DAIKIN APPLIED EUROPE S.p.A.

BAS integration guide

BACnet® protocol

Doc. Name:
D-EIGOC00101-25_01EN-SIC_454C

Product Name:
EWYE-CZ

Control software name:
OPTEON

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1. Introduction

This document contains information to incorporate an EWYE-CZ Unit Controller into a building automation system (BAS) via BACnet communication protocols.

EWYE-CZ data points are accessible to a BAS via BACnet network provided that the protocol has been activated by the dedicated option.

BACnet terms are not defined. Refer to the standard BACnet specifications for definitions and details about the protocol.

2. About this document

2.1 Notice

2.2 Before starting

Application range

This document refers to the following components:

POL486.85	Controller

Users

Users of this document are intended to be:

- Modbus systems integrators
- Service Technicians
- Plant Engineers
- Sales staff

Conventions

POL486.85 further in this document and when proper shall be referred to as “Controller”

Abbreviation

BACnet	**B**uilding **A**utomation and **C**ontrol **Net**work
BSP	**B**oard **S**upport **P**ackage (operating system)

References

- Siemens Building Technologies - CB1J3960en - **Modbus** communication, slave mode
- The Modbus Organization - www.modbus.org

3. Safety information

Only personnel qualified in accordance with IEC (International Electrotechnical Commission) recommendations may be permitted access to electrical components. It is particularly recommended that all sources of electricity to the unit be shut off before any work is begun. Shut off main power supply at the main circuit breaker or isolator.

IMPORTANT: This equipment uses and emits electromagnetic signals. Tests have shown that the equipment conforms to all applicable codes with respect to electromagnetic compatibility.

	***RISK OF ELECTROCUTION: Even when the main circuit breaker or isolator is switched off, certain circuits may still be energized, since they may be connected to a separate power source.***
	***RISK OF BURNS: Electrical currents cause components to get hot either temporarily or permanently. Handle power cable, electrical cables and conduits, terminal box covers and motor frames with great care.***

Field of application

Use Modbus communication module only for control and monitoring functions in ventilation, air conditioning and refrigeration plants.

Intended use

Trouble-free and safe product operation of the above products presupposes transport, storage, mounting, installation, and commissioning as intended as well as careful operation.

Electrical installation

Fuses, switches, wiring and grounding must comply with local safety regulations for electrical installations.

Wiring

When wiring, strictly separate AC 230 V mains voltage from AC 24 V safety extralow voltage (SELV) to protect against electrical shock!

Commissioning and maintenance

Only qualified staff trained accordingly may prepare for use, commission, and maintain Modbus communication modules.

Maintenance of Modbus communication modules generally only means regular cleaning. We recommend removing dust and dirt from system components installed in the control panels during standard service.

Faults

Only authorized staff may diagnose and correct faults and recommission the plant. This applies to working within the panel as well (e.g. testing or changing fuses).

Storage and transport

Refer to the environmental conditions specified in the respective data sheets for storage and transport. If in doubt, contact your supplier.

Disposal

Devices contain electrical and electronic components; do not dispose of them in household garbage. Observe all local and applicable laws.

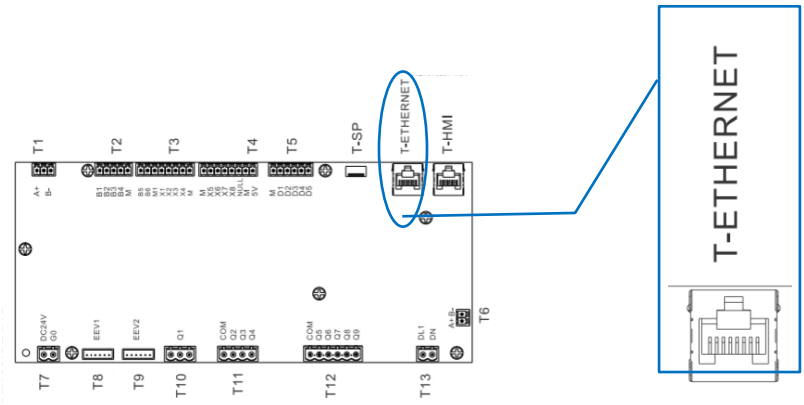
4. Commission this unit in a BACnet network

Unit controller

EWYE-CZ controller is the POL468.85 and can be always integrated in a Modbus network by mean of the onboard integrated RS485 connection.

