SIEMENS

SIMATIC PCS 7

SIMATIC PCS 7 Process Control System

Volume 3: Add-ons for SIMATIC PCS 7

Catalog
ST PCS 7 AO

Edition
2020

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Catalogs for Process Automation

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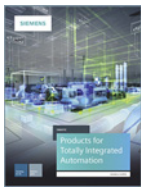

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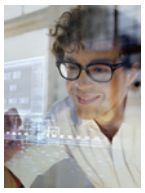

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SIMATIC PCS 7 Process Control System

Vol. 3: Add-ons for the SIMATIC PCS 7 Process Control System

SIMATIC PCS 7

Catalog ST PCS 7 AO · 2020

Supersedes:
Catalog ST PCS 7 AO · 2018

Refer to the Industry Mall for current updates of this catalog:
www.siemens.com/industrymall
and as PDF at the following address:
www.siemens.de/stpcs7ao

The products contained in this catalog can also be found in the Interactive Catalog CA 01.
Article No.: E86060-D4001-A500-D9

Please contact your local Siemens branch.

000656 QM08The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with DIN EN ISO 9001 (Certified Registration No. 000656 QM08). The certificate is recognized by all IQNet countries.

Add-ons for SIMATIC PCS 7.

As an important component of Totally Integrated Automation (TIA), the SIMATIC PCS 7 process control system is integrated seamlessly in a comprehensive range of perfectly matched products, systems, and solutions for all hierarchy levels of industrial automation - from the enterprise management level, to the control level, all the way down to the field level. Thus the complete process chain at a production location can be automated, and not just the actual production process - from the inbound logistics (material supply), through the primary process and downstream secondary processes (filling, packaging), down to the outbound logistics (storage).

The exceptionally powerful and versatile SIMATIC PCS 7 process control system is an ideal basis for the cost-effective implementation and efficient operation of control systems. Its functionality can be expanded through the seamless integration of technology components for specific automation tasks.

Uniformity, modularity, flexibility, scalability, and the openness of SIMATIC PCS 7 additionally provide optimal prerequisites for integrating supplementary components and solutions into the process control system in an applicative manner and thus extend and round off its functionality.

Since SIMATIC PCS 7 was launched on the market, we at Siemens as well as our external partners have developed a wide range of supplementary components which we refer to in short as PCS 7 add-on products.

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PCS 7 add-on products are software packages and hardware components that are optimally adapted to the respective field of application and thus enable cost-effective use of SIMATIC PCS 7 for special automation tasks.

With this catalog, we wish to help you in finding products for your specific task.

Product responsibility, conditions of use

The responsibility for a PCS 7 add-on product generally rests with the product manager in each case. The address of the product manager can be found in the "Further information" section. This gives you direct access to the appropriate specialists.

All SIMATIC PCS 7 add-on products entitle you to worldwide hotline support from our Technical Support center. Information on central technical support as well as contact addresses can be found in the appendix to this catalog; the general terms and conditions apply.

External SIMATIC PCS 7 partners organize the sale and delivery of their products independently. Their own terms and conditions of business and delivery apply. Corresponding information can be obtained from the addresses given in the "Further information" section. Siemens AG accepts no liability and offers no warranty for the products of external SIMATIC PCS 7 partner companies.

The catalog contains hyperlinks to other websites or third party sources (hereinafter referred to as "sites"). Siemens does not guarantee the availability, completeness or incorrectness of these sites and disclaims any contractual and non-contractual liability, in particular for the content, goods and products that are offered on these pages. Any agreements that are made are exclusively between the user and the respective providers of these services at their terms and conditions.

Pricing information

Pricing information for the products with article numbers in this catalog can be obtained via the interactive catalog CA 01, the Industry Mall on the Internet, or on request from your local Siemens partner.

Pricing information for the products without an article number can be provided on request by the responsible add-on partners listed under "More Information".

Internet

The ST PCS 7 AO catalog can also be downloaded as a PDF file from the Information and Download Center via the Internet: **www.siemens.com/stpcs7ao**

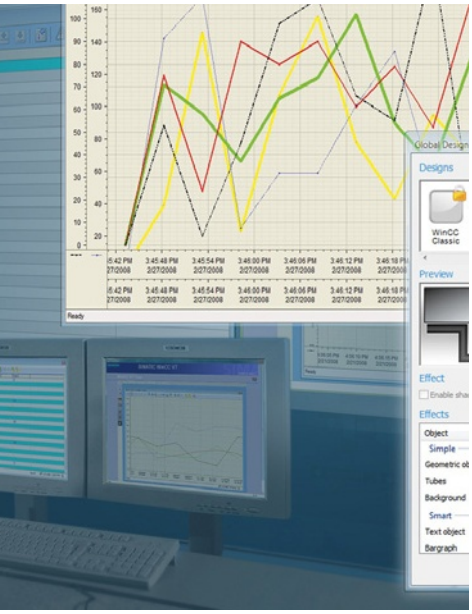
Additional information is available on the SIMATIC PCS 7 web site on the Internet at: **www.siemens.com/simatic-pcs7**

Marking for SIMATIC PCS 7 V8/V9

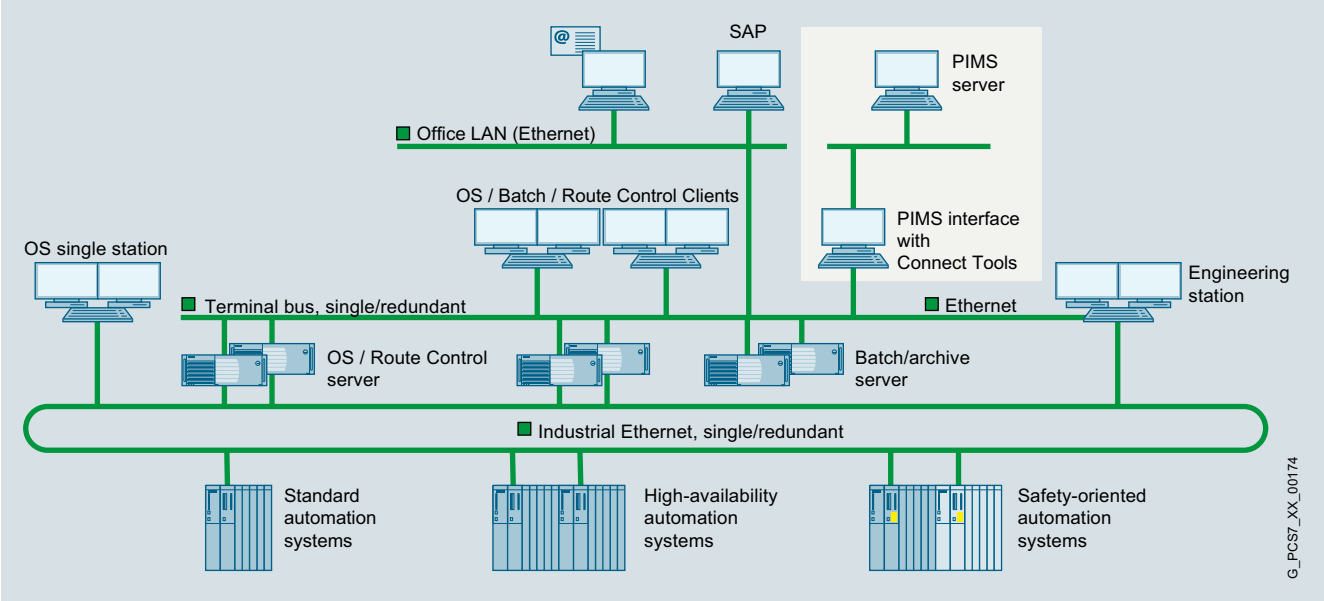
The add-on products offered in this catalog are specified for SIMATIC PCS 7 versions V8.0, V8.1, V8.2 and V9.0. SIMATIC PCS 7 versions prior to version 7.1 are no longer supported by this catalog.

The possible application is specified for each product. When V8 or V8.x is specified, it refers to all 8 versions. Unless the version is explicitly defined, e.g. V8.2.

Information and management systems



Overview



The products described here (interfaces and tools) support economic cooperation between SIMATIC PCS 7 including SIMATIC BATCH and the following plant information management systems (PIMS):

- PI-System from OSIsoft (PI PCS 7-CONNECT)
- aspenOne from AspenTech (aspenOne PCS 7-CONNECT)

A plant information management system is suitable for:

- Short-term and long-term archiving beyond the limits of companies and plants
- Evaluation and presentation of process and production data

The interfaces and tools provide the best possible combination of PI-System and aspenOne with SIMATIC PCS 7. They feature high flexibility, performance and safety. They also support redundant systems and archive recovery concepts, e.g. in the event of interferences in a connection.

We can additionally offer tailored, scalable support and services for efficient implementation and maintenance of these interfaces and tools. Information on support and services as well as manufacturer declarations are available on request (for contact address, see "Further information").

Function

PI-PCS 7-CONNECT

Interface PI-CONNECT OPC+

PI-CONNECT OPC+ reads the process variables cyclically from SIMATIC PCS 7 and saves these in the PI long-term archive.

The interface is operated on a separate interface PC on the terminal bus of the SIMATIC PCS 7 process control system, and supports:

- Redundancy functionality of the SIMATIC PCS 7 OS server
- Concurrent time stamp treatment
- Archive recovery
- Failover online

The PI-CONNECT OPC+ interface can be used in combination with SIMATIC PCS 7 V8.x and V9.0. It can use the following interfaces for communication with SIMATIC PCS 7:

- OpenPCS 7 interface
- OPC DA and OPC HDA interface (OPC UA in preparation)

Interface PI-CONNECT ALARM

The PI-CONNECT ALARM interface can be used to transfer messages from the SIMATIC PCS 7 process control system and/or other sources to the PI archive. The PI-CONNECT ALARM interface is characterized by the fact that all messages and alarms are detected even in exceptional situations. In addition, various recovery methods are available.

PI-CONNECT interrupt can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

PI-CONNECT SIMATIC BATCH interface

This interface transmits data from SIMATIC BATCH to the PI-Batch subsystem. Together with the PI-CONNECT OPC+ interface, reports and evaluations based on batch data and process data can be implemented in the PI system. Additional features of PI-CONNECT SIMATIC BATCH include:

- Archive recovery
- Support of hierarchical recipes of SIMATIC BATCH

PI-CONNECT SIMATIC BATCH can be used in combination with SIMATIC BATCH V8.x and V9.0.

PI-CONNECT CONFIG tool

PI-CONNECT CONFIG can work together with PI-CONNECT OPC+ as well as with the OPC interface of OSIsoft. The tool provides support for efficient creation and easy updating of the PI system project for the SIMATIC PCS 7 interface. It provides CSV files for import into the PI configuration database. It can be used equally for initial configuration of the PI system as well as for tracking SIMATIC PCS 7 configuration changes in the PI system.

PI-CONNECT CONFIG can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

aspenONE-PCS 7-CONNECT

Batch.21-CONNECT SIMATIC BATCH interface

This interface transmits data from SIMATIC BATCH to the Batch.21 system and supports you with functions such as archive recovery. Thus reports and evaluations based on batch data and process data can be implemented in the AspenTech system.

Batch.21 CONNECT SIMATIC BATCH can be used in combination with SIMATIC BATCH V8.x and V9.0.

Interface IP.21-CONNECT RECOVERY

Servers disconnections when fetching data from OPC DA servers can sometimes lead to gaps. These data gaps are preventable with the IP.21-CONNECT RECOVERY interface. Missing data can be read from the OPC HDA server of the process control system.

The IP.21-CONNECT RECOVERY interface provides two recovery mechanisms:

- Manual recovery with specification of the time period
- Automatic recovery (for closing the data gaps before starting the OPC DA interface)

The IP.21-CONNECT RECOVERY interface is suitable for use with SIMATIC PCS 7 V8.x and V9.0.

IP.21-CONNECT CONFIG tool

IP.21-CONNECT CONFIG provides support for effective creation and easy updating of the IP.21 system project for the SIMATIC PCS 7 link. The tool provides CSV files for importing into the IP.21 configuration database. It can be used equally for initial configuration of the IP.21 system and for tracking SIMATIC PCS 7 configuration changes in the IP.21 system.

