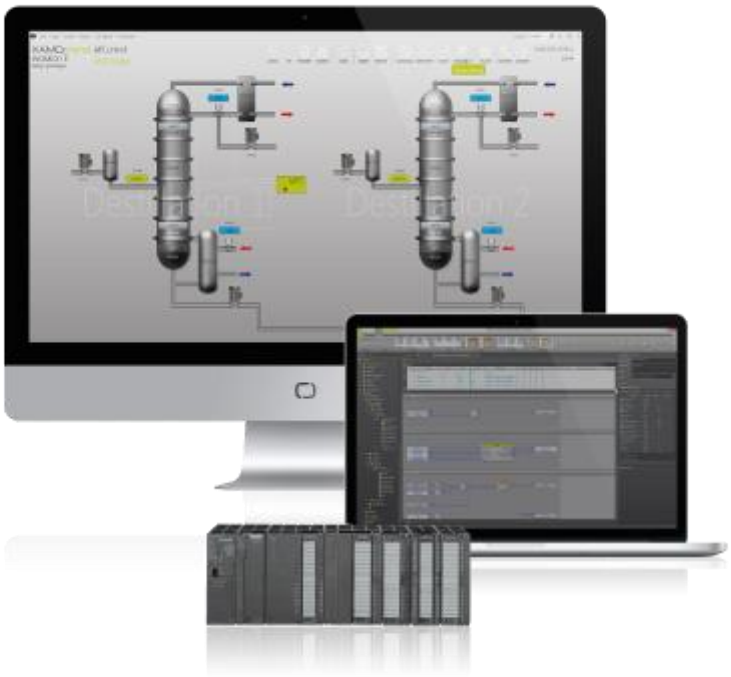
XAMControl

BACnet Protocol Implementation Conformance Statement (PICS)



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BIC: BKAUATWW | IBAN: AT 621 200 051 534 041 784

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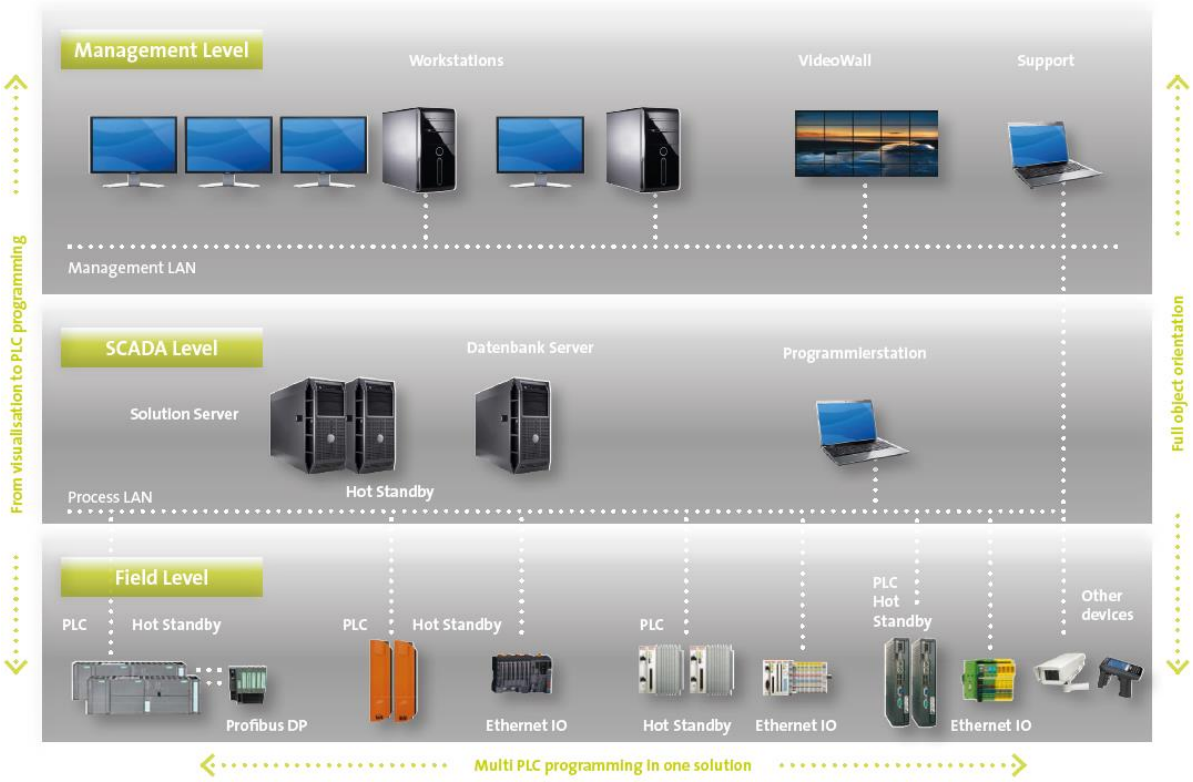
1 General