Communication software option

BACnet IP communication is available via Ethernet port as a software option available with available with connectivity kit SAP code EKRSCBMS.



5. BACnet integration list

Note

All the BACnet objects "_red": Reduced does not have priority array and can be access only through "Present Value".
All the BACnet object such as AV, BV, and MV used as setpoints, must the written with priority 8 (Manual operator).

Always verify "Clear Alarms – Network" writing configuration before starting normal operations: a continuous clear command can lead to potential hazard and unit damaging

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Local/Network Source	BI	3	ChillerLocalRemote	R	0 Local 1 Network
Enabled State	BI	7	ChillerEnableOutput	R	0 Disabled 1 Enabled
Capacity Limited	BI	6	ChillerLimited	R	0 No 1 Yes
Unit general alarm	BI	10	AlarmDigitalOutput	R	0 No 1 Yes
Thermoregulation State	BI	4	ThermostatStatus	R	0 Off 1 On
Unit Enable Setpoint - Network	BV	2	ChillerEnableStp	W (Prio 8)	0 Disable 1 Enable
Clear Alarms – Network	BV	8	ClearAlarm	W (Prio 8)	0 Normal 1 Clear
Operation Mode	MV_red	2	ActiveMode	R	1 Not Used 2 Cool 3 Heat 4 Not Used 5 Defrost
Active Setpoint	AV_red	5	ActiveLvgWaterTarget	R	-15…70°C

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Actual Capacity	AV_red	2	ChillerCapacity	R	0…100%
Active Capacity Limit Output	AV_red	1	ActiveCapacityLimit	R	0…100%
Status	MV_red	1	UnitStatus	R	1 Off 2 Start 3 Run 4 Preshutdown 5 Service
Evaporator Entering Water Temp	AI	1	EntEvapWaterTemp	R	°C
Evaporator Leaving Water Temp Unit	AI	2	LvgEvapWaterTempUnit	R	°C
Outdoor Air Temperature	AI	5	OutdoorAirTemp	R	°C
Warning CODE	AV_red	903	AVWarningAlarmCode	R	0 No Alarm 1 External event
Problem CODE	AV_red	904	AVProblemAlarmCode	R	0 No Alarm 1 Circuit Alarm
Fault CODE	AV_red	905	AVFaultAlarmCode	R	0 No Alarm 1 Unit or both Circuit Alarm
Operation Mode Setpoint – Network	MV	3	ChillerOperationMode	W (Prio 8)	0 NULL 1 Not Used 2 Cool 3 Heat 4 Not Used
Cool Setpoint – Network	AV	4	NetworkCoolTempSetpoint	W (Prio 8)	-15/4°C…28°C
Heat Setpoint – Network	AV	6	NetworkHeatTempSetpoint	W (Prio 8)	20…67°C
Capacity Limit Setpoint - Network	AV	3	CapacityLimitSetpt	W (Prio 8)	0…100%
Current Limit Setpoint - Network	AV	39	CurrentLimitSetpt	W (Prio 8)	0…2000A

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Unit of Measure	MV_red	47	Units	W	1 Metric 2 Imperial
Noise Reduction Enable Setpoint	MV_red	48	SilentModeSetpt	W	1 Off 2 On
Defrost - Operating State	MV_red	62	DefrostOpState	R	0 Off 1 On
Bivalent Operation - Enable Setpoint	MV_red	70	BivOpsEnableStp	W	0 Off 1 On
Bivalent Operation - Temperature Cut-Off	AV_red	71	BivOps'TCutOff	W	-7…7 °C
Bivalent Operation - Temperature Bivalent Mode	AV_red	72	BivOps'Tbivalent	W	0…20 °C
Bivalent Operation - Boiler Start Delay	AV_red	73	BivOps'BoilerStDelay	W	0…60 min
Collective Housing - Enable Setpoint	MV_red	80	ColHsng'EnableStp	W	0 Off 1 On
Collective Housing - Tank Temperature	AI	81	CollHsng'TankTemp	R	°C
Collective Housing - Changeover Upper Limit	AV_red	82	CollHsng'CngovrUpperLim	W	CngovrLowerLim…60°C
Collective Housing - Changeover Lower Limit	AV_red	83	CollHsng'CngovrLowerLim	W	-15°C/4°C…60°C
Collective Housing - Tank Temperature Stp	AV_red	84	CollHsng'TankTempStp	W	CngovrLowerLim…CngovrUpperrLim
DHW Enable Setpoint	BV	90	DHWRemoteEn	W (Prio 8)	0 Off 1 On
DHW Temperature Setpoint	AV_red	91	DHWTempSp	W	0…60˚C
DHW Temperature	AI	92	DHWWaterTemp	R	˚C