IP.21-CONNECT CONFIG can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

More information

Siemens AG
Siemens Germany
Process Industries and Drives
Solution Operation
Mannheim branch

Tel.: +49 621 456-3315
Fax: +49 621 456-3334

E-mail: info.rhm.industry@siemens.com

You can find more information on the Internet at:
http://www.siemens.com/mis-pcs7

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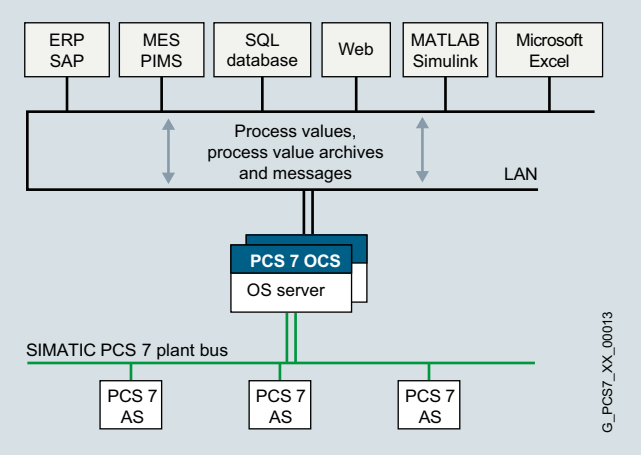
Overview



As an alternative to the OpenPCS 7 system interface, the PCS 7 OCS open data interface can also be used for data communication between external systems on the MES and ERP levels and the SIMATIC PCS 7 process control system.

In contrast to the Open PCS 7 interface based on OPC specifications, the PCS 7 OCS interface uses a platform-independent communication protocol that enables firewall-compatible TCP/IP communication via a few, permanently configurable network ports. The interface can therefore be installed directly on an OS server without the need for an additional gateway computer or a protocol converter (tunneler).

The PCS 7 OCS interface offers functions for reading and writing process tags as well as for reading out message archives and the process value archive of the process control system SIMATIC PCS 7. This allows, for example, maintenance, job, production, or inventory information to be exchanged between an ERP (Enterprise Resource Planning) system or MES (Manufacturing Execution System) and SIMATIC PCS 7, visualized and processed.

In addition to the process and archive data, structure and type information of the process control system configuration can be read out via the PCS 7 OCS server interface. External applications can therefore be used to systematically search through the process control system SIMATIC PCS 7 according to various criteria (e.g. search all function blocks of type "CTRL_PID" and read the actual value of the manual/automatic parameter "AUT_ON_OP") in order to realize automatic evaluations or reverse documentation.

Note:

PCS 7 OCS can be used in combination with SIMATIC PCS 7 V7.1, V8.x and V9.0.

Application

Easy integration of external applications/systems to SIMATIC PCS 7, including:

- SAP and other ERP systems from the corporate management level
- MES systems for production management
- PIMS (Plant Information Management Systems) to gather operating data
- Simulation and optimization tools, e.g. for monitoring of controller performance or for application of Advanced Process Control
- Analysis tools for alarm management
- External database applications for long-term archiving and data analysis for more than a single plant
- Web browser for presentation of production information (online data, message lists, trends, dashboards)
- Generation of reports, e.g. with Microsoft Excel
- Data exchange between SIMATIC PCS 7 and process control systems from other manufacturers

Design

PCS 7 OCS is installed directly on the PCS 7 OS server. Neither additional hardware nor any special configuration of the associated OS server is necessary.

Two PCS 7 OCS licenses are required for connecting redundant couplings, one for each OS server of a redundant pair of servers. Identical information is then available redundantly via the two PCS 7 OCS interfaces of this pair of servers.

Powerful PCS 7 OCS communication based on the TCP/IP protocol for data communication between an OS server and external application/system is also possible without problems in distributed networks in which the access is limited by means of a firewall.

Function

- Access to the tag management of an OS server (read and optionally write as well)
- Reading structure and type information
- Reading out process value archives (Tag Logging)
- Reading out the alarm log (Alarm Logging)

Additive standard applications from LeiKon GmbH

LeiKon GmbH offers the following applications for the SIMATIC PCS 7 connection via PCS 7 OCS in addition to the PCS 7 OCS (server interface) (see under "More information" for the contact address for detailed information and ordering):

- **Intexc SUITE**,
  a software platform for developing operating assistance systems to enable anticipatory and proactive operation in the following application areas:
  - Soft sensors
  - Process prediction
  - Optimized control
  - Online quality control
  - Status-based maintenance
  - Performance indexes
- **Intexc CONNECT**,
  a data coupler between SIMATIC PCS 7 and external applications/systems:
  - SAP systems
  - Process data archives and data bases
- **Intexc INTEGRITY**,
  a tool for rule-based query and evaluation of process and configuration data with the following application options:
  - Bulk engineering and continuous consistency adjustment of operating data acquisition systems (PIMS) with the data point configuration of SIMATIC PCS 7
  - Automatically generated reports for monitoring and documentation of plant and process conditions
  - System-independent reverse documentation and validation of SIMATIC PCS 7 configurations for acceptance (SAT, FAT)

Ordering data

Ordering data	Article No.
SIMATIC PCS 7 OCS V3.3 incl. SP1 Open communications server for data exchange between SIMATIC PCS 7 OS server and third-party system/application, runs with SIMATIC PCS 7 V8.x and V9.0, single license for 1 installation Engineering software with runtime license for one PCS 7 OS server, one language (German), software class B Delivery package: Software and documentation on CD and Certificate of License	**6DL5405-8AD33-0XA0**
Additive applications For data exchange with the SIMATIC PCS 7 OS server via SIMATIC PCS 7 OCS, e.g. Intexc (http://www.intexc.de/en)	On request from LeiKon GmbH

More information

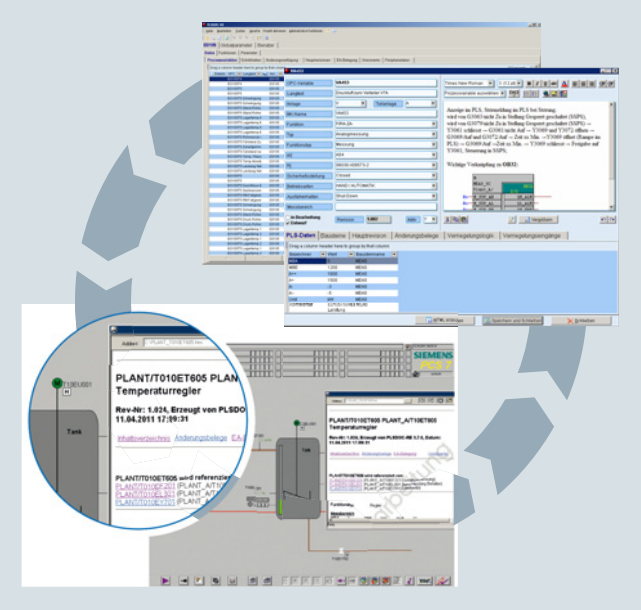
LeiKon GmbH
Kaiserstr. 100
52134 Herzogenrath
Germany

Tel.: +49 2407 95 17 330
Fax: +49 2407 95 17 339

E-mail: contact@leikon.de

Additional information is available on the Internet at:
http://www.leikon.de/en

Overview



PLSDOC is a system for documentation, support and project management of industrial plants in the process industry, e.g. chemical, petrochemical, pharmaceutical and wastewater treatment, as well as in manufacturing and the power industry.

PLSDOC enables documentation and revision of process control plants based on the SIMATIC PCS 7 process control system throughout their life cycle. Plant operators benefit from the high availability of system know-how and are excellently supported both in the plant maintenance as well as in quality assurance.

PLSDOC aligns in real-time the plant documentation with the current parameters of the process control system, e.g. limits, control parameters, interlock information, and sequencers. Changes are automatically recorded and revised in change reports.

PLSDOC provides information for system support engineers in standardized form, for example with:

- Shift book function
- Description of the process tag functionality
- Limit lists
- Change logs
- SFC (sequencers) re-documentation
- SFC Designer with SFC version comparison
- Project documentation: IB/FAT/LoopCheck logs etc.
- Procedure instructions to support the alarm management
- Automatic configuration / update of long-term archive systems

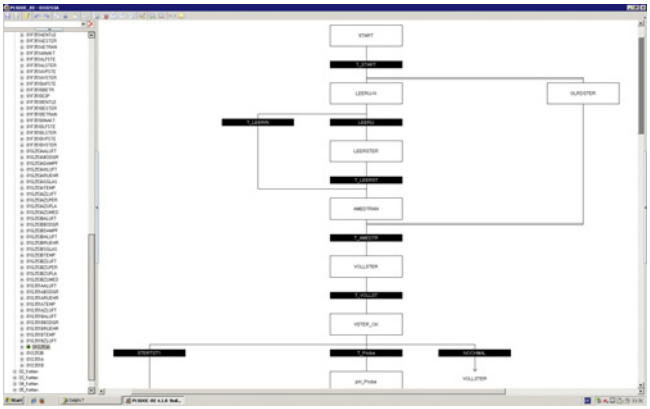
Note:

PLSDOC can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Benefits

- Securing plant know-how
  - Automatic comparison of data in process control system and feature specification
  - Increased plant security
  - Direct availability of the system documentation
  - Integration of feature specification into the operator systems
  - Fast fault identification
- Support of operation, production and maintenance
  - Efficient help for troubleshooting and training
  - Increased efficiency of the plant personnel
  - Paperless work and quick sourcing of information
  - Efficient documentation / re-documentation of process control
- Standardized CFC and SFC documentation
- Completeness and transparency of change tracking
  - Revision history
  - Ensured timeliness of documentation
- Reduced error sources and avoidance of redundant processing

Function



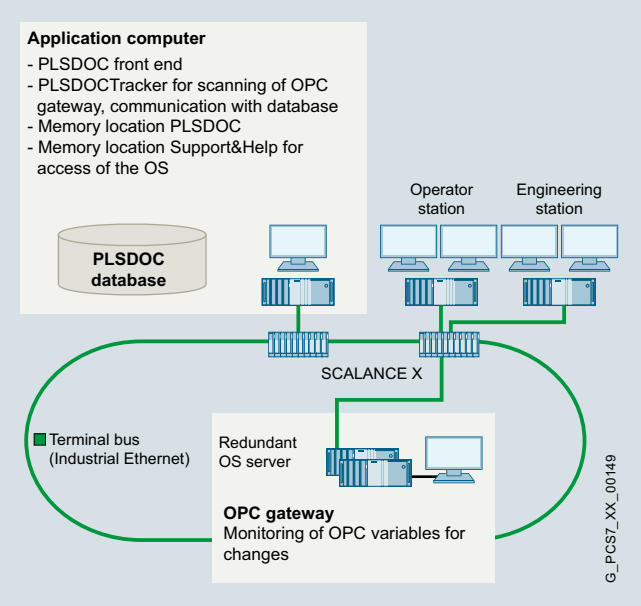
SFC Editor with graphical processing template and HTML output

Functional characteristics

- Online update of plant documentation from the process control system in real-time
- Plant documentation can be integrated in operator stations and made available as HTML documents in process pictures
- Documentation of the plant lifecycle
- SFC editor for sequencer re-documentation with graphical processing template and HTML output
- Requirement and specification function, provides essential operating documents
- Configuring and updating of long-term archiving systems from various manufacturers
- Re-documentation of existing systems
- Management of information on system peripherals (computers, printers, software licenses etc.)
- Shift book function with:
  - Direct call of digital shift book via the SIMATIC PCS 7 interface
  - Transfer of HIDs and area assignments from the control system into the digital shift book templates for further processing
  - Delegation of tasks and measures
  - Processing status (e.g. open, in progress, closed)
  - Open task are displayed directly in the SIMATIC PCS 7 interface
  - Automatic sending of shift reports

Function (continued)

Technology



System overview of PLSDOC

- Central, database-driven plant documentation
  - Generation of HTML documents for every process variable
  - Referencing of other process variables can be directly called using hyperlinks
- Coupling of SIMATIC PCS 7 and SIMATIC WinCC as well as connection of control systems/controllers of any kind via OPC
- Case-specific solutions for legacy systems
- Support of redundant server pairs
- Buffering the change information prevents data loss due to connection interruptions between OS server and PLSDOC
- Plant-wide application
- Menu-guided installation by the user possible