Date	02.06.2015
Vendor Name	evon (VendorID 793)
Product Name	XAMControl
Product Model Number	XAMControl
BACnet Protocol Revision	1.12
Application Software Version	-
Firmware Revision	2

1.1 Product description

XAMControl is a holistic solution to automation, which permits centralized development and which can be executed in distributed systems. In order to demonstrate the functionality and advantages, the system will be split in the following 3 levels:



The diagram above shows the separation of XAMControl into Management, SCADA and Field levels. The SCADA level contains the kernel of the system, the Solution Server. The Solution Server contains

the complete system configuration, beginning with the visualization and ending with the PLC programs, and offers an inbuilt redundancy function, which can be activated by making a second server hardware available. In addition, a separate database server can be located in the SCADA level - as real hardware or as a virtual computer – which is used for the role of data recording and reporting. The Solution Servers themselves can also assume this function.

The intelligent PLC terminals, the controllers, are on the field level and run the PLC programs. The unique system architecture permits the individual PLC programs to be relocated to other controllers via drag&drop, or centrally managed on the Solution Server. This occurs without interrupting the functions in the area of system control or data recording. Hot-Standby redundancy is also designed into the field level for the implemented controllers. This functionality in XAMControl offers fail-safe safety on the field level. The controllers are either connected directly using input/output terminals or the connections are located in Ethernet I/O terminals.

The operating stations are located on the management level and run the XAMControl visualization, the so-called XAMIris. These recall the corresponding data from the Solution Servers and display them accordingly. Manual intervention in the XAMControl process is performed via XAMIris. The changes are first transmitted to the Solution Server and subsequently transferred to the corresponding controller.

All three levels are interconnected in a network and communicate via Ethernet. The management LAN can be isolated from the process LAN via a firewall. The controllers on the field level can communicate with other devices via proprietary protocols, such as EIB, Mbus, MP-Bus, DMX, Modbus, OPC, DALI, ENOcean, IP-camera, audio systems, infrared-remote control, BACnet, IEC 60870-5-104, SNMP and many more.

XAMControl has been designed for large projects and is predominantly used in such systems and can be used in the following areas:

- Building management systems
- Transport technology
- Process industry
- Energy technology

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2 BACnet Standardized Device Profile (Annex L)

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

3 BACnet interoperability building blocks supported (Annex K)

3.1 Data Sharing

☒	Data Sharing – Read Property-A	DS-RP-A
☒	Data Sharing – Read Property-B	DS-RP-B
☒	Data Sharing – Read Property Multiple-A	DS-RPM-A
☐	Data Sharing – Read Property Multiple-B	DS-RPM-B
☒	Data Sharing – Write Property-A	DS-WP-A
☒	Data Sharing – Write Property-B	DS-WP-B
☐	Data Sharing – Write Property Multiple-A	DS-WPM-A
☐	Data Sharing – Write Property Multiple-B	DS-WPM-B
☒	Data Sharing – Change of Value -A	DS-COV-A
☐	Data Sharing – Change of Value -B	DS-COV-B
☒	Data Sharing – Change of Value Property -A	DS-COVP-A
☐	Data Sharing – Change of Value Property -B	DS-COVP-B
☐	Data Sharing – Change of Value-Unsolicited-A	DS-COVU-A
☐	Data Sharing – Change of Value-Unsolicited-B	DS-COVU-B
☒	Data Sharing – View-A	DS-V-A
☐	Data Sharing – Advanced View-A	DS-AV-A
☒	Data Sharing – Modify-A	DS-M-A
☐	Data Sharing – Advanced Modify-A	DS-AM-A
☒	Data Sharing - ReadRange - A	DS-RR-A
☐	Data Sharing - ReadRange - B	DS-RR-B

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3.2 Alarm and Event Management