Description	Object_Type	Object_ID	Object_Name	R/W	Range
DHW Switching Valve State	MV_red	93	DHW3WVState	R	1 DHW Off 2 Switching 3 DHW Run 4 Error
DHW Anti Legionella Cycle	MV_red	94	DHWAntiLegCycle	R	0 Off 1 On
DHW Standby Mode	MV_red	95	DHWStandbyMode	W	0 Off 1 On
Evaporator Pump #1 Status	BI	101	EvapPumpSta1	R	0 Pump Off Request 1 Pump On Request
Evaporator Pump #1 Run Hours	AV_red	102	EvapPumpRunHrs1	W	hours
Evaporator VFD Pump - Fixed Speed 1	AV_red	150	VPF'FixSpeedSetpt1	W	%
Evaporator VFD Pump - Fixed Speed 2	AV_red	151	VPF'FixSpeedSetpt2	W	%
Evaporator VFD Pump - Standby Speed	AV_red	152	VPF'StbySpeedSetpt	W	%
Evaporator VFD Pump - Actual Speed	AV_red	153	VPF'ActSpeed	R	%
Evaporator VFD Pump - Building Differential Pressure Setpoint	AV_red	154	VPF'LoadDifPresSetpt	W	kPa
Evaporator VFD Pump - Unit Differential Pressure Setpoint	AV_red	155	VPF'EvapDifPresSetpt	W	kPa
Evaporator VFD Pump - Building Differential Pressure	AI	156	VPF'LoadDifPres	R	kPa
Evaporator VFD Pump - Unit Differential Pressure	AI	157	VPF'EvapDifPress	R	kPa
Evaporator VFD Pump - Bypass Valve State	MV_red	158	VPF'BypVlvSta	R	1 Closed 2 Opened
Evaporator VFD Pump - DeltaTemperature Setpoint	AV_red	159	VPF'DeltaTempSp	W	°Dc
Evaporator VFD Pump - DeltaTemperature	AV_red	160	VPF'DeltaTemp	R	°Dc

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Siemens Controller type	MV_red	201	SiemensController	R	1 N/A 2 POL687 3 POL638 4 POL687.00 5 POL687.70 6 POL688.80 7 POL688.80UPS 8 POL468
Application Save	MV_red	202	ApplSaveSp	W	1 Off 2 On
Reserved	Reserved	279	Reserved	W	Reserved
External Alarm	BV	288	ExternalAlarm	R	0 No Alarm 1 InAlarm
External Event	BV	289	UnitExternalEvent	R	0 No Event 1 Event
Reserved	Reserved	290	Reserved	R	Reserved
Reserved	Reserved	291	Reserved	W	Reserved
Unit Alarm Word #4	AV_red	296	UnitAlarmsWord4	R	0...4294967295 – See Annex A
Unit Alarm Word #3	AV_red	297	UnitAlarmsWord3	R	0...4294967295 – See Annex A
Unit Alarm Word #2	AV_red	298	UnitAlarmsWord2	R	0...4294967295 – See Annex A
Unit Alarm Word #1	AV_red	299	UnitAlarmsWord1	R	0...4294967295 – See Annex A
Circuit #1 State	MV_red	300	C1State	R	1 Off 2 Preopen 3 Run 4 Pumpdown
Circuit #1 Comp #1 – Status	BV	321	C1Comp1Status	R	0 Off 1 On

