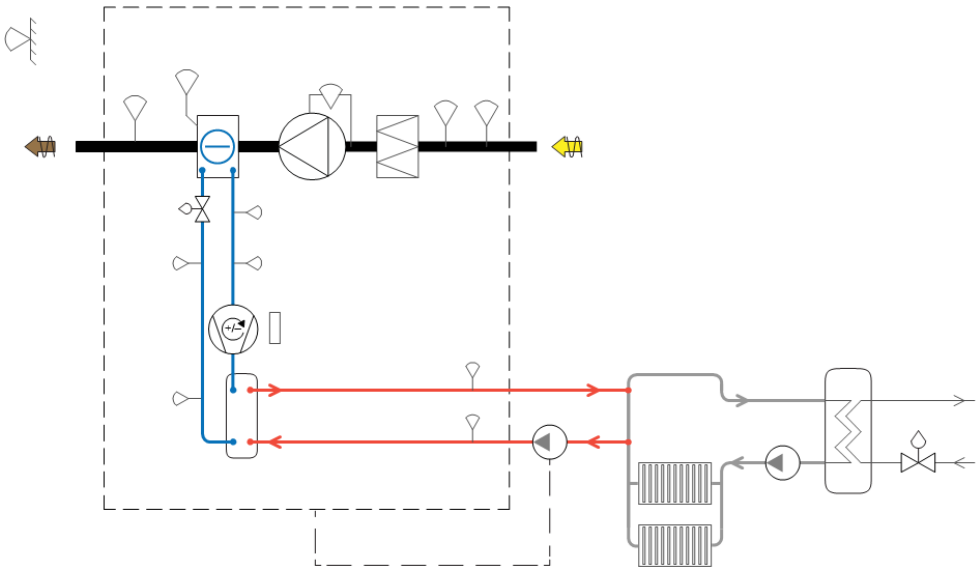
Air handling with focus on LCC



Climatix™
BACnet/IP communication with POL908.00
Objects for standard IV Produkt
EHP application v3.02.xx

Air handling with the focus on LCC

Table of contents

1 About this document

1.1 Revision history

Version	Date	Changes
.01	2013-06-19	First edition
.03	2018-01-09	“Examples of useful BACnet Objects” added

1.2 Before you start

Validity

This document applies to the following product:

Name	Type (ASN)	Version
IVP EHP application	POL63x.00	v3.02.xx

This document is a supplement to the general integration guide: "BACnet/IP communication with POL908.00" *)

*) POL908.00: Climatix BACnet/IP communication module

That document must be read first and all general information such as document conventions, important information on safety, trademarks, copyright etc. are valid for this document as well.

This document only contains the uniqe information for the product mentioned above. All general engineering information such as mounting modules, communication settings etc. are described in the integration guide.

Prerequisite

User has read the general BACnet/IP integration guide for Climatix, CB1J3962en.

1.3 Reference documents

Further information

The following documents contain additional information on the products described in this manual:

Document	Order no.
Data sheet "Communication module BACnet/IP"	CB1Q3933en
Basic documentation "BACnet communication modules"	CB1P3933en
Integration Guide "BACnet/IP communication with POL908.00"	CB1J3960en
Basic documentation "BACnet PICS"	CB1P3939en

2 Application

2.1 General information

What are standard applications?

Standard applications for Climatix comprise predefined monitoring and control functions for a particular plant type.
Features:

- OEM customers receive standard applications as a set of loadable files. They can be loaded in the controller via SD card.
- An HMI operator unit allows for assigning inputs and outputs to the respective plant as well as select, configure and parameterize the required functions.

Standard application EHP v3.02.xx

Standard application EHP v3.02.xx is available at this time. It contains all common functions to control and monitor air conditioning units (**E**xtract **H**eat **P**ump).
The following diagram provides an overview of selectable measured values and control equipment:

BACnet objects

The set of loadable files mentioned above also includes a mapping file for integration in a higher building automation and control system via communications module. The Climatix controller automatically assumes the BACnet objects required for integration as per the plant data points and functions configured and parameterized previously.