Technical specifications

System requirements

- Microsoft Windows 7, Windows 10, 32-bit or 64-bit in each case
- Microsoft Windows Server 2008 R2, 2012, 2016; 32-bit or 64-bit in each case

Application computer

- 2 GB RAM, 5 GB hard disk

Database computer

- Microsoft SQL Server 2005, 2008, 2008 R2, 2012, 2016
- 4 GB RAM, 100 GB hard disk

More information

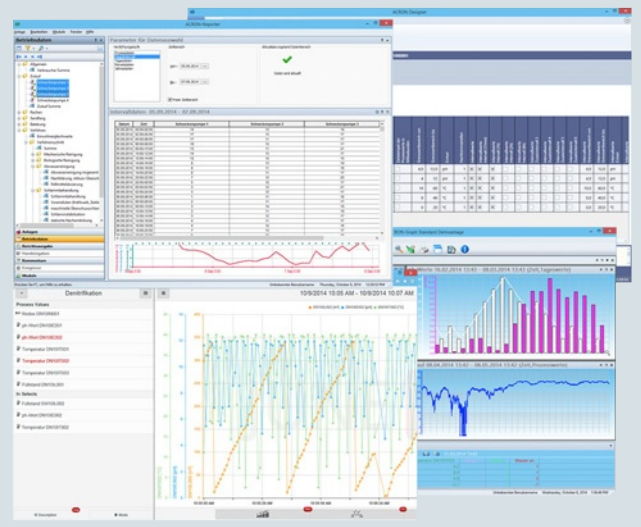
iMes Solutions GmbH
Elisabethstr. 8
84489 Burghausen
Germany

Tel.: +49 8677 96180

E-mail: info@imes-solutions.com

You can find additional information on the Internet at:
http://www.imes-solutions.com

Overview



The ACRON system, based on a rugged, fault-tolerant client-server architecture, is designed for the factory-wide, cross-plant and long-term archiving of operating data as well as its analysis, interpretation and indelible logging. It provides the plant operator with excellent support for plant optimization and energy monitoring (according to DIN ISO 50001) and for the fulfillment of reporting obligations.

Originally designed for the special requirements of environmental engineering, ACRON has since become widely accepted in many other sectors including water & wastewater (DWA-M 260, DWA-A 216), chemicals, pharmaceuticals (21 CFR Part 11 standard of the Food and Drug Administration), food, oil & gas.

ACRON is also suitable for meeting the high requirements encountered in the water/wastewater/environmental industry with regard to acquisition, display, analysis and documentation of operating data, for example, the ATV M260 guideline in Germany.

The current ACRON 8 version offers an exceptional price/performance ratio, and is impressive in operation thanks to high availability, running reliability, and data integrity. Simple configuration, easy handling and high flexibility are further exceptional features.

More information

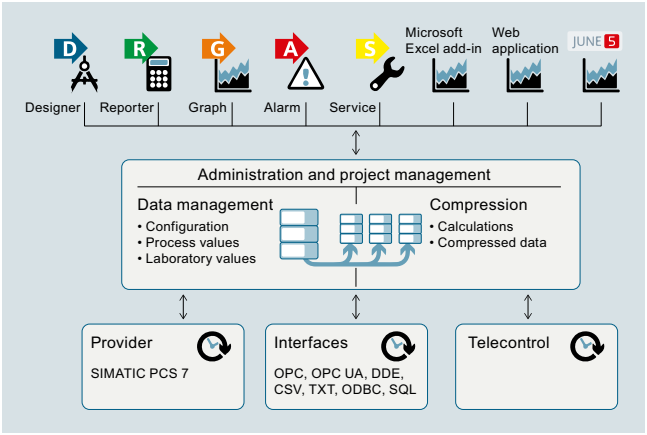
VIDEC Data Engineering GmbH
Contrescarpe 1
28203 Bremen
Germany

Tel.: +49 421 339500
Fax: +49 421 3379561

E-mail: info@acron8.com

You can find additional information on the Internet at:
http://www.acron8.com

Design



The modular, scalable ACRON 8 can be individually configured to match the size and requirements of the project – as a single-user system, as a networked client-server system or also as a multi-server. It is available in German and English (further implemented languages on request).

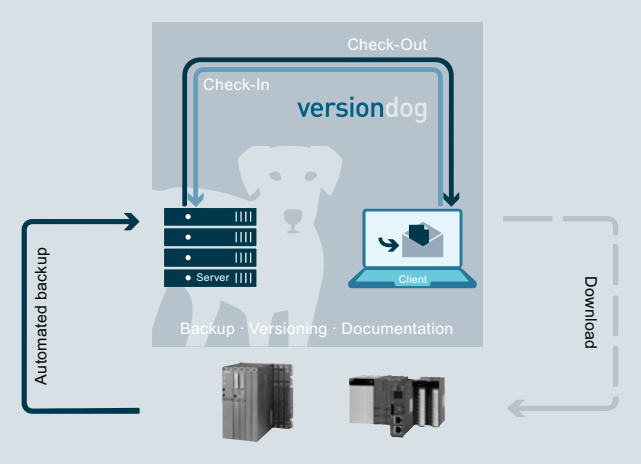
The following modules are components of ACRON 8:

- Database:
  More than 250 000 data points, time-based or change-dependent recording, arithmetic operations, high performance with resolution in the millisecond range, high data security due to TLC (Three Level Cache)
- Provider:
  Data acquisition from any sources with telecontrol link and very high data security (even with interrupted connections) and optional time stamp transfer; data transfer from various measuring instruments
- Reporter:
  Convenient operator interface for printing of reports and logs with input facility for manual laboratory values
- Graph:
  User-friendly presentation and analysis of measured values and statistical values in trends
- Fault and maintenance module:
  Generation of all required fault and message reports as well as comprehensive statistics
- AC Job:
  Administration module for automatic printing of reports including sending by email
- AC mirror:
  Up to 6-fold database redundancy
- JUNE5 as ACRON Web front end

Interfaces tailored to SIMATIC PCS 7 allow seamless integration with the process control system. Some modules can be integrated as OCX in SIMATIC PCS 7. A web application (Pure Web) and a Microsoft Excel add-in are also available.

Extensive graphs and reports can be displayed on any hardware platform with common browsers using JUNE5 as a pure web front-end without plug-ins. The web application can be operated as a portal or in the private cloud, has its own login, is multi-client capable and supports simultaneous access to multiple ACRON applications. A direct connection to SIMATIC PCS 7 is available. Manual value input is implemented.

Overview



Data management of a SIMATIC PCS 7 plant with versiondog

With "versiondog", the AUVESY GmbH (**AU**tomated **VE**rsioning **SY**stems) Siemens Solution Partner offers a high-performance software and data management system which can be seamlessly integrated into any SIMATIC PCS 7 architecture as a SIMATIC PCS 7 add-on product.

versiondog ensures data transparency and project security, helps to avoid risks and reduce overhead. It meets the requirements for information security of aspects such as data confidentiality, data integrity, data availability and data authenticity.

The operator of a SIMATIC PCS 7 plant can versiondog to develop strategy for data management and thus operate more efficiently and far-sighted. With a cyclic backup, there is a check to determine whether the SIMATIC PCS 7 project currently being used corresponds to the validated software version. Cyber attacks can also be identified by comparing online and offline data.

Since failures of a plant usually cannot be predicted, versiondog keeps a fresh backup of SIMATIC PCS 7 project as a backup strategy in case of trouble (Disaster Recovery). This data backup is continually updated and versioned, i.e. the previous version is replaced by a new version after changes (adaptations or improvements) are made.

Audits of SIMATIC PCS 7 systems and associated automation components are optimally supported by the version control and change documentation from versiondog (reports and automatic audit trail included). SFC and CFC standard library management provides a reference for SFCs/CFCs and blocks originating from libraries.

Note:

The versiondog software and data management system can be used in combination with SIMATIC PCS 7 V8.x, V9.0 and V9.0 SP1.

Application

The SIMATIC PCS 7 add-on, versiondog, can be used by the operator of a SIMATIC PCS 7 plant for the following tasks:

- Performing all data backups and managing software versions throughout the entire lifecycle of the SIMATIC PCS 7 plant
- Cyclical check of the validated version through automatic data backup and comparison of the saved version to the most recently released, stored version
- Mapping of the entire configuration of a SIMATIC PCS 7 system including the change history from commissioning to the current time of the plant operation
- Comparison of the SFCs and CFCs of two versions of a SIMATIC PCS 7 project using "SmartCompare" (all differences are highlighted in color and can be selected)
- Complete documentation of changes in a SIMATIC PCS 7 project, for example, audits, validations and certifications
- Version control of the software for immediate recovery in case of problems (disaster recovery)
- Restoration of optimized software versions

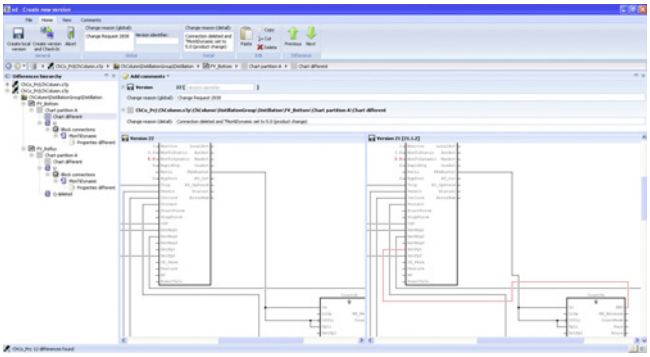
Design

The versiondog software and data management system is based on a client-server architecture. As client-server system, versiondog can be installed in the network of a SIMATIC PCS 7 plant on a dedicated server or directly on a SIMATIC PCS 7 engineering station (ES). Alternatively, the client can operate alone on the engineering station (no server connection and no check-in/check-out).

The client, which can also be run without installation (or rights management), does not carry out any write operations on Windows directories or read/write operations on the Windows registry. System administration is thus possible from any PC-based station. Warranty claims against system suppliers are not voided.

Therefore, versiondog can also very easy integrated in a SIMATIC PCS 7 plant without additional drivers and special setting or configuration in the SIMATIC PCS 7 project.

Function



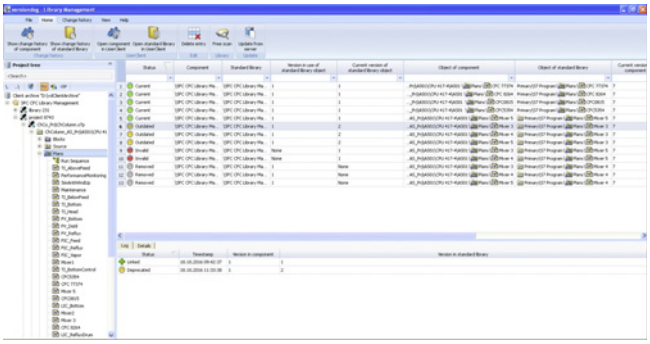
Data comparing two versions of a SIMATIC PCS 7 project using SmartCompare from versiondog

Data management functions

- Central data storage
  Server-based data storage with clear SIMATIC PCS 7 project structure, user and access management as well as protection against inadvertent overwriting
- Version management with audit trail of versiondog:
  Version management and documentation with logging of all changes as proof of WHO, WHEN, WHAT and WHY; visualization of changes by means of comparative graphic display for CFC/SFC blocks and charts
- SIMATIC PCS 7 SmartCompare:
  Comparator and synchronization modules for alignment of different project versions with clear representation of differences (as graphics, table or text)
- Automatic data saving
  Cyclic, automatic data saving of engineering stations, automation systems and operator stations
- Synchronization with server version
  Guaranteed use of the most recent version saved on the server in the plant

Functions of library management

- Reference for built and used SFCs/CFCs and blocks, available as a standalone client and as a report
- Automatic check for actuality in the current project
  - Green: Project and library are the same
  - Yellow: Library is newer than project
  - Red: Project does not correspond to any version of the library
- Alarm function for unauthorized modification of standard charts



