



XAMControl evolution 3

Technical product description

XAMControl

XAMControl covers the area from visualization to the field, including PLC on freely selectable (standard) controllers. The system acts as a redundant host for large, failsafe systems and offers high performance, PLC programming in IEC-61131-3 and/or high level languages and automatic networking of the PLCs. It is the ideal basis for fast and efficient engineering.

Areas of application

XAMControl was conceived for large projects and the majority of applications is in such areas. Above all, XAMControl is successfully used in the following areas:

- Building automation systems
From city hall to data centers
- Traffic management
Tunnels, open road and traffic control centres
- Process control engineering
Automotive, pharma, steel and construction materials

Highlights

- Complete support of **object-orientation** for efficient and standardized engineering
- Wide-ranging **library** available for a range of applications online via the “ACC store” (with over 1,700 automation objects)
- **Distributed automation solutions** from the field level to the management level.
- Horizontally and vertically freely scalable with up to 200 substations (PLCs) and 100 operating stations
- Scalable from single user system to complex, high availability solutions with up to **1,000,000 external data points**
- Hardware independent automation solutions
- Open system design (high degree of extendibility)
- Automatic networking of all PLCs

HMI / Visualization

- 2D and 3D vector graphics with animation
- Open standard for graphical description (XAML)
- Multi-touch
- Extendible via high-level language (C#)
- Integration of custom or third-party libraries
- Free zooming, panning, de-cluttering and scaling
- Multi-monitor operation
- Multiple selection
- DirectX support
- Screen resolution independent
- Theme support
- Support of all popular graphic formats (jpg, png,...)

Multi-language

- Switchable online
- Multi-byte character sets (Chinese and Cyrillic character sets)
- Automatic translation with "Google Translate"
- Excel export and import

Drivers and interfaces

- More than 200 drivers are available
- Run several different drivers simultaneously
- Common configuration and monitoring
- Outsourcing of drivers to other computers to distribute computing load
- Drivers available on all levels (PLC, SCADA)
- OPC 2.0 und UA, SIMATIC S7, Modbus, IEC-60870-5-104, BACnet, SNMP, EIB, Mbus, MP-Bus, DMX, DALI, ENOcean ...
- Field level: Profibus DP, Modbus TCP und RTU, Beckhoff ADS, M-Bus ...
- Open API interface

Alarm management

- Freely definable alarm groups with up to 32,767 different priorities and freely selectable attributes (alarm colour incl. flashing, acknowledgement behaviour, icons ...)
- Collective alarm functions for picture groups, objects and visualization screens
- Alarm screen with definable column selection and extendible sort and filter options
- Direct redirection to process screen with the alarmed object via a click
- Comments and alarm notes (also mandatory)
- Online configurable
- Configurable alarms via alarm group via text message and/or mail incl. escalation mechanism
- Automatic optical highlighting of alarmed objects in the visualization
- Clear text speech output, allocation of audio files, etc.
- Pareto evaluation of alarm frequency and alarm duration
- Journal for historical evaluation
- Masking of system components on different operating stations

User management

- Complete access security with optional integration in Windows Active Directory
- Several levels of access rights
- Automatic, complete documentation of user interactions
- FDA 21 CFR Part 11 conform
- Up to 1024 user groups and an unlimited number of users
- Strong password, password expiry times, auto-logout, etc.
- User administration is applicable to all functionality (alarms, operation, reporting, configuration, etc.)

Helpdesk/Maintenance management

- Maintenance support
- Trouble ticketing
- Commissioning support
- Allocation of responsibilities (and if requested, automatic notification via text message and/or mail)
- Step-by-step operation guidance during an event (incl. checklists, documents, ...)
- Direct representation with the objects in the visualization
- Transfer of information at shift change (notes)
- Up to 2,000 definable groups (description, icon, notification behaviour, ...)
- Simple creation of new entries via drag&drop of an object
- Complete documentation in the database
- Pre-populated reports

Reporting

- Web reports using Microsoft Reporting Services (SSRS)
- Integrated report editor for SSRS (bars, tables, pie charts, pivot tables, ...)
- Excel reports
- Built-in alarm journal, Pareto analysis, operator interventions up to reports directly on the object with a wide range of filter possibilities
- Open database model and pre-installed views and functions
- Automatic report generation and sending via mail
- FDA 21 CFR Part 11 conform
- Excel, CSV, PDF export

Trending & Database

- All data are stored in a central database (master data, data model, process data, production data, etc.)
- SQL standard
- Open database model
- FDA 21 CFR Part 11 conform
- Threshold value, cyclical, time-synchronous and event-triggered data recording
- Realtime data acquisition in the PLC
- Configurable data recording (incl. Excel for mass data)
- Database redundancy up to cluster systems for all data
- Simple quick-export in Excel, CSV, PDF
- Representation in current (live trend) and historical values
- Definable scaling, time offset of traces, automatic scaling
- Ruler function
- Multiple and mutual axis representation
- Add different objects to the trend display via simple drag&drop
- Creation of proprietary trend views
- Free zooming
- Display of alarms in the trend view
- View context-related trend evaluations directly with the objects in the visualization
- Database is scalable from the smallest application up to big data uses