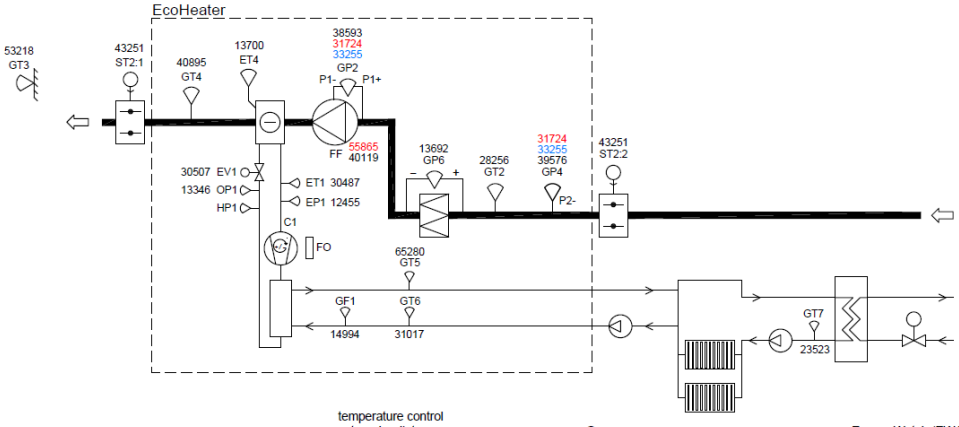
The following tables list all BACnet objects supported by standard application EHP v3.02.xx.

Only the objects for the activated functions and I/Os are present on BACnet.

Examples of useful BACnet Objects

Click on the image title (link) for a full size pdf or see IV Produkt homepage. The pdf can be downloaded, then it possible to copy BACnet Objects etc.

BACnet Objects for EHP in general, examples



EcoHeater

8442	BMS control (overide time switch program) (1=Av, 3=steg2)
45030	Exhaust fan step 1 (low) FF (Pa, l/s)
13370	Exhaust fan step 2 (normal) FF (Pa, l/s)
17038	Exhaust fan step 3 (high) FF (Pa, l/s)
39130	Alarm reset
28514	Fire Alarm
57702	Heatpump block compressor
6080	Actual operation mode
26279	Actual fan step
31604	Manual operation (Service)
30799	Actual Opmode External control
2486	Exhaust temperature fire alarm
46769	Alarm class Danger alarm (A) status
42640	Alarm class Critical alarm (A) status
38643	Alarm class Low alarm (B) status
34514	Alarm class Warning alarm (C) status

temperature control external radiator curve

54182	Heatpump ext. control signal

temperature control internal radiator curve

48643	Heatpump OutT. setpoint X2
26666	Heatpump SupplyT. setpoint Y2
13557	Heatpump OutT. setpoint X3
54156	Heatpump SupplyT. setpoint Y3
17426	Heatpump OutT. setpoint X4
41835	Heatpump SupplyT. setpoint Y4
21555	Heatpump OutT. setpoint X5
45898	Heatpump SupplyT. setpoint Y5
32709	Heatpump OutT. setpoint X6
43500	Heatpump SupplyT. setpoint Y6

Compressor

41403	Heatpump Heating demand input
24097	Heatpump Inverter signal output
5078	Heatpump Evaporation temp
65171	Heatpump Condensing temperature
20527	Heatpump compressor run time
23306	Heatpump alarm

Black	Value/Status
Green	Setpoints/Command
Red	Alarm
Blue	Actual setpoint-value

Energy Watch (EWA-02)

13472	COP
47207	HP Capacity kW
36797	HP out Day kWh
45391	HP out Month kWh
54214	HP out Year MWh
33579	HP out Last Year MWh
57948	HP out Trip MWh
11946	HP in Power kW
25290	HP in Day kWh
55761	HP in Month kWh
34885	HP in Year MWh
60341	HP in Last Year MWh
47583	HP in Trip MWh
42936	Fan in Power kW
10517	Fan Day kWh
12917	Fan Month kWh
44778	Fan Year MWh
17	Fan Last Year MWh
40816	Fan Trip MWh
38740	SFP

3 BACnet objects of EHP v3.02.xx

3.1 General

Purpose

This section describes the BACnet objects available in the specific application, see chapter 1.2 "Before you start" under "Validity".

Present objects

All present BACnet objects for the specific unit are found in the EDE files. See the integration guide how to export the EDE files.