Library management for SIMATIC PCS 7 projects with versiondog

Cyber security functions

- Cyclic, automatic verification that the released version actually controls the production unchanged:
  - Several times daily
  - With alarm indication
  - For textual and/or graphic representation of the differences when there are discrepancies
  - For nearly all components of the automation system
- Assurance that version levels cannot be changed.
  (Versions cannot be manipulated)
- Restoring a version without "contamination"
- Check for the authorization of versioning in connection with an RMS (Requirement Management System); versioning is possible for fulfillment of the RMS requirement profile
- Monitoring of the system configuration of Windows and Linux-based systems

More information

AUVESY GmbH
Fichtenstr. 38 B
76829 Landau
Deutschland

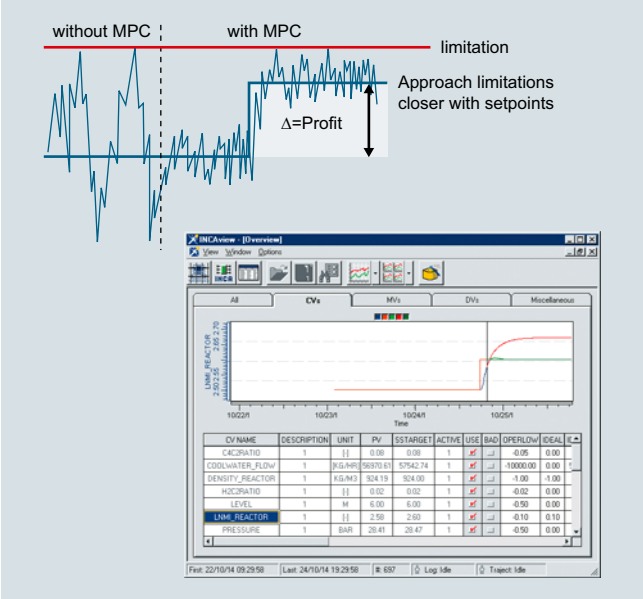
Tel.: +49 6341 6810-400
Fax: +49 6341 6810-311

Email: sales@auvesy.de

You can find more information on the Internet at:
http://www.versiondog.de (available in German only)

Advanced Process Control

Overview



Multi-variable controller with integrated optimization procedure

Common control concepts in the process industry today are still almost exclusively based on PID controllers and also include manual intervention by the plant operator. In processes with complex dynamics, linked process variables or limitations, PID controllers reach their limit.

Additional weak spots are product or load changes which are generally carried out partly or completely by the plant operator. This causes variations which prevent optimum quality being maintained at all times.

However, if a process is to be operated close to the capacity limit, while at the same time minimizing waste and assuring the required quality, consideration of these precise boundary conditions in the controller strategy is absolutely essential.

By carefully applying advanced modern control procedures (Advanced Process Control, APC), the process industry has real leverage available for reducing costs and increasing quality. Advanced Process Control establishes process optimization as a link between the planning and scheduling functions of the execution level as well as the process control functions of the control level.

Of all the modern control procedures, Model Predictive Control (MPC) has emerged as the most suitable approach in numerous applications. MPC simplifies the handling of complex plant dynamics, permits the early elimination of faults, takes into consideration the plant limitations, and allows complex process control strategies.

INCA MPC

This procedure is also used by INCA MPC, a multi-variable controller of the latest generation. INCA MPC differs from classic MPC controllers due to a series of functional extensions. Modern modeling methods, automatic step test and modeling methods, bumpless switching between different models (multi-model handling), expansions for batch process optimization, non-linear predictions, and a high quality of control are setting new standards and enable the control of non-linear processes as well as plant-wide optimization.

A web-based INCA MPC significantly reduces the time required for implementation and can handle stricter IT security rules. An autotest function is also available. This allows more hands-off MIMO step tests taking in account the process conditions.

INCA MPC software itself runs on a separate PC/server with Windows 7/8/10 or Windows Server 2012/2016 operating systems.

Note:

INCA MPC can be used in combination with SIMATIC PCS 7 V8.x and V9.0. As of SIMATIC PCS 7 V8.2, INCA MPC or INCA Sensor can be integrated via the Advanced Process Control (APC) coupling modules of the SIMATIC PCS 7 Industry Library (as of V8.2 Update 1).

Application

Application examples of INCA MPC

- Ammonia, urea, nitric acid, granulates, and phosphoric acid plants
  - Increase in throughput, for example, by up to 2% for ammonia and up to 5% for urea
  - Increase in steam export by up to 1% (ammonia)
  - Reduction in specific energy consumption by up to 2%
  - Increased plant availability
  - Lower sensitivity to changes in condition of supplied gas (ammonia)
- Distillation towers
  - Operation closer to the concentration restrictions
  - Reduction of steam consumption
  - Operation within a performance range of large bandwidth (from technical minimum up to full-load)
- Specific solutions for the glass industry based on INCA MPC technology, e.g. custom-designed solutions for melting tanks, glass channels and glass tubes
- Batch plants (non-linear version of INCA MPC)
  - Proven reduction in response time (dead time) by up to 20%

More information

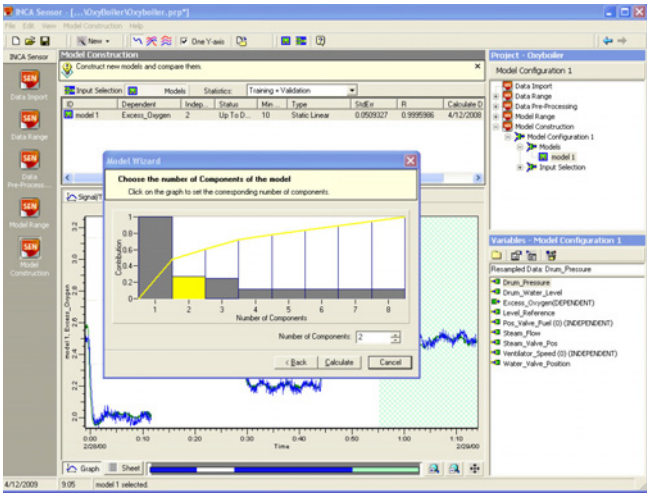
IPCOS

Phone: +32 1639 3083
Fax: +32 1639 3080

email: christiaan.moons@ipcos.com

For further information, visit:
http://www.ipcos.com

Overview



Online determination of quality variables

Production plants in the process industry today rely on regular and extremely time-consuming laboratory analyses for quality control purposes (new measured values typically every 8 to 24 hours). Or they use very expensive and high-maintenance online analyzers (new values typically every 20 to 60 minutes). In order to raise productivity and run the process up to its full capacity while maintaining the required quality, it is necessary to measure product quality online with a refresh rate of between 0.5 and 3 minutes. This ensures that the controller responds at the right time and the product specifications are maintained.

The plant operator is usually responsible for complete or partial process control. Weak points in process control are also reflected by changes in product quality or in the utilization of production capacity. Since no quality values are known during a conversion, the production specifications do not correspond to the quality requirements over longer periods.

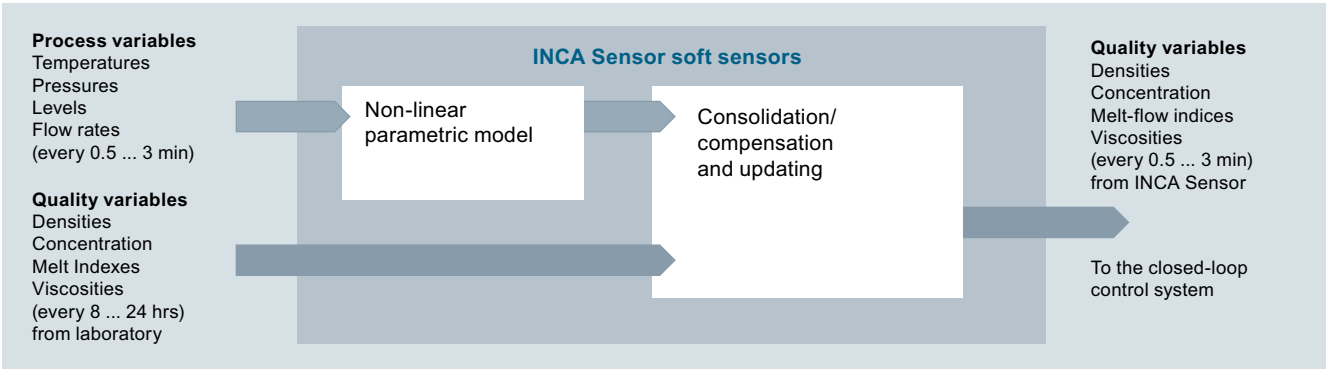
These problems can be solved by using soft sensors. Soft sensors are calculation procedures which determine non-measurable quality variables on the basis of measurable process values (pressures, flow rates, temperatures, levels, etc.) in cycles of between 0.5 and 3 minutes. The calculation is made on the basis of a (non-)linear parametric model generated from historic plant data or through dedicated tests. The high-speed soft sensor predictions can be consolidated by laboratory analyses or values from online analyzers.

The soft sensor predictions enable the frequency of laboratory analyses and the use of online analyzers to be reduced. They raise product quality while at the same time reducing operating costs.

INCA Sensor is a tool for designing, parameterizing and operating soft sensors. It makes it easier to master complex plant dynamics, and enables operating conditions to be optimized so that the quality of the end product is assured.

Note:

INCA Sensor can be used in combination with SIMATIC PCS 7 V8.X and V9.0. As of SIMATIC PCS 7 V8.2, INCA MPC or INCA Sensor can be integrated via the Advanced Process Control (APC) coupling modules of the SIMATIC PCS 7 Industry Library (as of V8.2 Update 1).



Application

Application examples

- Polymer thickness
- Polymer melt-flow index
- Viscosity
- Product concentration at the outlet of reaction or distillation columns
- Plant efficiency/utilization factor
- Cement properties
- Exhaust parameters of combustion processes
- Gas concentrations (NO_x, CO_2, etc.)

INCA Sensor sets new standards for the permanent plant-wide optimization and control of non-linear processes. INCA Sensor differs from other soft-sensor program packages due to its series of function expansions that support the designer when drafting reliable soft sensors:

- Modern modeling methods such as linear transmission functions, general non-linear models (GNOMOs) or estimates according to the partial least squares estimators method
- Signal processing or pre-processing (offline and online)
- Powerful tools for selecting suitable input variables
- Input options for data from laboratories and analyzers

Soft sensors are a prerequisite for plant optimization and quality control using advanced process control solutions such as INCA MPC.

The INCA Sensor program package can run on a separate PC/server with Windows 7/8/10 or Windows Server 2012/2016 operating systems. It is linked to the SIMATIC PCS 7 process control system by means of OPC, where INCA Sensor is operated as an OPC client.

More information

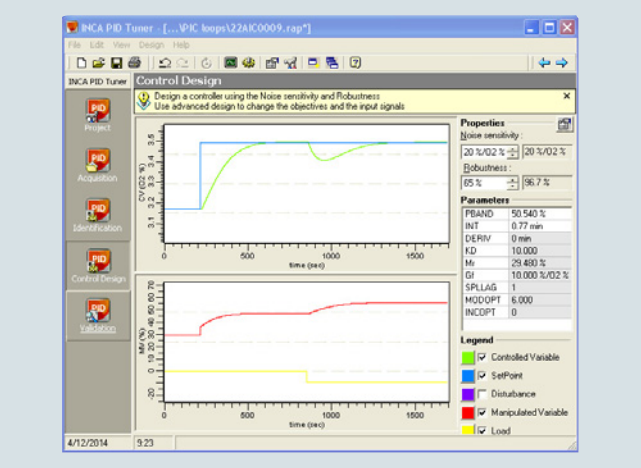
IPCOS

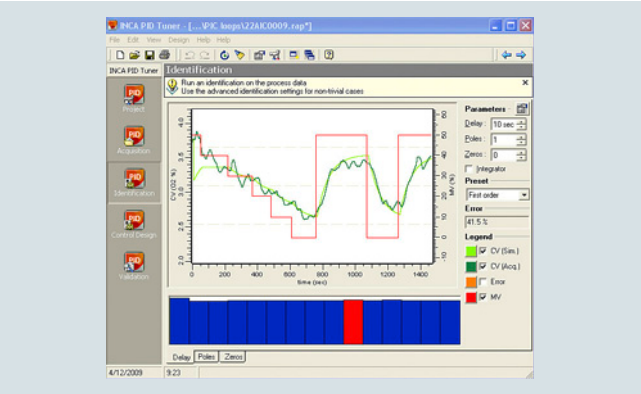
Tel.: +32 1639 3083
Fax: +32 1639 3080

E-mail: christiaan.moons@ipcos.com

Additional information is available on the Internet at:
http://www.ipcos.com

Overview





The PCS 7 PID Tuner integrated in the CFC enables you to determine the optimum controller parameters in predefined steps for PID, PI and P controls in a control loop.

