	Communication error frequency converter SAF	-	No
Cor_AlaPt_80	Binary Input, 88	Communication error frequency converter EAF	-	No
Cor_AlaPt_81	Binary Input, 89	Communication error expansion unit 1	-	No
Cor_AlaPt_82	Binary Input, 90	Communication error expansion unit 2	-	No
Cor_AlaPt_83	Binary Input, 91	Warning frequency converter SAF	-	No
Cor_AlaPt_84	Binary Input, 92	Warning frequency converter EAF	-	No
Cor_AlaPt_85	Binary Input, 93	Output in manual mode	-	No
Cor_AlaPt_86	Binary Input, 94	Time for service	-	No
Cor_AlaPt_87	Binary Input, 95	Y4-extra sequence in manual mode	-	No
TimeGroupFanFullSpeed	Binary Input, 96	High when the time channel for normal speed is on	-	No
TimeGroupFanHalfSpeed	Binary Input, 97	High when the time channel for reduced speed is on	-	No

Binary Values

Object name	Object ID	Description	Unit	Adjustable
Cor_AlaAcknowAll	Binary Value, 0	Variable to acknowledge all alarms	-	Yes

Multistate Inputs

Object name	Object ID	Description	Unit	Adjustable
Cor_RunMode	Multistate Input, 0	Running status: 1 = Stop 2 = Starting up 3 = Starting half speed 4 = Starting full speed 5 = Alarm delay 6 = Normal operation 7 = Support control heating	-	No

		8 = Support control cooling 9 = CO_2 control 10 = Free cooling 11 = Full speed stop 12 = Fan stop		

Multistate Values

Object name	Object ID	Description	Unit	Adjustable
Cor_AirUnitAutoMode	Multistate Value, 0	Manual setting of the unit: 1 = Manual off 2 = Manual reduced speed 3 = Manual normal speed 4 = Auto	-	Yes
Cor_ExternalControl	Multistate Value, 1	External control of the unit: 1 = Extended run, full speed 2 = External stop 3 = Auto 4 = External stop with support control	-	Yes

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