3.2 BACnet object types

Overview

Special care must be taken to the BACnet standard and what object types and properties that are supported both on the Climatix and the client side.
This application supports the object types listed below:

Object type	Supported	Can be created dynamically	Can be deleted dynamically
Analog Input	☒	☐	☐
Analog Output	☒	☐	☐
Analog Value	☒	☐	☐
Binary Input	☒	☐	☐
Binary Output	☒	☐	☐
Binary Value	☒	☐	☐
Calendar	☒	☐	☐
Command	☐	☐	☐
Device	☒	☐	☐
Event Enrollment	☐	☐	☐
File	☐	☐	☐
Group	☐	☐	☐
Loop	☐	☐	☐
Multi-State Input	☒	☐	☐
Multi-State Output	☒	☐	☐
Multi-State Value	☒	☐	☐
Notification Class	☒	☐	☐
Program	☐	☐	☐
Schedule	☒	☐	☐
Averaging	☐	☐	☐
Trend Log	☐	☐	☐
Life-Safety-Point	☐	☐	☐
Life-Safety-Zone	☐	☐	☐
Accumulator	☐	☐	☐
Pulse-Converter	☐	☐	☐

Description

See the following basic document for a detailed description of the individual object types: CB1P3939en "BACnet Protocol Implementation Conformance Statement (PICS)"

3.3 BACnet objects

Introduction

Normally either the object-name or the object-instance can be used as a BACnet reference.

3.3.0 Analog inputs type No. 0

Analog input, object name	Object instance	Object description	LOL	HIL	Dim	Release
ReturnAirTmp	28256	Exhaust air temp	-64.0	99.0	°C	
OutTmp	53218	Outside air temp	-64.0	64.0	°C	
HPFrstTmp	65280	HP Outgoing Temp	-64.0	64.0	°C	
HPRtnTmp	31017	HP Return Temp	-64.0	64.0	°C	
ExhaustTmp	40895	Extract air temp	-60.0	64.0	°C	
ReturnPrs	39576	Exhaust air pressure	-100.0	5000.0	Pa	
ReturnFlow	38593	Exhaust air flow	-100.0	40000.0	l/s	
ExhFilAlm	13692	Exhaust filter	-100.0	5000.0	Pa	
HPExtSignal	54182	HP External Signal	-10.0	100.0	%	
AuxTmp	115	Auxiliary temp	-64.0	64.0	°C	
AuxActvSignal	38580	Auxilary activation signal	-99.0	10000.0		
AuxTmp1	21874	Auxiliary temp1	-64.0	64.0	°C	
AuxTempCntl	40389	Aux Temp Control	-64.0	64.0	°C	
ExhFanFanSpeed	30473	Ebm Exhaust Fan speed	-200.0	5000.0	rpm	
ExhFanMaxSpeed	14019	Ebm Exhaust Fan Max speed	-200.0	5000.0	rpm	
ExhFanDCLVoltage	27961	Ebm Exhaust Fan DC-link voltage	-10000.0	10000.0	V	
ExhFanDCLCurrent	14144	Ebm Exhaust Fan DC-link current	-10000.0	10000.0	A	
ExhFanPower	18040	Ebm Exhaust Fan Actual power	-10000.0	10000.0	W	
ExhFanModTemp	61507	Ebm Exhaust Fan Power module temp.	-100.0	100.0	°C	
ExhFanMotTemp	62489	Ebm Exhaust Fan Motor temp.	-250.0	250.0	°C	
ExhFanPCBTemp	55016	Ebm Exhaust Fan Electronics temp.	-100.0	100.0	°C	
ExhFanOpTimeHH	62881	Ebm Exhaust Fan Motor run time HH	-64.0	100000.0	h	
ExhFanOpTimeMM	23281	Ebm Exhaust Fan Motor run time mm	-64.0	64.0	m	
WaterFlow	14994	Water flow	0.0	40000.0	l/s	

3.3.1 Analog outputs type No. 1

Analog output, object name	Object instance	Object description	LOL	HIL	Dim	Release
ExhFanVarPos	40119	Exhaust fan output signal	0	100	%	
ExtraHtgPos	46994	Heatpump output signal	0	100	%	
AuxOutput	22813	Auxiliary A output fan	0	100	%	
AuxTempCntl	40699	Aux Temp Control Output	0	100	%	
ExtraHtgPmpVarPos	166	Heatpump output signal	0.0	100.0	%	
Heating_Seqv2_Pos	26209	Pump Extra Heating output signal	0.0	100.0	%	