The PCS 7 PID Tuner can be used for the software controllers CTRL_PID and CTRL_S. The INCA PID Tuner program package, on the other hand, is a controller-independent and manufacturer-independent tool for fast and user-friendly, computer-aided optimization of complex PID controllers. The INCA PID Tuner software itself runs on a separate PC/server with Windows 7/8/10 or Windows Server 2012/2016 operating systems. It is linked to the SIMATIC PCS 7 process control system by means of OPC.

As an alternative to online data, files containing data collected earlier can also be evaluated offline. The program package is able to process the following file formats:

- Microsoft Access
- Microsoft Excel
- MATLAB
- INCATest
- All types of ASCII files

INCA PID Tuner contains predefined PID controller structures for PID controller types from SIMATIC PCS 7 and other manufacturers. With the aid of a dynamic process model, the user can determine the optimum controller setting step by step.

Note:

INCA PID Tuner can be used in combination with SIMATIC PCS 7 V8.X and V9.0.

Function

INCA PID Tuner differs from other controller optimization software through:

- Optimization of PID control loops on the basis of engineering specifications
- Controller setting for optimum compensation of disturbances
- Controller setting for optimum command behavior with predefined setpoint changes

Data acquisition

Collection of process data by means of an online OPC connection to the SIMATIC PCS 7 operator system or from offline files. Many test signals are available for initiating the process, including:

- Setpoint step-change
- Manipulated variable step-change
- Ramps
- Pseudo-disturbance binary signals

Data preprocessing

The user can select and filter data to refine the results of the process identification.

System identification

A dynamic process model is defined on the basis of the collected process data. Various model structures can be used: with/without dead time and different system arrangements. Users have the option of influencing the system identification on the basis of their knowledge about the process. They can save and compare the resulting process models.

Controller design

On the basis of the chosen process model, controller parameters are determined for a certain specification. Consequently, the controller can be designed for optimum command behavior, optimum noise suppression or a combination of both.

Simulation of the designed controller

An evaluation of the control loop behavior is possible by simulation within INCA PID Tuner or online via the existing OPC connection. The simulation results obtained with different controller settings can be saved and compared.

Good settings for primary control loops are a prerequisite for subsequent plant optimization, for example, using INCA MPC.

More information

IPCOS

Tel.: +32 1639 3083
Fax: +32 1639 3080

E-mail: christiaan.moons@ipcos.com

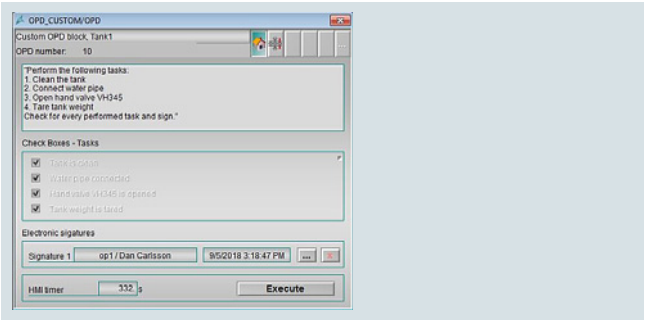
Additional information is available on the Internet at:
http://www.ipcos.com

Notes

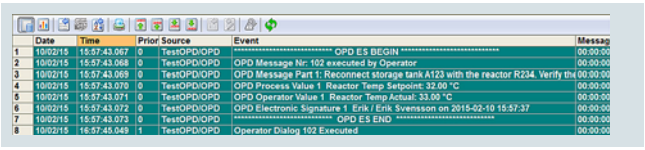
Operator control and monitoring

3

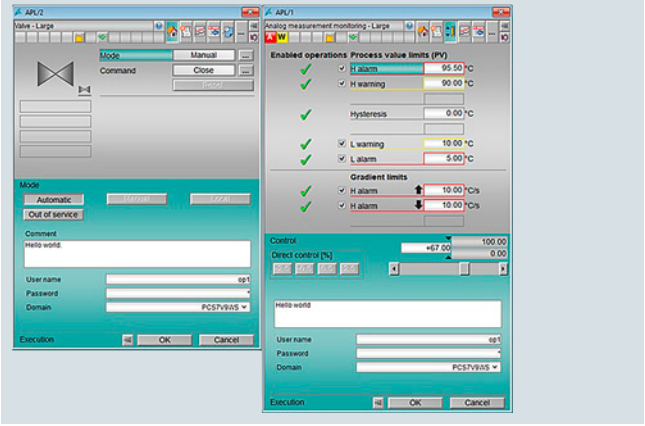
Overview



OPD: Operator dialog with electronic signatures



OPD: Report



OPD enables the addition of comments and electronic signatures for APL operating commands, e.g. mode change or setpoint adjustment

The operator dialog (OPD) software simplifies the interaction between operating personnel and process control system. As a powerful operator tool, it facilitates control of the process and provides complete proof of all manual operations, which is essential for a validated batch system.

OPD software is based on SIMATIC PCS 7 now also supports the WebNavigator. It uses the SIMATIC logon for user verification and electronic signatures. It therefore complies with the validation requirements according to 21 CFR Part 11 and other statutory directives.

The OPD is similar in design and functionality to the APL library. Each OPD message can be configured with text, operator comment, process values, operating values, option boxes, checkboxes, and electronic signatures.

Note:

OPD can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Function

Application

Operator interaction in an SFC phase

An OPD can be used in an SFC phase. The simplest interaction is a request to the operator to confirm an OPD message before progressing to the next step of the phase. A second application example is a request to the operator to select one of two storage tanks. Electronic signatures may be necessary in both cases.

Operator interaction between two SFC phases

At the batch level, OPD can also be used for operator interaction between two separate SFC phases. For example, the operator can be requested to select between different technical equipment which require separate subsystem assignments.

Operator interaction for event-based actions

OPD can also be used for event-based actions. One example is the request to an operator to acknowledge an OPD message before opening a valve, closing a pump or changing alarm limits.

Audit Trail

The entire operator interaction is stored in the form of WinCC messages and can be easily incorporated into SIMATIC BATCH standard reports. In addition, they can be transferred to any MES system that supports long-term archiving of SIMATIC PCS 7 process data.

Operator dialogs

The operator dialogs can be easily edited with any spreadsheet program, such as Excel.

Each OPD message can have the following content:

- 1 text message (1 060 characters)
- 1 operator comment (1 060 characters)
- 0 to 6 process values (string or real)
- 0 to 6 operator inputs (string or real)
- 0 or 1 option group with up to 10 option boxes
- 0 or 1 checkbox with up to 10 checkboxes
- 0 to 2 electronic signatures

Further performance features

- APL design
- Redundant servers
- Support of multiple clients
- Support of SIMATIC PCS 7 web functionality (WebNavigator)
- Multilingual capability

More information

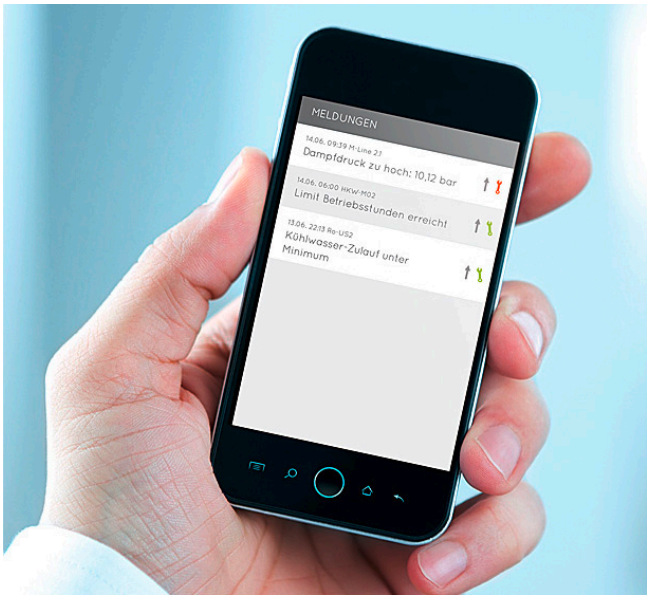
PlantVision
Kista Science Tower

SE-16451 Kista
Sweden

E-mail: info@plantvision.se

You can find additional information on the Internet at:
http://www.pcs7opd.com

Overview



Alarm IT Factory

An instant response

Fast and reliable signaling of fault states to the appropriate personnel is becoming increasingly important for modern operator control and monitoring systems. The modular Alarm Control Center meets these requirements with the fully automatic transmission of WinCC alarms and messages to a large number of potential recipients:

- Push notifications on apps for iPhone and Android
- Voice output to telephone
- Text output to pagers and telephones
- Text messages to smartphone and cell phone
- Email to suitable terminal devices

The modular and scalable architecture of the Alarm Control Center and the numerous options enable individual adaptation to user requirements, ranging from stand-alone solutions up to company-wide communications solutions.

Note:

The Alarm Control Center has been tested and released for SIMATIC PCS 7 V8.x and V9.0.

More information

Support and upgrade

ADVANCED, PROFESSIONAL and ENTERPRISE support models guarantee fast and reliable support during office hours up to 24 hours a day, every day. In addition, the support can be extended by an annual upgrade of the ACC software.

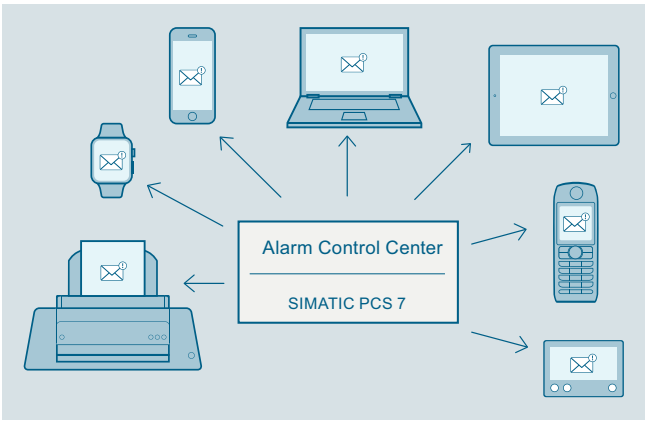
Alarm IT Factory GmbH
Rotebühlstrasse 51a
70178 Stuttgart
Germany

Tel.: +49 711 62 007 69-0
Fax: +49 711 62 007 69-9

Email:
Sales: sales@alarmcontrolcenter.de
Support: support@alarmcontrolcenter.de

Additional information is available on the Internet at:
http://www.alarmcontrolcenter.de/en and
http://www.alarm-it-factory.de/en

Function



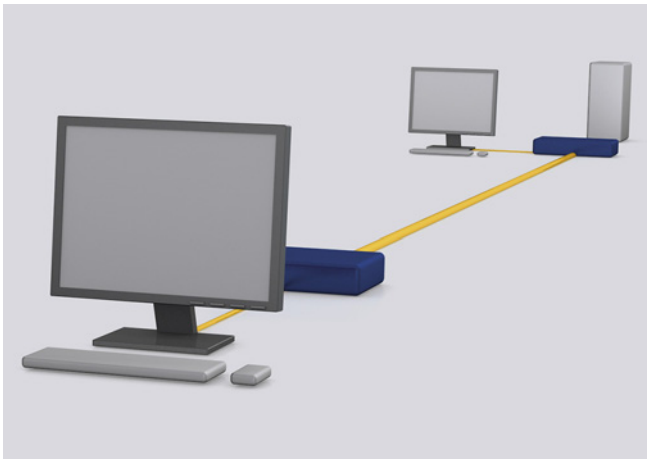
Important features

- Apps for iPhone and Android smartphones with intuitive operation
- Integrated shift and personnel administration for time-dependent delivery of messages to different persons
- Comprehensive escalation system for reliable delivery of messages even if individual receivers cannot be reached
- Network-wide operation and configuration through web capability
- Integration of operation and configuration by the control room personnel in SIMATIC PCS 7 process pictures using the ACC control for SIMATIC PCS 7

Options

- Text output of alarms as SMS, on Ascom pagers and phones, on HiPath / OpenScape phones as well as email
- Voice output to telephones and smartphones
- Redundancy for high-availability systems
- Alarm filter for suppressing message bursts, follow-on messages, and chatter messages. Resetting of alarm filters also possible on the smartphone
- App for smartphones to easily accept messages and display message status, change subscriber status and other functions
- Logging of changes to the configuration such as deletion of a telephone number or reorganization
- Forwarding of an emergency call to up to 10 subscribers
- Personnel monitoring for safeguarding personnel who work alone in hazardous areas
- Team planning for clear assignment of employees to plant areas. Employees can also make this assignment directly on their smartphone.