Established field devices

Recommended components:

- B&R: X20-Series
- Beckhoff: K-Bus
- Siemens: ET200s, ET200m
- Phönix: Contact IO
- Wago IO System 750

Integrated Development Environment

- Central programming and configuration of the entire automation landscape
- Shifting of programs to controllers using drag&drop
- Object-oriented programming of the automation landscape (visualization and control)
- PLC programming in IEC-61131-3 and/or in the high-level language C#
- Programming of the visualization via graphical editor and extension via high-level C#
- Simple backup/restore of the entire solution
- Generation of programs, visualization, I/O and driver configuration via solution generator (Excel import)
- Excel integration for simpler editing of mass data
- Offline simulation capability
- Online data monitoring
- Multi-language translation (Excel, Google Translate...)
- Seamless integration of the ACC store (library download, upload and version management)

Web Visualization

- generic Web Visualization on Computer, Tablet and Smartphone
- modern Technologies: HTML5, Angular, node.js
- secure remote access (optional)

Production management MES

- Material management
- Batch administration
- Product (production regulations, recipes, step chains)
- Production planning
- Track & Trace
- ISA S88 / S95 conform

System requirements

Server

minimal

- Windows Server 2008 R2 64bit (.Net FW 4.5.2)
- 4GB RAM
- Dual Core CPU 2x1,5GHz
- 60GB free disk space

recommended

- Windows Server 2016 64bit (.Net FW 4.7)
- 16 GB RAM
- CPU 8x2 GHz
- 120GB free disk space

Operator Workstation

minimal

- Windows 7 64bit (.Net FW 4.5.2)
- 4GB RAM
- Quad Core CPU 4x2GHz
- 10GB free disk space

recommended

- Windows 10 64bit (.Net FW 4.7)
- 16GB RAM
- Intel i-Generation CPU 8x2 GHz
- 20GB free disk space
- nVidia GForce with 4GB graphic memory

PLC

minimal

- Windows embedded Std. 7 64bit (.Net FW 4.5.2)
- 4GB RAM
- Dual Core CPU 2x1,5GHz
- 4GB free disk space

recommended

- Windows 10 IoT Enterprise 64bit (.Net FW 4.7)
- 8 GB RAM
- Core CPU 8x2 GHz
- 20GB free disk space

Virtualization

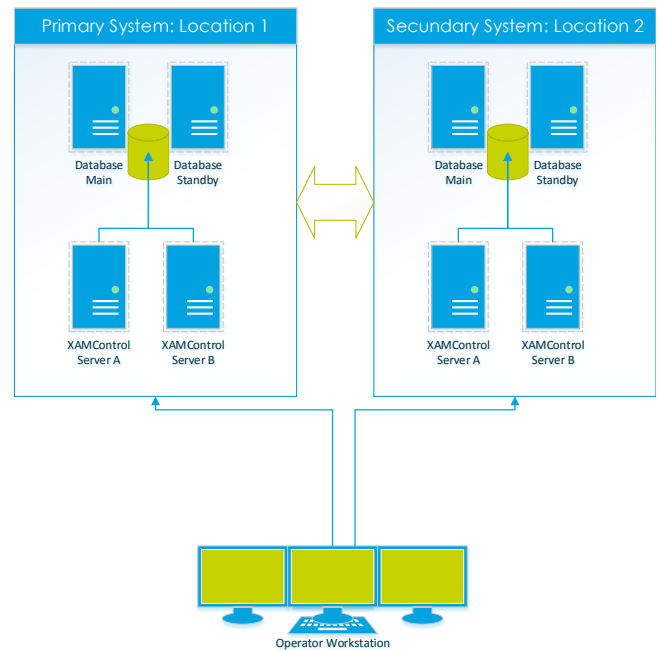
- VMware ESXi 6

*) The minimum requirements stated are for up to 500 data points. The recommended requirements assume 5,000 data points. Details can be found in the documentation.