3.3.2 Analog values type No. 2

Analog values, object name	Object instance	Object description	LOL	HIL	Dim	Release
ExtControlDlyOfTm	4853	External control off delay			hrs	
SuCmpFanPrVal	8596	Actual summer compensation fan			%	
WiCmpFanPrVal	50290	Actual winter compensation fan			%	
ExhFanSpvSt1Spv	45030	Exhaust fan step 1 setpoint	0.0	5000		
ExhFanSpvSt2Spv	13370	Exhaust fan step 2 setpoint	0.0	5000		
ExhFanSpvSt3Spv	17038	Exhaust fan step 3 setpoint	0.0	5000		
ExhFanSpvMaxForce	2525	Exhaust fan max force	0.0	4910		
ExhFanActVal	59694	Actual value exhaust fan				
ExhFanActSpv	33255	Actual exhaust fan setpoint				
ExhFanDevAlmMaxDev	56254	Max deviation exhaust fan				
SuCmpFanStart	55465	Summer Comp. Exhaust Fan Start Temp.			°C	
SuCmpFanEnd	39637	Summer Comp. Exhaust Fan End Temp.			°C	
SuCmpFanDta	4600	Summer Comp. Exhaust Fan Delta	0.0	100.0	%	
SuCmpFanPrVal	8596	Summer Comp. Exhaust Fan compensation			%	
WiCmpFanStart	64552	Winter Comp. Exhaust Fan Start Temp.			°C	
WiCmpFanEnd	12789	Winter Comp. Exhaust Fan End Temp.			°C	
WiCmpFanDta	47832	Winter Comp. Exhaust Fan Delta	0.0	100.0	%	
WiCmpFanPrVal	50290	Winter Comp Exhaust Fan compensation			%	
SensibleEffect	25817	Sensible Effect			kW	
X2TOaSpv	48643	Heatpump OutT. setpoint X2			°C	
Y2TFlSpv	26666	Heatpump SupplyT. setpoint Y2			°C	
X3TOaSpv	13557	Heatpump OutT. setpoint X3			°C	
Y3TFlSpv	54156	Heatpump SupplyT. setpoint Y3			°C	
X4TOaSpv	17426	Heatpump OutT. setpoint X4			°C	
Y4TFlSpv	41835	Heatpump SupplyT. setpoint Y4			°C	
X5TOaSpv	21555	Heatpump OutT. setpoint X5			°C	

Analog values, object name	Object instance	Object description	LOL	HIL	Dim	Release
Y5TFlSpv	45898	Heatpump SupplyT. setpoint Y5			°C	
X6TOaSpv	32709	Heatpump OutT. setpoint X6			°C	
Y6TFlSpv	43500	Heatpump SupplyT. setpoint Y6			°C	
AuxTmpSp1	29887	Aux. setpoint 1			°C	
AuxTmpSp2	17628	Aux. setpoint 2			°C	
CG_EM24_1ActPower	40280	Energy actual power			W	
CG_EM24_1AvePower	36000	Energy average power			W	
CG_EM24_1TotEnergy	61249	Energy total			kWh	
CG_EM24_1ParEnergy	19610	Energy partial			kWh	
CG_EM24_1OpHours	49048	Energy operation hours			hrs	
HPAinHeatingDemand	41403	Heatpump Heating demand			%	
HPFrostTemp	13700	Heatpump Frost temperature			°C	
HPInverterComp	24097	Heatpump Inverter signal output			%	
HPSuctionTempC1	30487	Heatpump Suction temperature EEV			°C	
HPEvapTempC1	5078	Heatpump Evaporation temp. EEV			°C	
HPEvapPressC1	12455	Heatpump Low Pressure			bar	
HPSuperheatC1	61331	Heatpump Superheat temp.			K	
HPOpPressC1	13346	Heatpump High Pressure			bar	
HPA17EevPositionPercentShow1	30507	Heatpump Circuit1 EEV opening			%	
HPC1CondensingTemp	65171	Heatpump Condensing temperature			°C	
HPEvapTempC1Min	38332	Heatpump Antifreeze prev. threshold			°C	
HPCoilTempMin	38061	Heatpump Coil temp. limit threshold			°C	
AuxTempCntlSetPoint	49701	Aux Temp Control Setpoint			°C	
SuWiSwtchCheckOutTmpDampd	24338	Summer/Winter Dmp Temp			°C	
RtTmpFireLmt	58054	ReturnTemp. setpoint, Firemode			°C	
ExhFltrFireLmt	6148	Exhaust filter setpoint, Firemode			Pa	
ExhFan_Power	55861	Ziehl Exhaust fan Power			kW	
ExhFan_MotorVolt	10268	Ziehl Exhaust fan Motor Volt			V	