Overview



Using the **K**eyboard **V**ideo **M**ouse extenders from Guntermann & Drunck GmbH, you can extend the operating channel of the SIMATIC PCS 7 Industrial Workstation. It is then possible to spatially separate the display and operation components from the computer, and position operator stations up to 10 000 m away from the computer. KVM extenders provide signal transmission in real-time and without loss of performance occurs.

The KVM extenders transfer the following computer signals:

- Video (single or multiple)
- Keyboard, mouse (PS/2 and USB)
- USB 2.0 (optional)
- Audio (optional)
- RS 232 (optional)
- Remote power (optional)

You can select the following product versions depending on requirements (see "Technical specifications" for additional distinguishing characteristics):

Product version	Transmission of				Max. distance
	VGA	DVI single link	DVI dual link	Display-Port	
DVI Vision CAT/fiber		●			140 m (CAT) or 10 000 m (fiber)
DVI-Vision-IP		●			100 m (CAT) or 10 000 m (fiber)
CAT Vision	●				300 m
DL-DVI-Vision			●		140 m (CAT) or 10 000 m (fiber)
DL-Vision-IP			●		100 m (CAT) or 10 000 m (fiber)
DP-Vision				●	140 m (CAT) or 10 000 m (fiber)
DP-Vision-IP				●	100 m (CAT) or 10 000 m (fiber)
DP1.2-Vision				●	140 m (CAT) or 10 000 m (fiber)
DP1.2-VisionXG				●	10 000 m (fiber)
DP1.2-Vision-IP				●	100 m (CAT) or 10 000 m (fiber)

Note:

All KVM extenders can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Application

With the aid of the KVM extenders, the operating personnel can operate and monitor the process from the control room, while the computers are located in a secure and air-conditioned technology room separate from the operator panels. Thanks to the separate installation of the computers, maintenance work by the IT administrators can be carried out centrally in the technology room. Another advantage: The work carried out by operators in the control room is not interfered with or interrupted by servicing.

Concentrated working is thus possible without fan noise or the dissipated heat of computers.

Design

KVM Extender DP1.2-Vision, transmitter (bottom) and receiver (top)

The KVM extenders DVI-Vision-CAT/Fiber, CATVision, DP-Vision, DP1.2-Vision and DP1.2-VisionXG each consist of a transmitter and a receiver in desktop or 19" design which are connected to one another by means of a CAT cable (5/6/7) or a fiber-optic cable. They are independent of the system platform and the operating system. An operator station can be set up at both the transmitter and receiver (local console for maintenance directly on the computer).

DP1.2-VisionXGs have a redundant power supply. The other KVM extenders are also optionally available with a redundant power supply. If a power supply fails, the redundant supply unit immediately takes over. The connection to the computer is thus retained without interruption.

The standard interfaces are used for the computer connection. Neither software settings nor computer adjustments are necessary.

DP1.2-Vision, DP-Vision and DVI-Vision have one network connection, DP1.2-VisionXG has two network connections for web interface and monitoring function. This enables both simple configuration as well as monitoring and reporting of monitoring values via the web interface.

The KVM Extender DP1.2-VisionXG and DP1.2-Vision, DVI-Vision-CAT/-Fiber and DP-Vision feature a screen freeze function. If a monitor loses the video signal or if there is a problem with the graphic controller of the remote computer, the screen freeze function freezes the last displayed image.

Design (continued)

All KVM Extenders support multi-channel operation with 2 or up to 4 video signals. Depending on the multi-monitor graphic cards of the computer and the selected KVM extender, it is possible to implement multi-monitor operator stations with up to 4 screens each.

By means of a KVM switch, local maintenance by an administrator can be centralized in the control room.

KVM Extender DP1.2-VisionXG, transmitter (top) and receiver (bottom)

Technical specifications

Specification	DVI Vision CAT or fiber	DVI-Vision-IP	CATVision	DL-Vision-IP	DP-Vision	DP-Vision-IP	DP1.2-Vision	DP1.2-Vision-IP	DP1.2-VisionXG
Local operator station (console)	Yes		Yes		Yes		Yes		Yes
Maximum transmission distance in m	CAT: 140 Fiber: 10 000 via single-mode fibers, 400 via multi-mode fibers	CAT: 100 Fiber: 10 000	300	CAT: 100 Fiber: 10 000	CAT: 140 Fiber: 10 000 via single-mode fibers, 400 via multi-mode fibers	CAT: 100 Fiber: 10 000	CAT: 140 Fiber: 10 000 via single-mode fibers, 400 via multi-mode fibers	CAT: 100 Fiber: 10 000	10 000 via single-mode fibers, 400 via multi-mode fibers
Transmission medium	Cable CAT5e and higher / fiber		CAT5, CAT6, CAT7 cable		Cable CAT5e and higher / fiber		Cable CAT5e and higher / fiber		Fiber: Multi-mode/single-mode fibers
Signals always possible for transmission	Keyboard, video, mouse, RS 232, audio		Keyboard, video, mouse		Keyboard, video, mouse, RS 232, audio		Keyboard, video, mouse, RS 232, audio		
Additional signals which can be transmitted (optional)	transp. USB 2.0 and USB HID Generic		RS 232, audio, USB 2.0		USB 2.0		USB 2.0		
Keyboard/ mouse format	PS/2 and USB (also mixed mode)		PS/2 and USB (also mixed mode)		PS/2 and USB (also mixed mode)		PS/2 and USB (also mixed mode)		
Video									
• Input	Digital (single link)		Analog		Digital (single link)		Digital (DisplayPort DP1.2)		Digital (DisplayPort DP1.2)
• Output	Analog or digital		Analog		Analog or digitall		Digital		Digital
• Maximum resolution (every resolution within this bandwidth is supported)	1920 × 1200 at 60 Hz	1920 × 1200 at 60 Hz	1920 × 1440 at 75 Hz (depending on distance)	2560 × 1600 at 60 Hz	1920 × 1200 at 60 Hz	2560 × 1600 at 60 Hz	Per video channel: 4096 × 2160 at 60 Hz	4096 × 2160 at 60 Hz	Per video channel: 4096 × 2160 at 60 Hz 2 video channels: 4096 × 2160 at 120 Hz 4 video channels: 8192 × 4320 at 60 Hz (8K at 60 Hz)
• Number of channels	Up to 4	Max. 1	Up to 4	Max. 1	Up to 4	Max. 1	Up to 4 (in preparation)	Max. 1	Up to 4
Expandability	With KVM switch and matrix		With KVM switch		With KVM switch and matrix		With KVM switch and matrixx		With KVM switch

Note:

Depending on the cable medium and video signal used, the systems feature automatic image optimization mechanisms.

More information

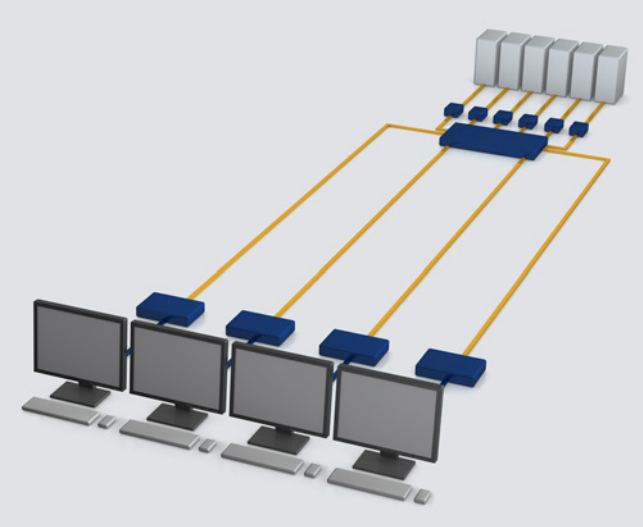
Guntermann & Drunck GmbH
Systementwicklung
Obere Leimbach 9
57074 Siegen
Germany

Tel.: +49 271 23872-100
Fax: +49 271 23872-120

Email: sales@gdsys.de

You can find more information on the Internet at:
https://www.gdsys.de/en

Overview



Using the KVM matrix systems, you can access **n** servers of a system from **m** different operator stations locally and/or remotely. Remote access can be accomplished in various ways, over:

- CAT cable, 1:1 (distances up to 300 m analog and up to 140 m digital)
- Fiber-optic cable (distances up to 10 km), for maximum performance and availability
- LAN (Local Area Network) or WAN (Wide Area Network) "over IP" for access from any location

The product range offered is classified as follows depending on the video signal:

- Digital KVM matrix systems
  - ControlCenter-Compact with fixed configuration levels of dynamic ports (DP), can be configured as desired as operator station connection or server connection:
    CAT only: 176, 128, 80, 64, 48, 32, 16 or 8
    Fiber only: 48, 32, or 16
    Fiber and CAT mixed: 48F+16C, 32F+80C/48C/32C/16C or 16F+16C
  - ControlCenter-Digital, with 288, 160 or 80 dynamic ports (DP), can be configured as desired as operator station connection or server connection
  - ControlCenter-IP with up to 1 000 IP operator station or server connections
- Analog KVM matrix systems
  - CATCenter NEO 4/32, 8/32 or 16/64 (operator stations/servers)
  - CompactCenter X2: 2/16 (operator stations/servers)

You can find the technical specifications of these products under "Technical specifications".

The CATCenter NEO and CompactCenter X2 KVM matrix systems communicate via CAT cables (types 5, 6, 7). When using the modular ControlCenter-Digital and the ControlCenter-Compact, communication between operator station and server can be performed via CAT cables or fiber-optic cables (uniform or mixed).

Digital KVM matrix systems

The ControlCenter-Compact (CCC) and ControlCenter-Digital (CCD) KVM matrix systems operate the following signals:

- Video (DVI, DL-DVI, DisplayPort, HDMI or VGA)
- Keyboard and mouse (USB and PS/2)
- Audio bidirectional
- RS 232 and USB 2.0
- CCD, also additional signals from third-party devices e.g. USB 3.0 or SDI
- Integration of virtual machines using the RDP, VNC, and SSH network protocols

A functional system comprises at least the following elements:

- 1 × central unit (ControlCenter-Compact) or central unit + I/O cards (ControlCenter-Digital)
- 1 × server module (e.g. DVI-CPU)
- 1 × operator station unit (e.g. DVI-CON)
- 1 × transmission cable (CAT or fiber-optic cable) per port

The operator stations for ControlCenter-Compact and ControlCenter-Digital are connected via operator station units such as DVI-CON (user consoles). ControlCenter-Compact and ControlCenter-Digital access the external server interfaces via server modules such as DVI-CPU (connection dongle). Both the ControlCenter-Digital and the ControlCenter-Compact can be cascaded. Large installations with up to 4 000 servers can be realized in this way. The ControlCenter-Digital and ControlCenter-Compact systems are compatible with one another and use the same end devices (CON and CPU).

Using digital matrix terminal devices as extenders

Simple extender lines can also be created with a direct connection of the matrix terminal device (CON and CPU). The individual components are fully compatible with one another in relation to the video signals (VGA, DVI, DL-DVI, HDMI, DP). The remote systems that are initially installed 1:1 can be combined, if needed, with a central matrix switch to allow the lines to be switched amongst themselves.