☒	Alarm and Event – Notification-A	AE-N-A
☐	Alarm and Event – Notification Internal-B	AE-N-I-B
☐	Alarm and Event – Notification External-B	AE-N-E-B
☒	Alarm and Event – ACK-A	AE-ACK-A
☐	Alarm and Event – ACK-B	AE-ACK-B
☒	Alarm and Event – Alarm Summary-A	AE-ASUM-A
☐	Alarm and Event – Alarm Summary-B	AE-ASUM-B
☒	Alarm and Event – Enrollment Summary-A	AE-ESUM-A
☐	Alarm and Event – Enrollment Summary-B	AE-ESUM-B
☒	Alarm and Event – Information-A	AE-INFO-A
☐	Alarm and Event – Information-B	AE-INFO-B
☐	Alarm and Event – Life Safety-A	AE-LS-A
☐	Alarm and Event – Life Safety-B	AE-LS-B
☒	Alarm and Event – View Notifications-A	AE-VN-A
☐	Alarm and Event – Advanced View Notifications-A	AE-AVN-A
☒	Alarm and Event – View and Modify-A	AE-VM-A
☐	Alarm and Event – Advanced View and Modify-A	AE-AVM-A
☒	Alarm and Event – Alarm Summary View-A	AE-AS-A
☐	Alarm and Event – Event Log View-A	AE-ELV-A
☐	Alarm and Event – Event Log View and Modify-A	AE-ELVM-A
☐	Alarm and Event – Event Log Internal-B	AE-EL-I-B
☐	Alarm and Event – Event Log External-B	AE-EL-E-B

3.3 Scheduling

☐	Scheduling – Internal-B	SCHED-I-B
☐	Scheduling – External-B	SCHED-E-B
☐	Scheduling – Advanced View Modify-A	SCH-AVM-A
☒	Scheduling – View Modify-A	SCH-VM-A
☐	Scheduling – Weekly Schedule-A	SCH-WS-A
☐	Scheduling – Weekly Schedule Internal-B	SCH-WS-I-B
☐	Scheduling – Readable-B	SCH-R-B

3.4 Trending

☐	Trending – Viewing and Modifying Internal-B	T-VM-I-B

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☐	Trending – Viewing and Modifying External-B	T-VM-E-B
	Trending – Viewing and Modifying Multiple Values-A	T-VMMV-A
☐	Trending – Viewing and Modifying Multiple Values Internal-B	T-VMMV-I-B
☐	Trending – Viewing and Modifying Multiple Values External -B	T-VMMV-E-B
☐	Trending – Automated Multiple Value Retrieval-B	T-AMVR-B
☒	Trending – View-A	T-V-A
☐	Trending – Advanced View and Modify-A	T-AVM-A
☐	Trending – Archival-A	T-A-A
☐	Trending – Automated Trend Retrieval-A	T-ATR-A
☐	Trending – Automated Trend Retrieval-B	T-ATR-B

3.5 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-A	DM-DOB-A
☒	Device Management – Dynamic Object Binding-B	DM-DOB-B
☒	Device Management – Device Communication Control-A	DM-DCC-A
☐	Device Management – Device Communication Control-B	DM-DCC-B
☒	Device Management – Time Synchronization-A	DM-TS-A
☐	Device Management – Time Synchronization-B	DM-TS-B
☒	Device Management – UTC Time Synchronization-A	DM-UTC-A
☐	Device Management – UTC Time Synchronization-B	DM-UTC-B
☒	Device Management – Reinitialize Device-A	DM-RD-A
☐	Device Management – Reinitialize Device-B	DM-RD-B
☒	Device Management – Backup and Restore-A	DM-BR-A
☐	Device Management – Backup and Restore-B	DM-BR-B
☐	Device Management – Restart-A	DM-R-A
☐	Device Management – Restart-B	DM-R-B
☐	Device Management – List Manipulation-A	DM-LM-A
☐	Device Management – List Manipulation-B	DM-LM-B
☐	Device Management – Object Creation and Deletion-A	DM-OCD-A
☐	Device Management – Object Creation and Deletion-B	DM-OCD-B

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☐	Device Management – Automatic Network Mapping-A	DM-ANM-A
☐	Device Management – Automatic Device Mapping-A	DM-ADM-A
☐	Device Management – Automatic Time Synchronization-A	DM-ATS-A
☒	Device Management – Manual Time Synchronization-A	DM-MTS-A

4 Segmentation Capability

	Description	Window Size
☒	Able to transmit segmented messages	128
☒	Able to receive segmented messages	128