ExhFan_Current	22141	Ziehl Exhaust fan Current			A	
ExhFan_DCLink	7369	Ziehl Exhaust fan DC-Volt			V	
ExhFan_Speed	42074	Ziehl Exhaust fan speed			rpm	
ExhFan_HeatSinkTmp	52311	Ziehl Exhaust fan HeatsinkTemp			°C	
HPStrtCnt	19886	Heatpump start count				
ReturnAirTmpLmt	41193	Exhaust air temp Block HP			°C	
WaterFlowLmt	16366	Waterflow Block HP			l/s	
HP_Pump2_StartTmp	37702	Pump Heating start temp			°C	
ActHeatCurvSp	23523	Act. HeatPump Setpoint (Heat curv)			°C	
Heating_Seqv2_Pump_StartTmp	10195	Pump Extra Heating start temp			°C	
SFP	38740	SFP				
EnergyHPPower	47207	Energy Watch Heat pump Output power			kW	
EnergyHPin	11946	Energy Watch Heat pump Input power			kW	
EnergyFansPow	42936	Energy Watch Input power			kW	
EnergyHPCOP	13472	Energy Watch Heat pump COP				
EnergyHPoutDay	36797	Energy Watch Heat pump Output Today			kWh	V3.23.xx ->
EnergyHPoutMonth	45391	Energy Watch Heat pump Output Month			kWh	V3.23.xx ->
EnergyHPoutYear	54214	Energy Watch Heat pump Output Year			MWh	
EnergyHPoutLYear	33579	Energy Watch Heat pump Output Last year			MWh	
EnergyHPoutTrip	57948	Energy Watch Heat pump Output Trip meter			MWh	
EnergyHPinDay	25290	Energy Watch Heat pump Input Today			kWh	V3.23.xx ->
EnergyHPinMonth	55761	Energy Watch Heat pump Input Month			kWh	V3.23.xx ->
EnergyHPinYear	34885	Energy Watch Heat pump Input Year			MWh	
EnergyHPinLYear	60341	Energy Watch Heat pump Input Last year			MWh	
EnergyHPinTrip	47583	Energy Watch Heat pump Input Trip meter			MWh	
EnergyFansDay	10517	Energy Watch Fans input Today			kWh	V3.23.xx ->
EnergyFansMonth	12917	Energy Watch Fans input Month			kWh	V3.23.xx ->
EnergyFansYear	44778	Energy Watch Fans input Year			MWh	
EnergyFansLYear	17	Energy Watch Fans input Last year			MWh	

EnergyFansTrip	40816	Energy Watch Fans input Trip meter			MWh	

3.3.3 Binary inputs type No. 3

Binary input, object name	Object instance	Object description	State texts	Release
ExtraHtgPmpAlm	23306	Heating 2 pump alarm	– OK – Alarm	
ExhFanAlm	55865	Exhaust fan alarm	– OK – Alarm	
FireAlm	28514	Fire alarm	– OK – Alarm	
ExtCtrl1	11643	External control input 1	– Off – On	
ExtCtrl2	7448	External control input 2	– Off – On	
EmergencyStop	9864	Emergency stop	– Off – On	
SuWiSwtch	26679	Summer/Winter input	– Winter – Summer	
DamperSplyFBFbVal	6336	Outside air damper feedback	– OK – No	
DamperExhFBFbVal	27338	Extract air damper feedback	– OK – No	
FireDamperFdbkOpn	3118	Fire damper opened	– OK – No	
FireDamperNoMove	44469	Fire damper no move	– OK – Alarm	
FireDamperFdbkClsd	53169	Fire damper closed	– OK – No	
FireDamper2FdbkOpn	2231	Fire damper2 opened	– OK – No	
FireDamper2NoMove	7990	Fire damper2 no move	– OK – Alarm	
FireDamper2FdbkClsd	5685	Fire damper2 closed	– OK – No	
ExhFanFBFbVal	32844	Exhaust fan feedback	– OK – Alarm	
FireFanFBFbVal	25846	Fire fan fdbk	– OK – Alarm	
AuxAlm	22605	Auxiliary alarm	– Passive – Active	
AuxInp	21522	Auxiliary input	– Off – On	
AuxAlm1	45199	Auxiliary alarm 1	– OK – Alarm	
AuxAlm2	33004	Auxiliary alarm 2	– OK – Alarm	
AuxAlm3	37069	Auxiliary alarm 3	– OK – Alarm	
AuxAlm4	57386	Auxiliary alarm 4	– OK – Alarm	
AuxAlm5	61451	Auxiliary alarm 5	– OK – Alarm	
HPPmpInd	57702	HP Pump indication	– OK – Alarm	
HP_Pump2_Alm	29338	Pump Heating Alarm	– OK – Fault	
Heating_Seqv2_Pump_Alm	47847	Pump Extra Heating Alarm	– OK – Fault	
HP_Pump2_Cmd_FbVal	63693	Pump Heating feedback	– OK – No Feedback	
ExtraHtgPmpCmdFBFbVal	13329	Heatpump feedback	– OK – No Feedback	