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Circuit #1 Comp #1 – Starts	AV_red	322	C1Comp1Starts	W	0…9999999
Circuit #1 Comp #1 - Run Hours	AV_red	323	C1Comp1Hours	W	0…9999999
Circuit #1 Comp #1 - Actual Capacity	AV_red	325	C1Comp1ActCap	R	0…100%
Circuit #1 Comp #1 - Percent RLA	AV_red	326	C1Comp1RLA	R	0…110%
Circuit #1 or Cir1Comp1 Alarm Word #4	AV_red	396	C1AlarmWord4	W	0...4294967295 – See Annex A
Circuit #1 or Cir1Comp1 Alarm Word #3	AV_red	397	C1AlarmWord3	R	0...4294967295 – See Annex A
Circuit #1 or Cir1Comp1 Alarm Word #2	AV_red	398	C1AlarmWord2	R	0...4294967295 – See Annex A
Circuit #1 or Cir1Comp1 Alarm Word #1	AV_red	399	C1AlarmWord1	R	0...4294967295 – See Annex A
Circuit #2 State	MV_red	400	C2State	R	1 Off 2 Preopen 3 Run 4 Pumpdown
Circuit #2 Comp #1 – Status	BV	421	C2Comp1Status	R	0 Off 1 On
Circuit #2 Comp #1 – Starts	AV_red	422	C2Comp1Starts	W	0…9999999
Circuit #2 Comp #1 - Run Hours	AV_red	423	C2Comp1Hours	W	0…9999999
Circuit #2 Comp #1 - Actual Capacity	AV_red	425	C2Comp1ActCap	R	0…100%
Circuit #2 Comp #1 - Percent RLA	AV_red	426	C2Comp1RLA	R	0…110%
Circuit #2 or Cir2Comp1 Alarm Word #4	AV_red	496	C2AlarmWord4	R	0...4294967295 – See Annex A
Circuit #2 or Cir2Comp1 Alarm Word #3	AV_red	497	C2AlarmWord3	R	0...4294967295 – See Annex A
Circuit #2 or Cir2Comp1 Alarm Word #2	AV_red	498	C2AlarmWord2	R	0...4294967295 – See Annex A
Circuit #2 or Cir2Comp1 Alarm Word #1	AV_red	499	C2AlarmWord1	R	0...4294967295 – See Annex A
M/S Leaving Water Temperature	AI	151	SysCtrlTmp	R	°C
M/S LWT Sensor Fault	BV	502	CommonLWTSenf	R	0 No Alarm 1 In Alarm
M/S Disconnect Setpoint	MV_red	5	StandaloneModeSp	W	1 No 2 Yes

Description	Object_Type	Object_ID	Object_Name	R/W	Range
Master Comm Error	BV	20	MasterCommErr	R	0 No Alarm 1 In Alarm
Slave 1 Comm Error	BV	21	Slave1CommErr	R	0 No Alarm 1 In Alarm
Slave 2 Comm Error	BV	22	Slave2CommErr	R	0 No Alarm 1 In Alarm
Slave 3 Comm Error	BV	23	Slave3CommErr	R	0 No Alarm 1 In Alarm
Slave Load #1	AV_red	1150	Slave1Load	R	0….100%
Slave State #1	MV_red	1154	Slave1State	R	1 Stop 2 Run 3 Alarm 4 ComErr
Slave Load #2	AV_red	1168	Slave2Load	R	0….100%
Slave State #2	MV_red	1172	Slave2State	R	as Slave State #1
Slave Load #3	AV_red	1186	Slave3Load	R	0….100%
Slave State #3	MV_red	1190	Slave3State	R	as Slave State #1

6. Annex A – Alarming

Unit and circuits alarms are coded inside “Alarm Words”. Each bit represents an alarm that is active when the correspondent bit has 1 value. It follows examples:

Unit Alarm Word #1		**Encoding**		
Value (dec)	**Value (bin)**	**bit**	**value**	**Meaning**
17.408	0100 0100 0000 0000	0	0	*Not Used*
		1	0	*Not Used*
		2	0	*Not Used*
		3	0	*Not Used*
		4	0	*Not Used*
		5	0	*Not Used*
		6	0	*Not Used*
		7	0	Demand Limit Fault
		8	0	*Not Used*
		9	0	*Not Used*
		10	**1**	**ACTIVE: Evaporator Entering water temperature sensor fault**
		11	0	Evaporator flow loss
		12	0	Evaporator freeze unit
		13	0	*Not Used*
		14	**1**	**ACTIVE: Evaporator leaving water temperature sensor fault**
		15	0	Evaporator pump 1 fault