The ControlCenter-IP (CCIP) IP matrix system switches the following signals:

- Video (DVI, DL-DVI DisplayPort, HDMI)
- Keyboard and mouse (USB and PS/2)
- Audio bidirectional
- RS 232
- Also additional signals from third-party devices e.g. USB 2.0
- Integration of virtual machines using the RDP, VNC, and SSH network protocols

A functional system comprises at least the following elements:

- 1 × central unit (ControlCenter-IP)
- 1 × server module (e.g. DVI-Vision-IP-CPU)
- 1 × operator station unit (e.g. DVI-Vision-IP-CON)
- 1 × transmission cable (CAT or fiber-optic cable)

Overview (continued)

The operator stations for ControlCenter-IP are connected via operator station units such as DVI-Vision-IP-CON (user console). ControlCenter-IP accesses the external server interfaces via server modules such as DVI-Vision-IP-CPU (connection dongle). Thanks to the flexible system topology, installations can be scaled as required and easily extended using standard network elements. The system sizes of the matrix application are easily released for this purpose using license keys. These can then be used to expand the system as required.

Safety:

Bootloader, operating system and firmware form a "Trusted Computing Platform", which is protected against manipulation by third parties. An integrated "Trusted Platform Module" (TPM) with an RSA encryption method protects all access and configuration data.

Analog KVM matrix systems

The analog KVM matrix systems CATCenter NEO and CompactCenter X2 operate the following signals:

- VGA
- Keyboard and mouse (USB and PS/2)
- Audio, selectable (only CATCenter NEO)

A functional system comprises at least the following elements:

- 1 × central unit (CATCenter NEO or CompactCenter X2)
- 1 × server module (CATpro2)
- 1 × operator station unit (UCON), exception: CompactCenter X2
- 2 × transmission cable (CAT cable)

The operator stations are connected to the CATCenter NEO via user console modules (UCON). With the CompactCenter X2, the operator station is integrated in the KVM matrix system. Both KVM matrix systems access the external server interfaces via the CATPro2 server modules (connection dongle).

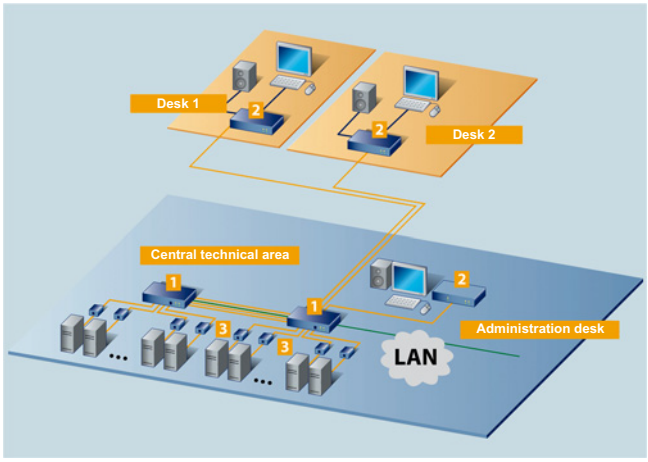
Whereas the CompactCenter X2 is used exclusively in stand-alone mode, the CATCenter NEO products can be combined and expanded with up to 2048 servers and 128 operator stations. Using the "bridge function", the CATCenter NEO also be integrated as a subordinate cascade in the digital matrix systems.

Note:

All KVM matrix systems can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Design

Digital KVM matrix system ControlCenter-Compact



Digital KVM matrix system ControlCenter-Compact,
1: ControlCenter-Compact, 2: DVI-CON, 3: DVI-CPU

The digital KVM matrix system ControlCenter-Compact enables independent operation of n servers from m operator stations consisting of monitor, keyboard, and mouse.

Thanks to the dynamic port technology, each individual ControlCenter-Compact port can be configured either as a server unit connection or an operator station unit connection.

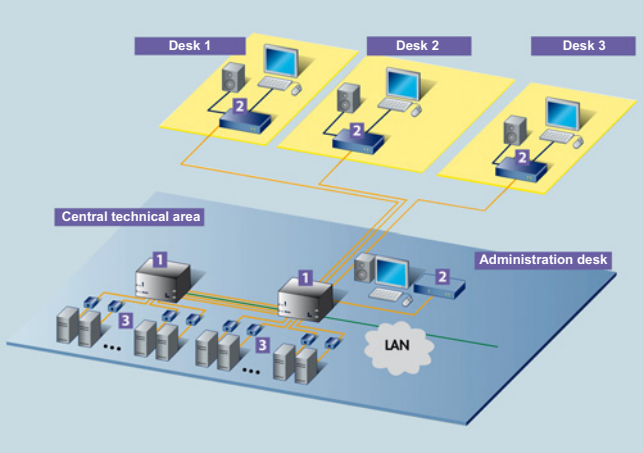
ControlCenter-Compact is offered in graded versions: from CCC 8, CCC 16, CCC 32, CCC 48, CCC 64, CCC 80 to CCC 176. In stand-alone mode, applications with up to 16, 32, 48, 64, 80 or 176 terminal devices (server modules or operator station units) can be configured. The number of terminals can be greatly extended by cascading the devices, enabling implementation of large installations with hundreds of servers.

Typical applications for the ControlCenter-Compact are large plants with many servers which have to be controlled from several distributed operator stations.

ControlCenter-Compact modules

Design (continued)

Digital KVM matrix system ControlCenter-Digital



Digital KVM matrix system ControlCenter-Digital,
1: ControlCenter-Digital, 2: DVI-CON, 3: DVI-CPU

The modular and highly flexible KVM matrix system Control-Center-Digital enables independent operation of n servers from m operator stations consisting of monitor, keyboard, and mouse. It is particularly suitable for large plants with numerous servers.

Thanks to the dynamic port technology, all ports can be used either as a server unit connection or an operator station unit connection. The ControlCenter-Digital automatically detects whether a server unit or operator station unit is connected.

Depending on the configuration level, up to 80, 160 or 288 ports are available for operator stations or servers. The configuration with 288 ports therefore allows 1 to 287 servers to be operated and monitored from 287 to 1 simultaneous operator stations. Larger installations are also possible by cascading.

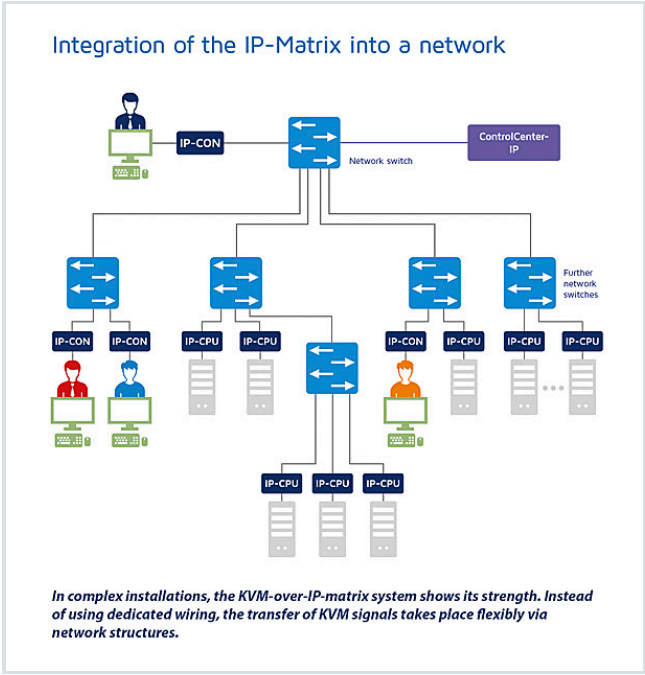
The modular design can be flexibly adapted and expanded depending on the project requirements, since the controller, switch and I/O cards, as well as power supplies and fan modules, can be replaced rapidly and simply thanks to hot plugging/swapping.

Highlights

- High flexibility thanks to complete modularity of system components
- Triple redundant power supply
- Hot swapping of individual components

ControlCenter-Digital with 288 ports

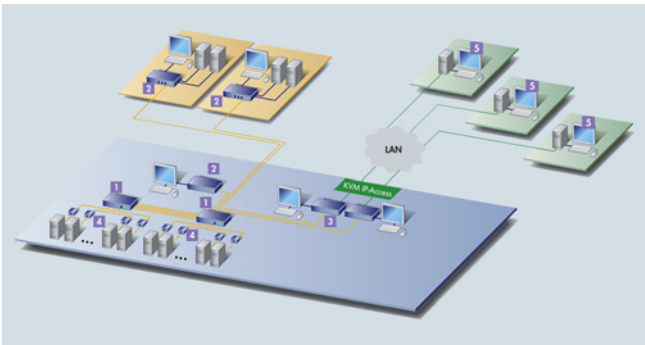
Digital IP matrix system ControlCenter-IP (CCIP)



In complex installations, the KVM-over-IP-matrix system shows its strength. Instead of using dedicated wiring, the transfer of KVM signals takes place flexibly via network structures.

IP Matrix

Analog KVM matrix system CATCenter NEO



Architecture with KVM matrix system CATCenter NEO
(schematic representation)
1: CATCenter NEO, 2: UCON,
3: UCON-IP-NEO (+ local workstation), 4: CATpro2, 5: IP client

Design (continued)

The analog KVM matrix system CATCenter NEO operates the VGA, keyboard, mouse and audio signals. It is designed for larger plants in which the servers are accessed from multiple operator stations. The operator stations can also be distributed between different locations.

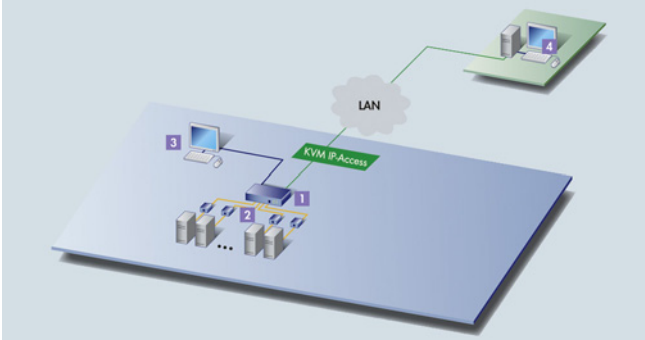
In addition to the central unit, a functional system also comprises the additional modules required for connecting the servers and operator stations:

- Central unit: KVM matrix system CATCenter NEO, versions for 4/32, 8/32 or 16/64 (operator stations/servers)
- Operator station unit: User console UCON
- Server unit: Server connection dongle CATpro2

CATCenter NEO modules

The KVM matrix system CATCenter NEO can be configured per Web interface. A network connection is integrated in all CATCenter NEO model versions (SNMP, Syslog, monitoring functionality, configuration).

Analog KVM matrix system CompactCenter X2



Architecture with analog KVM matrix system CompactCenter X2 (schematic representation),
1: CompactCenter X2, 2: CAT connection (to CATpro2),
3: Local workstation, 4: IP workstation

The analog KVM matrix system CompactCenter X2 operates the VGA, keyboard and mouse signals. It can be used for efficient administration and simultaneous operation of up to 16 servers from 2 operator stations:

- 1 × analog, directly on the CompactCenter
- 1 × per LAN/WAN over IP

The central administration of individual (distributed) plant sections is a possible application example of an operator station connected by LAN/WAN over IP.