Binary input, object name	Object instance	Object description	State texts	Release
Cmd_FbVal	15639	Pump Extra Heating feedback	– OK – No Feedback	

3.3.4 Binary outputs type No. 4

Object name	Object instance	Object description	State texts	Release
DamperSplyOnOff	6170	Outside air damper command	– Off – On	
DamperExhOnOff	43251	Extract air damper command	– Off – On	
FireDamperCmd	12328	Fire damper command	– Off – On	
FireDamper2Cmd	64011	Fire damper2 command	– Off – On	
FireFanOnOff	24267	Fire fan command	– Off – On	
ExtraHtgPmpCmdOnOff	31944	Heatpump command	– Off – On	
AuxTspOutput	22528	Auxiliary TSP output	– Off – On	
AuxOpModeInd	5163	Auxiliary operation mode output 1	– Off – On	
AuxOpModeInd2	28580	Auxiliary operation mode output 2	– Off – On	
AlmOutHigh	5714	Alarm output 1	– Normal – Alarm	
AlmOutLow	8035	Alarm output 2	– Normal – Alarm	
AuxTmpOutput	64421	Aux Temp Output	– Off – On	
HP_Pump2_Cmd_OnOff	38397	Pump Heating command	– Off – On	
Heating_Seqv2_Pump_Cmd_OnOff	10264	Pump Extra Heating command	– Off – On	

3.3.5 Binary values type No. 5

Binary value, object name	Object instance	Object description	State texts
RtTmpFireAlm	4286	Exhaust temp fire alarm	– OK – Alarm
ExhFltrFireAlm	60028	Exhaust Filter fire alarm	– OK – Alarm
ExhFanDevAlmAlm	31724	Exhaust fan deviation	– Passive – Active
FanOpHrsAlm	36120	Fan operation hours alarm	– Passive – Active
CommTest	60516	Communication test Note! Use Prio 14 for puls	– 0 – 1
ManualMode	24032	Manual mode	– Auto – Manual
PBCommAlm	48527	PB comm alarm	– Passive – Active
ZoneCtrlr	61922	Zone controller	– Passive – Active
MBCommAlm	57614	Modbus communication alarm	– OK – Alarm
ModbusComFanAlm	25775	Modbus Ebm Fan communication	– OK – Fault
ModbusComCG_EM24Alm	49897	Modbus Energy meter communication	– OK – Fault
HPAlmS1_1	44730	Heatpump Low Pressure	– Normal – Alarm

HPAlmS1_2	40665	Heatpump Suction Temp	– Normal – Alarm
HPAlmS1_3	36600	Heatpump High Pressure	– Normal – Alarm
HPLowDH1Alm	56672	Heatpump Low super heat	– Normal – Alarm
HPMopAlm1	40630	Heatpump MOP	– Normal – Alarm
HPLopAlm1	9943	Heatpump Low temp evaporation	– Normal – Alarm
HPEEVmAlm1	14395	Heatpump Motor expansion valve	– Normal – Alarm
HPCompr1OutP	20527	Heatpump compressor command	– Off – On
HPOpHrsAlm	3944	Heatpump Operating hours	– Passive – Active
HPCmpr1Alm	45643	Heatpump Compressor	– Normal – Alarm
HPFrostTmp	47190	Heatpump Evaporation coil temp	– Normal – Alarm
HPEVDAlmOffL	919	Heatpump Communication Offline EVD	– Normal – Alarm
HPLowSuctAlm1	61543	Heatpump Low suction temp	– Normal – Alarm
ModbusComHPAlm	30980	Modbus Heatpump communication alarm	– Ok – Fault
ReturnAirTmpLmtAlm	52839	Exhaust air temp high limit	– Ok – Fault
WaterFlowAlm	52630	Low waterflow	– Ok – Fault

3.3.6 Calendar type No. 6

Calendar, object name	Object instance	Object description
CalendarEx	38114	Calendar exception
CalendarOff	51936	Calendar fix off
CalendarAux	29758	Calendar aux

3.3.7 Device type No. 8

Device, object name	Object instance	Object description
POL908_FF8D5B	4164955	POL908_FF8D5B-Climatix

3.3.8 Multistate output type No. 14

Multistate output, object name	Object instance	Object description	State texts
ExhFanCmdSt	14719	Exhaust fan command	– Off – Stage1 – Stage2 – Stage3