Circuit #2 Alarm Word #2		**Encoding**		
Value (dec)	**Value (bin)**	**bit**	**value**	**Meaning**
1.089	0000 0100 0100 0001	**0**	**1**	**ACTIVE: High motor temperature**
		1	0	*Not Used*
		2	0	High Vfd Amperes
		3	0	*Not Used*
		4	0	*Not Used*
		5	0	*Not Used*
		6	**1**	**ACTIVE: Low discharge superheat**
		7	0	Low evaporating pressure
		8	0	Low pressure ratio
		9	0	*Not Used*
		10	**1**	**ACTIVE: Mechanical high pressure switch**
		11	0	No pressure at start
		12	0	No pressure change at start
		13	0	*Not Used*
		14	0	*Not Used*
		15	0	Pumpdown fail

6.1 Annex A – Unit Alarm Words

Unit	bit #	Alarm	SIC	SPLIT	R454C
Alarm Word #1	0	*Not Used*			
	1	*Not Used*			
	2	*Not Used*			
	3	*Not Used*			
	4	*Not Used*			
	5	*Not Used*			
	6	*Not Used*			
	7	Demand Limit Fault	X	X	X
	8	*Not Used*			
	9	*Not Used*			
	10	Evaporator Entering water temperature sensor fault	X	X	X
	11	Evaporator flow loss	X	X	X
	12	Evaporator freeze unit	X	X	X
	13	*Not Used*			
	14	Evaporator leaving water temperature sensor fault	X	X	X
	15	Evaporator pump 1 fault	X	X	X
Alarm Word #2	0	*Not Used*			
	1	External alarm	X	X	X
	2	*External Event*	-	*X*	-
	3	*Not Used*			
	4	*Not Used*			
	5	*Not Used*			
	6	*Not Used*			
	7	*Not Used*			
	8	*Not Used*			
	9	*Not Used*			
	10	*Not Used*			
	11	*Not Used*			
	12	*Not Used*			
	13	*Not Used*			
	14	Low outside ambient temperature lock out	X	X	-
	15	Leaving water temperature reset fault	X	X	X

Unit	bit #	Alarm	SIC	SPLIT	R454C
Alarm Word #3	0	Outside ambient temperature sensor fault	X	X	X
	1	Option extension fault	X	-	X
	2	*Not Used*			
	3	*Not Used*			
	4	*Not Used*			
	5	*Not Used*			
	6	*Not Used*			
	7	*Not Used*			
	8	*Not Used*			
	9	*Not Used*			
	10	*Not Used*			
	11	*Not Used*			
	12	*Not Used*			
	13	*Not Used*			
	14	*Not Used*			
	15	Unit power restore	-	-	-
Alarm Word #4	0	ACS communication fail	X	X	X
	1	Pump communication fail	X	X	X
	2	Domestic Hot Water Alarm	X	X	X
	3	Controller Time Not Valid	X	X	X
	4	*Outdoor Commutication Error*	-	*X*	-
	5	*Out Mismatch Alarm*	-	*X*	-
	6	*Software Mismatch Alarm*	-	*X*	-
	7	*Gas Leakage Alarm*	-	*X*	-
	8	*Gas Sensor Fault*	-	*X*	-
	9	*TankWtSenf*	*X*	-	*X*
	10	*WaterOverHeatAlm*	*X*	-	*X*
	11	*DHW_AntiLeg_AlmEv*	-	-	*X*
	12	*pCOe Modbus Communication Error*	-	-	*X*
	13	*Not Used*			
	14	*Not Used*			
	15	*Not Used*			

