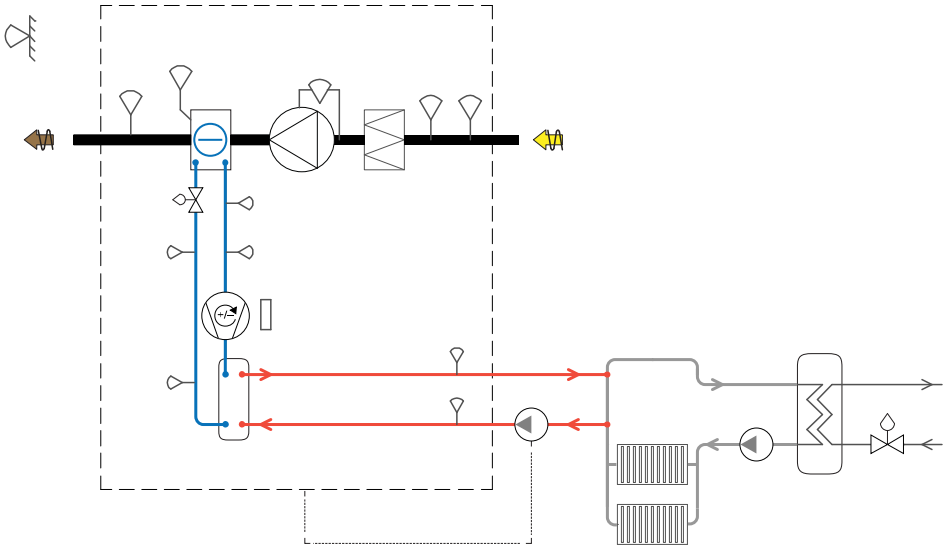


Climatix™
BACnet/IP communication with POL908.00
Objects for standard IV Produkt
EHP application v3.02.xx

PRODUKT
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

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

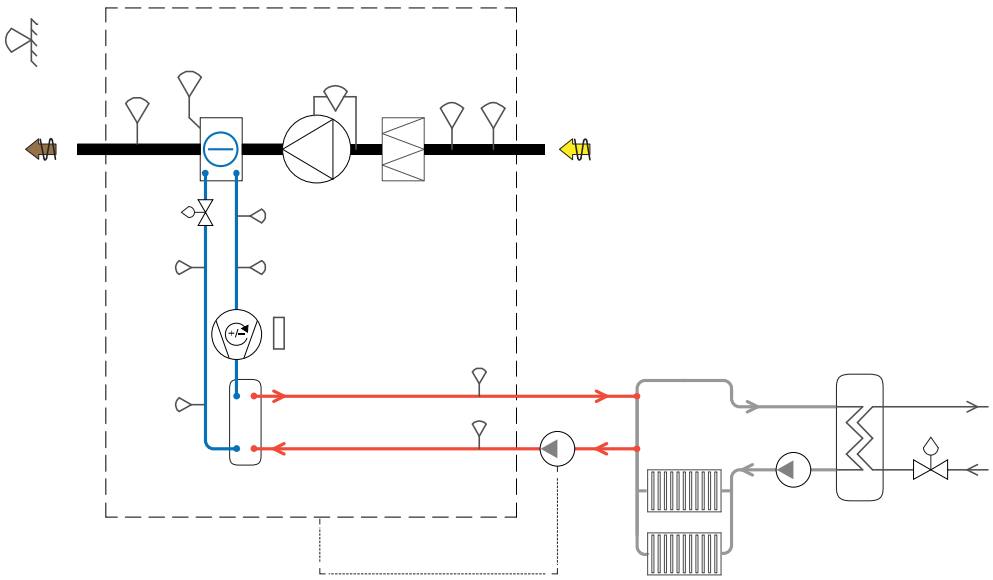
What are standard applications?

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:



Detailed information

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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.

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 Ext.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	

3.3.1 Analog outputs type No. 1

Analog output, object name	Object instance	Object description	LOL	HIL	Dim	Release
ExhFanVarPos	40119	Exhaust fan	0	100	%	
ExtraHtgPos	46994	Heating 2	0	100	%	
AuxOutput	22813	Auxiliary A output fan	0	100	%	
AuxTempCntl	40699	Aux Temp Control Output	0	100	%	

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. Exh.Fan Start T.			°C	
SuCmpFanEnd	39637	Summer Comp. Exh.Fan End T.			°C	
SuCmpFanDta	4600	Summer Comp. Exh.Fan Delta	0.0	100.0	%	
SuCmpFanPrVal	8596	Summer Comp. Exh.Fan PrVal			%	
WiCmpFanStart	64552	Winter Comp. Exh.Fan Start T.			°C	
WiCmpFanEnd	12789	Winter Comp. Exh.Fan End T.			°C	
WiCmpFanDta	47832	Winter Comp. Exh.Fan Delta	0.0	100.0	%	
WiCmpFanPrVal	50290	Winter Comp. Exh.Fan PrVal			%	
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	
Y5TFlSpv	45898	Heatpump SupplyT. setpoint Y5			°C	
X6TOaSpv	32709	Heatpump OutT. setpoint X6			°C	
Y6TFlSpv	43500	Heatpump SupplyT.			°C	

Analog values, object name	Object instance	Object description	LOL	HIL	Dim	Release
		setpoint Y6				
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 temp EEV			°C	
HPEvapTempC1	5078	Heatpump Evaporation temp. EEV			°C	
HPEvapPressC1	12455	Heatpump Evaporation Prs. EEV			bar	
HPSuperheatC1	61331	Heatpump Superheat temp.			K	
HPOpPressC1	13346	Heatpump Operation Prs. EEV			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 Cntl Setpoint			°C	
SuWiSwtchCheckOutTmpDampd	24338	Summer/Winter Dmp Temp			°C	
RtTmpFireLmt	58054	ReturnTemp. setpoint, Firemode			°C	
ExhFltrFireLmt	6148	Exhaust filter setpoint, Firemode			Pa	

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	

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	Heating 2 pump 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	

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

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

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 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

3.3.10 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	
CG_EM24_1ResetParPls	53050	Energy reset partial	– Passive – Active	

3.3.11 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
NotificationClass12	12	
NotificationClass22	22	
NotificationClass32	32	
NotificationClass42	42	
NotificationClass13	13	
NotificationClass23	23	
NotificationClass33	33	
NotificationClass43	43	
NotificationClass14	14	
NotificationClass24	24	
NotificationClass34	34	

3.3.12 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

3.3.13 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
TrendObj30	30	Trend object 30

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PRODUKT

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