3.3.9 Notification classes for alarms type No. 15

Notification classes for alarms, object name	Object instance	Object description
NotificationClass11	11	Alarm class Danger alarm (A) status
NotificationClass21	21	Alarm class Critical alarm (A) status
NotificationClass31	31	Alarm class Low alarm (B) status
NotificationClass41	41	Alarm class Warning alarm (C) status
NotificationClass61	61	

3.3.10 Schedule type No. 17

Schedule, object name	Object instance	Object description	State texts
ScheduleSt	31059	Schedule (variant steps)	– Off – St1 – St2 – St3
ScheduleAux	55253	Schedule aux output	– Off – On

3.3.11 Multistate value type No. 19

Multistate value, object name	Object instance	Object description	State texts	Release
TimeSchedSt	12316	Actual TSP (variant steps)	– Off – Stage1 – Stage2 – Stage3	
OpModeTspCopyUnit	46810	Copy schedule	– MondayTo – Tu-Fr – Tu-Su	
ExtControlStep	28852	External control fan step	– Auto – Off – Stage1 – Stage2 – Stage3	
ExtControlActMode	30799	Act operation mode external control	– Auto – Off – Stage1 – Stage2 – Stage3	
OpModeAutoManStSwtch	31604	Manual operation (Service)	– Auto – Off	
OpModeAutoManStManSwtch	12705	Manual operation (Const. On)	– No – Stage1 – Stage2 – Stage3	
OpModeBmsTimeStSwtch	8442	BMS control/overide time switch program (variant steps)	– Auto – Off – Stage1 – Stage2 – Stage3	
ActOpMode	6080	Actual operating mode	– Off – On – Na – Na – Na – Na – Na – NA – Firedamper – Fire – Stop – Overrun – Startup	
FireDamperTestStrtHMIPls	64867	Fire damper test	– Passive – Active	
FireDamperState	24347	Fire damper state	– NotDefined – Closed – Move – Opened	
FireDamperOperation	9703	Fire damper mode	– NotDefined – OK – Test – Alarm	
FireDamper2State	45701	Fire damper2 state	– NotDefined – Closed – Move – Opened	
FireDamper2Operation	64435	Fire damper2 mode	– NotDefined – OK – Test – Alarm	
ActFanStep	28279	Actual fan step	– Off – Stage1 – Stage2 – Stage3	

Multistate value, object name	Object instance	Object description	State texts	Release
ExhEngUnit	43819	Exh fan eng unit	– % – Pa – l/s	
TimeSchedAux	52222	Auxiliary TSP output	– Off – On	
AuxiliaryTspCopyAuxPls	44050	Copy schedule	– MondayTo – Tu-Fr	
AuxiliaryBmsTimeAuxSwtch	48172	Auxiliary BMS TSP output	– Auto – Off – On	
AckAlmPls	39130	Alarm acknowledge puls Note! This object is used to acknowledge all alarms in the controller.	– Off – On	
SuWiSwtchCheckState	24616	SummerWinter mode	– Winter – Summer	
CommTestEn	1708	Enable communication test	– No – Yes	
AlmCl0	46769	Danger alarm (A)	– Normal – Alarm	
AlmCl1	42640	Critical alarm (A)	– Normal – Alarm	
AlmCl2	38643	Low alarm (B)	– Normal – Alarm	
AlmCl3	34514	Warning alarm (C)	– Normal – Alarm	
ExhFanActAlm	18848	Ebm Exhaust fan alarm	– Nu – Mains Over Volt. – Mains Under Volt. – DC link Under Volt – DC link Over Volt – Internal Electronics – Locked – Hall Sensor – Over heat –Communi-cation Error – Power Over heat – Phase Fail – Normal	

ExhFanActWarn	39335	Ebm Exhaust fan warning	– Nu – Open circuit at input – Actual speed less than low limit – Brake operation – Low DC-link voltage – High electronics temp – High motor temp – High output stage temp – Mesh power limitation – High line impedance – Mesh current limitation – Normal	
ModbusComSnsrAlm	53317	Modbus Sensor communication alarm	– Normal – Sensor 40 – Sensor 41 – Sensor 42 – Sensor 43	
CG_EM24_1ResetParPls	53050	Energy reset partial	– Passive – Active	
HPUnitStatus	20464	HeatPump Unit Status	– Waiting. – Unit On. – Off By Alarm. – Off By Net. – Off By BMS. – Off By Schedule. – Off By DIN. – OFF By Key. – Manual. -- – High condenser Temp. – Frost Protection Operation. – Custom 3. – Custom 4.	
OpModeBmsTimeStTmpSwtch	32040	BMS control/overide time switch program (variant steps/temp)	– Auto – Off – Eco St1 – Comf St1 – Eco St2 – Comf St2 – Eco St3 – Comf St3	
ActOpSta	32321	Actual operating status	– NU – Configuration – Fire Alarm – Alarm Class.0 – Emergency Stop – Alarm Class.1 – Fire Damper Test – External Control – BMS	