5 Standard Object Types Supported

5.1 List of 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	☐	☐	☐
Notification Class	☐	☐	☐

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Program	☐	☐	☐
Schedule	☐	☐	☐
Averaging	☐	☐	☐
Multi-State Value	☐	☐	☐
Trend Log	☐	☐	☐
Life-Safety-Point	☐	☐	☐
Life-Safety-Zone	☐	☐	☐
Accumulator	☐	☐	☐
Pulse-Converter	☐	☐	☐
Event Log	☐	☐	☐
Global Group	☐	☐	☐
Trend Log Multiple	☐	☐	☐
Load Control	☐	☐	☐
Structured-View	☐	☐	☐
Access Door	☐	☐	☐
(unassigned)	☐	☐	☐
Access Credential	☐	☐	☐
Access Point	☐	☐	☐
Access Rights	☐	☐	☐
Access User	☐	☐	☐
Access Zone	☐	☐	☐
Credential Data Input	☐	☐	☐
Network Security	☐	☐	☐
Bitstring Value	☐	☐	☐
Characterstring Value	☐	☐	☐
Date Pattern Value	☐	☐	☐
Date Value	☐	☐	☐
Datetime Pattern Value	☐	☐	☐
Datetime Value	☐	☐	☐
Integer Value	☐	☐	☐
Large Analog Value	☐	☐	☐
Octetstring Value	☐	☐	☐
Positive Integer Value	☐	☐	☐
Time Pattern Value	☐	☐	☐
Time Value	☐	☐	☐

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5.2 Object Properties supported

Notes on the specification of the following object types:

Writable properties are read only if they are under program control.

Variants of object types (different set of properties) are possible in the case of value objects (e.g. Analog Value). The variants are distinguished by the object tag. The object tag is listed as additional information in the EDE file.

5.2.1 Device

Property	supported	Readable/ Writeable	Range restrictions
ObjectIdentifier	X	R	
ObjectName	X	R	
ObjectType	X	R	
SystemStatus	X	R	
VendorName	X	R	
VendorIdentifier	X	R	
ModelName	X	R	
FirmwareRevision	X	R	
ApplicationSoftwareVersion	X	R	
Location			
Description	X	R	
ProtocolVersion	X	R	
ProtocolRevision	X	R	
ProtocolServicesSupported	X	R	
ProtocolObjectTypesSupported	X	R	
ObjectList	X	R	
StructuredObjectList			
MaxApduLengthAccepted	X	R	
SegmentationSupported	X	R	
MaxSegmentsAccepted	X	R	
VtClassesSupported			
ActiveVtSessions			

LocalTime	X	R	
LocalDate	X	R	
UtcOffset	X	R	
DaylightSavingsStatus	X	R	
ApduSegmentTimeout	X	R	
ApduTimeout	X	R	
NumberOfApduRetries	X	R	
TimeSynchronizationRecipients			
MaxMaster			
MaxInfoFrames			
DeviceAddressBinding	X	R	
DatabaseRevision			
ConfigurationFiles			
LastRestoreTime			
BackupFailureTimeout			
BackupPreparationTime			
RestorePreparationTime			
RestoreCompletionTime			
BackupAndRestoreState			
ActiveCovSubscriptions	X	R	
SlaveProxyEnable			
ManualSlaveAddressBinding			
AutoSlaveDiscovery			
SlaveAddressBinding			
LastRestartReason	X	R	
TimeOfDeviceRestart			
RestartNotificationRecipients	X	R	
UtcTimeSynchronizationRecipients			
TimeSynchronizationInterval			
AlignIntervals			
IntervalOffset			
SerialNumber			
PropertyList			
ProfileName			

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6 Data Link Layer Options

	Description	
☒	BACnet IP, (Annex J)	
☐	BACnet IP, (Annex J), Foreign Device	
☐	ISO 8802-3, Ethernet (Clause 7)	
☐	ATA 878.1, 2.5 Mb. ARCNET (Clause 8)	
☐	ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s)	
☐	MS/TP master (Clause 9), baud rate(s)	
☐	MS/TP slave (Clause 9), baud rate(s)	
☐	Point-To-Point, EIA 232 (Clause 10), baud rate(s)	
☐	LonTalk, (Clause 11), medium	
☐	BACnet/ZigBee (ANNEX O)	
☐	Other	

7 Device Address Binding

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

☒ Yes ☐ No

8 Networking Options

☐	Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
☐	Annex H, BACnet Tunneling Router over IP
☐	BACnet/IP Broadcast Management Device (BBMD)
☐	the BBMD supports registrations by Foreign Devices
☐	the BBMD support network address translation

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9 Network Security Options

☒	Non-secure Device - is capable of operating without BACnet Network Security
☐	Secure Device - is capable of using BACnet Network Security (NS-SD BIBB) ☐ Multiple Application-Specific Keys: ☐ Supports encryption (NS-ED BIBB) ☐ Key Server (NS-KS BIBB)

10 Character Sets Supported

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

☐ ISO 10646 (UTF-8) ☐ IBM™/Microsoft™ DBCS ☒ ISO 8859-1

☐ ISO 10646 (UCS-2) ☐ ISO 10646 (UCS-4) ☐ JIS X 0208

☒ ANSI X3.4

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