6.2 Annex A – Circuit Alarm Words

Circuit 1	bit#	Alarm	bit#	Circuit 2	SIC	SPLIT	R454C
Alarm Word#1	0	Condensing pressure sensor fault	0	**Alarm Word#1**	X	X	X
	1	Discharge temperature sensor fault	1		X	X	X
	2	*Not Used*	2				
	3	*Not Used*	3				
	4	*Economizer pressure sensor fault*	4		-	-	X
	5	*Economizer temperature sensor fault*	5		-	-	X
	6	Evaporating pressure sensor fault	6		X	X	X
	7	*Not Used*	7				
	8	*Not Used*	8				
	9	*Not Used*	9				
	10	Fan fault	10		X	X	X
	11	Gas leakage	11		X	-	X
	12	*Not Used*	12				
	13	High condensing pressure	13		X	X	X
	14	High discharge temperature	14		X	X	X
	15	*Not Used*	15				
Alarm Word #2	0	High motor temperature	0	**Alarm Word #2**	**X**	**X**	**X**
	1	*Not Used*	1				
	2	High Vfd Amperes	2		X	X	X
	3	*Not Used*	3				
	4	*Not Used*	4				
	5	*Not Used*	5				
	6	Low discharge superheat	6		X	X	X
	7	Low evaporating pressure	7		X	X	X
	8	Low pressure ratio	8		X	X	X
	9	*Not Used*	9				
	10	Mechanical high pressure switch	10		X	X	X
	11	No pressure at start	11		X	X	X
	12	No pressure change at start	12		X	-	X
	13	*Not Used*	13				
	14	*Not Used*	14				
	15	Pumpdown fail	15		X	X	X

Circuit 1	bit #	Alarm	bit #	Circuit 2	SIC	SPLIT	R454C
Alarm Word #3	0	*Not Used*	0	**Alarm Word #3**			
	1	*Not Used*	1				
	2	*Not Used*	2				
	3	*Not Used*	3				
	4	*Not Used*	4				
	5	Suction temperature sensor fault	5		X	X	X
	6	*Not Used*	6				
	7	Vfd communication fail	7		X	X	X
	8	Vfd fault	8		X	X	X
	9	*Not Used*	9				
	10	*Not Used*	10				
	11	*Not Used*	11				
	12	*Not Used*	12				
	13	*Not Used*	13				
	14	*Not Used*	14				
	15	*Not Used*	15				
Alarm Word #4	0	*Not Used*	0	**Alarm Word #4**			
	1	*Not Used*	1				
	2	Fan communication alarm	2		X	X	X
	3	*Not Used*	3				
	4	*Not Used*	4				
	5	*Not Used*	5				
	6	*Not Used*	6				
	7	*Not Used*	7				
	8	*Not Used*	8				
	9	*Not Used*	9				
	10	*Not Used*	10				
	11	*Not Used*	11				
	12	*Not Used*	12				
	13	*Not Used*	13				
	14	*Not Used*	14				
	15	*Not Used*	15				

7. Annex B – PICS for BACnet

7.1 BACnet standardized device profile

☐	BACnet Operator Workstation	(B-OWS)
☒	BACnet Building Controller	(B-BC)
☐	BACnet Advanced Application Controller	(B-AAC)
☐	BACnet Application Specific Controller	(B-ASC)
☐	BACnet Smart Sensor	(B-SS)
☐	BACnet Smart Actuator	(B-SA)

7.2 BACnet interoperability building blocks supported

Data sharing	Data Sharing – ReadProperty-A	DS-RP-A
	Data Sharing – ReadProperty-B	DS-RP-B
	Data Sharing – ReadPropertyMultiple-A	DS-RPM-A
	Data Sharing – ReadPropertyMultiple-B	DS-RPM-B
	Data Sharing – WriteProperty-A	DS-WP-A
	Data Sharing – WriteProperty-B	DS-WP-B
	Data Sharing – WritePropertyMultiple-B	DS-WPM-B
	Data Sharing – COV-B	DS-COV-B
	Data Sharing – COV-A	DS-COV-A
Alarm and event management	Alarm and Event – Notification Internal-B	AE-N-I-B
	Alarm and Event – AcknowledgeAlarm-B	AE-ACK- B
	Alarm and Event – Information-B	AE-INFO-B
	Alarm and Event – Alarm Summary-B	AE-ASUM-B
	Alarm and Event – Event-Enrollment Summary-B	AE-ESUM-B
Scheduling	Scheduling – Internal-B	SCHED-I-B
	Scheduling – External-B	SCHED-E-B
Trending	Trending-Viewing and Modifying Trends Internal-B	T-VMT-I-B
	Trending-Automated Trend Retrieval-B	T-ATR-B
Device management	Device Management – Dynamic Device Binding-A	DM-DDB-A
	Device Management – Dynamic Device Binding-B	DM-DDB-B
	Device Management – Dynamic Object Binding-B	DM-DOB-B
	Device Management – DeviceCommunicationControl-B	DM-DCC-B
	Device Management – TimeSynchronization-B	DM-TS-B
	Device Management – UTCTimeSynchronization-B	DM-UTC-B
	Device Management – ReinitializeDevice-B	DM-RD-B