Special features of XAMControl

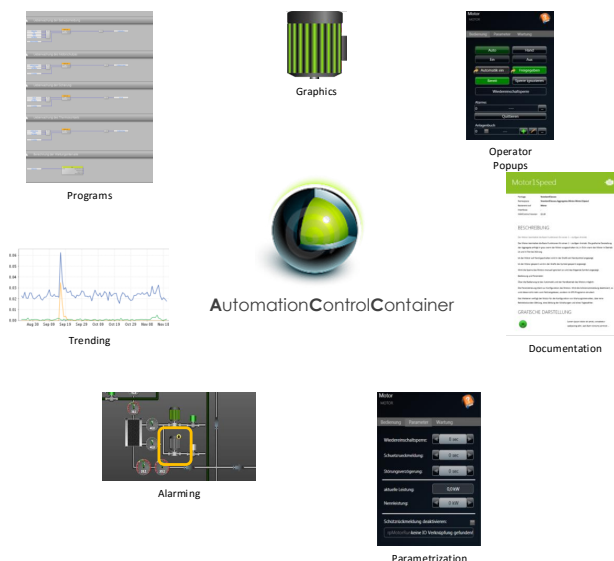
Redundancy and high availability

- Hot-Standby as integrated system function
- Disaster Recovery System (2x2 redundancy). This system extends the simple redundancy by a second redundant system, which can be switched to in the event of a problem (e.g. fire or explosion in the building of the primary system). This additional redundancy delivers the highest degree of failsafe protection.
- Automatic client switching
- Automatic recovery
- Automatic alignment of online and historical data
- Automatic synchronization of the project files
- Redundant networks (LAN)
- Available of both PLC and SCADA levels



Consequent and consistent object-orientation

- AutomationControlContainer (ACC) brings programs, graphics, operating screens, documentation, alarm and trend configuration, multi-language translation etc. together
- Inheritance of data, methods and graphics
- Data encapsulation
- Defined interfaces on objects
- Nesting of objects
- Locking protection of “Intellectual Property”



Completely based on a database

- MS SQL Server
- High availability via mirroring up to SQL cluster systems
- Simple applications up to big data
- Completely based on a database
- Configuration data (data model, screens, programs, etc.)
- Runtime data (trend, alarm journal, etc.)
- Operational data, production data



Libraries / ACC Store

- Online Store with finished libraries for buildings, industry and traffic
- Over 1,700 automation objects
- Tested, documented and ready to go
- Version control (source management)
- Compatibility
- Faster, better, more efficient engineering
- Private and protected store area for customers

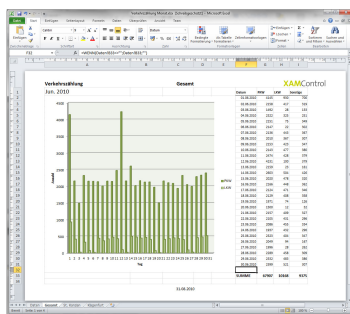
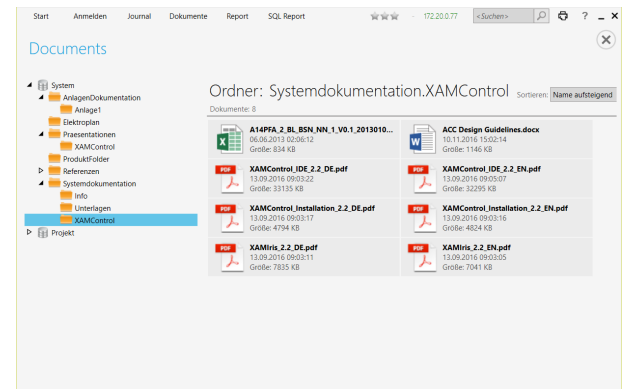
The virtualized PLC

Virtualization on the PLC level in the world of XAMControl means that you program your facility using soft-PLCs in your office environment. Only when you are on-site do you decide which hardware will execute your code. This approach has two advantages: first, you can operate your facility, even if some hardware components are not yet available; second, you are flexible when deciding how many PLCs should be used when distributing your software.



Document management

- Integrated system function
- E-plans, plant documentation, diagrams, data point lists, data sheets, reports, etc.
- Integrated into the user rights system
- Directly editable documents (Word, Excel, etc.)
- Creation of PDFs for others to view
- In a central database

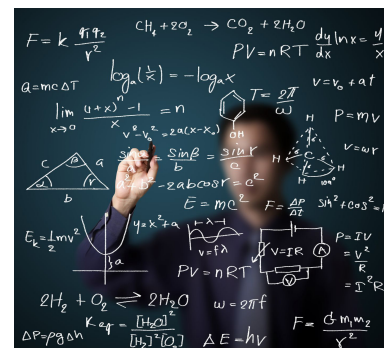


Microsoft Office integration

- Simple operational data evaluation based on automatically created Excel templates
- Online mass data processing and plant configuration
- Simple possibilities for documentation
- From the data point configuration to the import of a complete project (Solution Generator)
- Automatic document generator

Mathematik & Optimierung

XAMControl offers a complete work environment for the design of model-based control concepts for plant optimization. This starts with the tools for uncomplicated model generation based on historical data, the incorporation of thermodynamic, chemical or physical models, or a combination thereof. It continues with a wide range of mathematical functions up to complete libraries and modules for various optimization scenarios.



Further information:

Find also additional brochures and technical descriptions
about XAMControl on our website:

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