			– Manuel operation mode – Room unit operation mode – Time Switch Program – Boost – Night heating/cooling – Night cooling – Test – Service	
HPStatus	61464	HeatPump Status	– Nu – Return Air Temp – Air Flow Low – Water Flow Low – Return High – External Demand HP – No Heating Demand – Alarm – Run	
ExtraHtgPreHtgactv	24454	HeatPump pre heating	– Passive – Active	
EnergyHPoutTripReset	15434	Energy Watch Heat pump Output Trip meter Reset	– Off – On	
EnergyHPinTripReset	16480	Energy Watch Heat pump Input Trip meter Reset	– Off – On	
EnergyFansTripReset	54012	Energy Watch Fans Trip meter	– Off – On	

3.3.12 Trend Objects type No. 20

Notification classes for alarms, object name	Object instance	Object description
TrendObj1	1	Trend object 01
TrendObj2	2	Trend object 02
TrendObj3	3	Trend object 03
TrendObj4	4	Trend object 04
TrendObj5	5	Trend object 05
TrendObj6	6	Trend object 06
TrendObj7	7	Trend object 07
TrendObj8	8	Trend object 08
TrendObj9	9	Trend object 09
TrendObj10	10	Trend object 10
TrendObj11	11	Trend object 11
TrendObj12	12	Trend object 12
TrendObj13	13	Trend object 13
TrendObj14	14	Trend object 14
TrendObj15	15	Trend object 15
TrendObj16	16	Trend object 16
TrendObj17	17	Trend object 17
TrendObj18	18	Trend object 18
TrendObj19	19	Trend object 19
TrendObj20	20	Trend object 20
TrendObj21	21	Trend object 21
TrendObj22	22	Trend object 22
TrendObj23	23	Trend object 23
TrendObj24	24	Trend object 24
TrendObj25	25	Trend object 25
TrendObj26	26	Trend object 26
TrendObj27	27	Trend object 27
TrendObj28	28	Trend object 28
TrendObj29	29	Trend object 29
TrendObj3	30	Trend object 30

3.3.13 BACnet prior Characterstring value type No. 40

Positive-integer, object name	Object instance	Object description	Release
ExhFanOptngTime	53272	Exhaust fan Motor run time	

3.3.14 Positive integer type No. 48

Positive-integer, object name	Object instance	Object description	Release
ExhFan_AlmWarn	42997	Ziehl Exhaust Fan Alarm	
EnergyHPoutDay	36797	Energy Watch Heat pump Output Today	-> v.3.22.xx
EnergyHPoutMonth	45391	Energy Watch Heat pump Output Month	-> v.3.22.xx
EnergyHPinDay	25290	Energy Watch Heat pump Input Today	-> v.3.22.xx
EnergyHPinMonth	55761	Energy Watch Heat pump Input Month	-> v.3.22.xx
EnergyFansDay	10517	Energy Watch Fans input Today	-> v.3.22.xx
EnergyFansMonth	12917	Energy Watch Fans input Month	-> v.3.22.xx

3.3.15 BACnet priority for each notification class

	Prio			Ack		
Object name	ToOff Normal	To Fault	To Normal	Off Normal	To Fault	To Normal
NotificationClass11	1	1	5	1	1	0
NotificationClass21	1	1	5	1	1	0
NotificationClass31	2	2	6	1	1	0
NotificationClass41	3	3	8	1	1	0
NotificationClass12	1	1	5	0	0	0
NotificationClass22	2	2	5	0	0	0
NotificationClass32	3	3	6	0	0	0
NotificationClass42	6	6	8	0	0	0
NotificationClass13	1	1	5	0	0	0
NotificationClass23	2	2	5	0	0	0
NotificationClass33	3	3	6	0	0	0
NotificationClass43	6	6	8	0	0	0
NotificationClass14	1	1	5	0	0	0
NotificationClass24	2	2	5	0	0	0
NotificationClass34	3	3	5	0	0	0

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Air handling with the focus on LCC

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