	Device Management – List Manipulation-B	DM-LM-B
	Device Management – Object Creation and Deletion-B	DM-OCD-B
	Device Management – Backup and Restore-B	DM-BR-B
Network management	Network Management-Connection Establishment-A	NM-CE-A

7.3 BACnet standard object types supported

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	☐	☐	☐

7.4 BACnet standard object types description

Analog Input

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Present_Value	X	
Description		
Status_Flags		
Event_State		
Reliability		
Out_Of_Service	X	
Units		
Max_Pres_Value		
Min_Pres_Value		

Priority_Array		
Relinquish_Default	X	
COV_Increment	X	0 .. maxReal
Time_Delay		
Notification_Class		
High_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Low_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Deadband	X	0 .. maxReal
Limit_Enable	X	
Event_Enable	X	
Acked_Transitions		
Notify_Type		
Event_Time_Stamps		

Analog Output

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Present_Value	X	
Description		
Status_Flags		
Event_State		
Reliability		
Out_Of_Service	X	
Units		
Max_Pres_Value		
Min_Pres_Value		
Priority_Array		
Relinquish_Default	X	
COV_Increment	X	0 .. maxReal
Time_Delay		
Notification_Class		
High_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Low_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Deadband	X	0 .. maxReal
Limit_Enable	X	
Event_Enable	X	
Acked_Transitions		
Notify_Type		
Event_Time_Stamps		

Analog Value

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Present_Value	X	Depends on the Unit
Description		
Status_Flags		
Event_State		
Reliability		

Out_Of_Service	X	
Units		
Max_Pres_Value		
Min_Pres_Value		
Priority_Array		
Relinquish_Default	X	
COV_Increment	X	0 .. maxReal
Time_Delay		
Notification_Class		
High_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Low_Limit	X	Min_Pres_Value <= x <=Max_Pres_Value And High_Limit > Low_Limit
Deadband	X	0 .. maxReal
Limit_Enable	X	
Event_Enable	X	
Acked_Transitions		
Notify_Type		
Event_Time_Stamps		

Analog Value (setpoints)

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Present_Value	X(1)	Depends on the Unit
Units		
Status_Flags		
COV_Increment	X	0 .. maxReal
Out_Of_Service	X(1)	
Event_State		

(1) Writeable if Out_Of_Service=True

Binary Input

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Description		
Present_Value	X(1)	
Status_Flags		
Out_Of_Service	X	
Event_State		
Inactive_Text		
Active_Text		
Polarity	X	
Notification_Class		
Reliability		
Acked_Transitions		
Event_Enable	X	
Alarm_Value	X	
Notify_Type		
Time_Delay		
Event_Time_Stamps		
Elapsed-active-time	X	Only 0
Time-of-active-time-reset		

(1)Writeable if Out_Of_Service=True

Binary Output

Property supported	Writable	Range restrictions
Object_Identifier		
Object_Name		
Object_Type		
Description		
Present_Value	X	
Status_Flags		
Out_Of_Service	X	
Event_State		
Inactive_Text		
Active_Text		
Notification_Class		
Reliability		
Acked_Transitions		
Event_Enable	X	
Notify_Type		
Time_Delay		
Event_Time_Stamps		
Polarity	X	
Feedback_Value		
Priority_Array		
Relinquish_Default	X	
Elapsed-active-time	X	Only 0
Time-of-active-time-reset		

DAIKIN APPLIED EUROPE S.p.A.
Via Piani di Santa Maria, 72 - 00072 Ariccia (Roma) - Italia
Tel: (+39) 06 93 73 11 - Fax: (+39) 06 93 74 014
http://www.daikinapplied.eu