In addition to the central unit, a functional system also includes a module for connecting the server:

- Central unit: KVM matrix system CompactCenter X2 with 2 integrated operator station connections
- Server unit: Server connection dongle CATpro2, versions

CompactCenter X2 modules

Technical specifications

Specification	ControlCenter-Compact	ControlCenter-Digital	ControlCenter-IP	CATCenter NEO (4, 8, 16)	CompactCenter X2
Number of consoles or operator stations	Min. 1 to max. 175 + splitting into multiple clusters	Min. 1 to max. 287 + splitting into multiple clusters	Min. 1 to max. 1000 (over IP)	4/8/16 (via operator station units UCON) + splitting into multiple clusters	2 (1 × local, analog; 1 × per LAN/WAN, over IP)
Number of servers	Min. 1 to max. 175 + cascading	Min. 1 to max. 287 + cascading	Min. 1 to max. 1000 (over IP)	32/32/64 + cascading	16
Video					
• Port	Standard DVI interface + Dual-link DVI, Display-Port, HDMI and VGA	Standard DVI interface + Dual-link DVI, Display-Port, HDMI and VGA	Standard DVI interface + Dual-link DVI, Display-Port, HDMI	Standard VGA interface, DVI	Standard VGA interface, DVI
• Virtual computer	RDP, VNC and SSH	RDP, VNC and SSH	RDP, VNC and SSH		
• Max. resolution					
- Analog	–	–	–	1920 × 1440 at 60 Hz	1920 × 1440 at 60 Hz
- Digital (over IP)	4096 x 2160 at 60 Hz	4096 x 2160 at 60 Hz	4096 x 2160 at 60 Hz	1920 × 1200 at 60 Hz in accordance with VESA CVT-RB	1600 × 1200 at 60 Hz in accordance with VESA DMT or 1920 × 1200 at 60 Hz in accordance with VESA CVT-RB
• Bandwidth	Up to 600 MHz	Up to 600 MHz	Up to 600 MHz	Up to 250 MHz	Up to 250 MHz
• H/V sync	25 ... 295 kHz, 24 ... 240 Hz	25 ... 295 kHz, 24 ... 240 Hz	25 ... 295 kHz, 24 ... 240 Hz	50 ... 180 kHz, 30 ... 130 Hz	50 ... 180 kHz, 30 ... 130 Hz
• Color depth	24 bit digital	24 bit digital	24 bit digital	32 bit analog, 8 bit digital	32 bit analog, 8 bit digital
• Image optimization	Automatic video setting	Automatic video setting	Automatic video setting	Automatic video setting, individually adjustable	Automatic video setting, individually adjustable
Keyboard/mouse					
• Interfaces in direction: Server	PS/2, USB	PS/2, USB	PS/2, USB	PS/2, USB, SUN-USB, VT100	PS/2, USB, SUN-USB, VT100
• Interfaces in direction: Operator station	PS/2, USB	PS/2, USB	PS/2, USB	PS/2, USB, SUN-USB	PS/2, USB, SUN-USB
Audio	Bidirectional transmission of audio signals	Bidirectional transmission of stereo audio signals	Bidirectional transmission of audio signals	Transmission of audio signals	–
• Bandwidth	22 kHz, sampling rate 96 kHz	22 kHz, sampling rate 96 kHz	22 kHz, sampling rate 96 kHz	20 kHz, sampling rate 44 kHz	–
• Resolution	24 bit digital	24 bit digital	24 bit digital	24 bit	–
Construction type	Compact	Modular	Compact	Compact	Compact

More information

Guntermann & Drunck GmbH
Systementwicklung
Obere Leimbach 9
57074 Siegen
Germany

Tel.: +49 271 23872-100
Fax: +49 271 23872-120

Email: sales@gdsys.de

Additional information is available on the Internet at:
https://www.gdsys.de/en

You can find detailed information about the **ControlCenter-Compact** and its components at:
https://www.gdsys.de/en/kvm-solutions/digital-kvm-matrix-systems/central-modules/controlcenter-compact

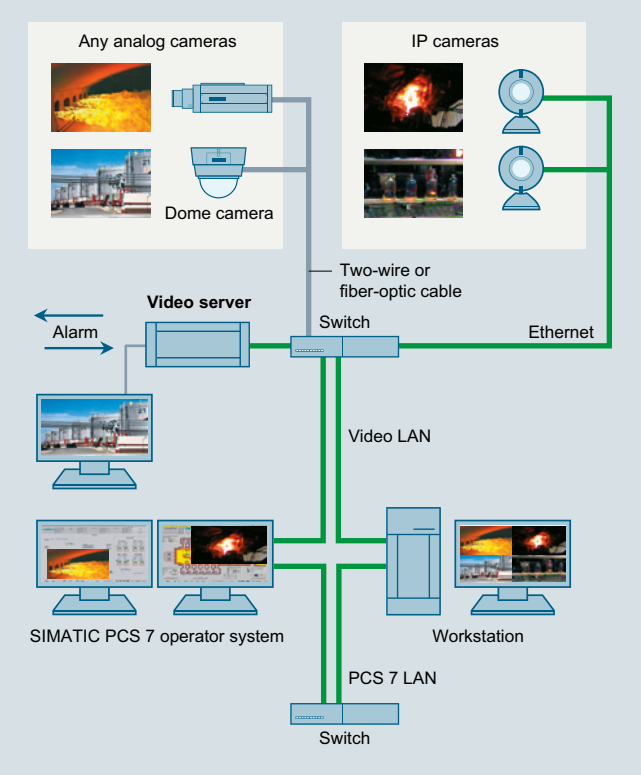
You can find detailed information about the **ControlCenter-Digital** and its components at:
https://www.gdsys.de/en/kvm-solutions/digital-kvm-matrix-systems/central-modules/controlcenter-digital

You can find detailed information about the **CATCenter NEO** and its components on the Internet at:
https://www.gdsys.de/en/kvm-solutions/analogue-kvm-matrix-systems/central-modules/catcenter-neo

You can find detailed information about the **CompactCenter X2** and its components on the Internet at:
https://www.gdsys.de/en/kvm-solutions/analogue-kvm-matrix-systems/central-modules/compactcenter-x

You can find detailed information about the **ControlCenter-IP** and its components on the Internet at:
https://www.gdsys.de/en/kvm-solutions/digital-kvm-matrix-systems/central-modules/controlcenter-ip/

Overview



Video technology can make a highly versatile contribution toward rationalization of production processes. Remote from the process, you are able to view important process sequences, evaluate the actual product state, direct the flow of goods, check areas which are difficult or even impossible to access, and much more.

The use of video technology in process automation permits, for example:

- Prevention of production faults and waste
- Optimization of energy costs for combustion processes
- Saving of personnel costs

It is extremely easy to integrate live video data from web or analog cameras into the SIMATIC PCS 7 operator system using VisorX/NG video technology products from ASE GmbH. The VisorX/NG video server is configured with ASE software. Otherwise, no additional settings are necessary.

Note:

VisorX/NG video technology can be used in combination with SIMATIC PCS 7 V8.X and V9.0.

More information

ASE GmbH
Lusshardtstrasse 6
76646 Bruchsal
Germany

Tel.: +49 7251 93259-0
Fax: +49 7251 93259-99

E-mail: vertrieb@ase-gmbh.eu

You can find additional information in the Internet at:
http://www.ase-gmbh.eu

Function

Real-time for all channels

The VisorX/NG video server works in real time, i.e. it is able to record up to 25 images per second for each video channel. Image recording can be carried out time-based, event-controlled or also permanently.

Special features:

- Digital saving and transmission of video and audio signals together with multi-standard compression and state-of-the-art image analysis algorithms
- Video management functionality based on user-programmable, internal logic control
- Redundant power supply expansion and internal SATA RAID expansion possible

Event control

The live video images are displayed on the SIMATIC PCS 7 operator station as a continuous image and/or dependent on a request or controlled by a particular event.

IP cameras

The VisorX/NG software can be used to directly integrate video signals from web cameras into the SIMATIC PCS 7 process control system. It can be integrated with Windows ActiveX.

Analog cameras

The image information recorded by up to 32 analog cameras is digitized in the VisorX/NG video server, saved in compressed form, and transferred to the SIMATIC PCS 7 process control system via an Ethernet interface.

Infrared cameras

Infrared cameras for recording of thermal images are particularly suitable for monitoring, evaluating and optimizing combustion processes, for determining temperature distributions, or for fire protection.

Camera control

Cameras with PTZ (pan/tilt/zoom) function or dome cameras can be controlled from any authorized workstation in the network using a mouse and keyboard.

Cascade option

As many as 32 cameras can be connected to each VisorX/NG video server. The number of cameras used can be extended as desired by cascading video servers.

History memory

The history memory enables precise analysis of a particular event by analyzing it in the long-term archive. Unauthorized access to the long-term archive can be checked by using a password (data protection). Every time archive material is accessed it is documented.

Licensing

Enabling of OS clients is based on the user's own license administration which can be operated centrally or decentrally.

Routing through various subnets

VisorX/NG software is used to connect cameras and clients in different subnets.

Extreme ambient conditions

When combined with a wide range of enclosures, cameras can be used in hazardous areas (certified according to ATEX), in offshore applications, or in furnaces.

Overview

SIMATIC HMI Thin Client Ex2 with international approvals for operation and monitoring in hazardous areas.

Application

The SIMATIC HMI Thin Client Ex2 is designed for use as an operator station for terminal and client applications in hazardous areas, and in particular for applications for which the performance of the SIMATIC HMI Panel PC Ex is insufficient, or when the server is located in a protected area of the plant. The widely-used RDP and Real VNC protocols are supported.

Together with the digital KVM Box, the device functions as a flexible monitor with touch functionality for PCs e.g. in control rooms.

Integration

Integrated interfaces of SIMATIC HMI Thin Client Ex2:

- 10/100 Mbit 100 base TX (Ex e) or 100 base FX (Ex op is) network
- 1 x RS232 or 1 x RS422/485
- 4 x USB 2.0 (2 x Ex I, 2 x Ex e (Zone 1 version) and/or 2 x Ex nA (Zone 2 version))

Technical specifications

	SIMATIC HMI Thin Client Ex2
General features	
Design	Thin Client built-in unit, available in protective enclosure as an option
Front	15" and 19" display
Operation	Touch with 8 function keys
MTBF backlight	50 000 h
Operating system	Windows 10 Enterprise 2016 LTSB
Mass storage	integrated, 64 GB SSD
Power supply	24 V DC, max. 2.1 A (19")
Interfaces	
Ethernet	100 Mbit Ex e, or alternatively fiber-optics 100 Mbit (SC) Ex op is
USB 2.0	2 x Ex i, 2 x Ex e (Zone 1) or 2 x Ex nA (Zone 2)
Serial	1 x RS232 or 1 x RS422/485

	SIMATIC HMI Thin Client Ex2
Ambient conditions	
Degree of protection	IP66 at front, IP65 at rear, IP66 in protective enclosure
Ambient temperature during operation	-20 °C ... + 50 °C, (cold start -10 °C) with optional auxiliary heater down to -30 °C
Relative humidity during operation	90 % at 40 °C, no condensation
Approvals/directives	
Devices in "Zone 1" version	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 2 (2) G Ex d e ia ib mb [ia ib] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	II 2 (2) G Ex d e ia ib mb [ia ib op is] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib op is] IIIC T80°C Db IP66
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex d e ia ib mb [iaib] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex d e ia ib mb [iaibopis] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb [ia ib] IIC T4 Gb, Type 4X, IP66 Class II, Division 1, Groups E, F, G, T80°C Ex ia tb [ia ib] IIIC T80°C Db, IP66
KGS	Ex d e ia ib mb [ia ib] IIC T4 Ex ia tb [ia ib] IIIC T80°C Db IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
Devices in version "Zone 2"	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 3 (2/3) G Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc II3 (2/3) D Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	II 3 (2/3) G Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc II 3 (2/3) D Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex de i a ib mb nA [ib][ic] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex de i a ib mb nA [ibopis][ic] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc, Type 4X, IP66 Class II, Division 2, Groups E, F, G, T80°C; Ex ia tc [ib ic] IIIC T80°C Dc, IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] IIC T4 Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
Protocols	RDP, RealVNC
Digital KVM switch	Input: DVI / VGA, PS/2 / USB, output: RJ45 (IP network)
Dimensions	
Mounting dimensions (W x H x D) in mm	15": 427.5 x 327.5 x 165 19": 522.5 x 412.5 x 165
Front dimensions in mm	15": 440 x 340 19": 535 x 425
Weight	15": 15 kg, 19": 23 kg

Ordering data

	Article No.
SIMATIC HMI Thin Client Ex2 Intel Atom E3845 1.91 GHz, 24 V DC power supply	**6AV7200-** **7 ■■ 0 ■ - ■■■■ -Z**
Design / display size	
• Zone 2: 15" touch with 8 function keys	**A**
• Zone 2: 19" touch with 8 function keys	**B**
• Zone 1: 15" touch with 8 function keys	**C**
• Zone 1: 19" touch with 8 function keys	**D**
Networks	
• 10/100 BaseTX, copper Ethernet	**A**
• 100 BaseFX, Fibre Optic Ethernet	**B**
Mass storage / main memory / operating system	
• 64 GB SSD, 4 GB RAM, Windows 10 IoT & Remote Firmware V5	**0**
Optional interfaces	
• No interfaces	**0**
• Second serial interface	**1**
• Intrinsically safe reader interface	**2**
Enclosure type and material	
• No enclosure	**0**
• Cleanroom enclosure front door (CFR), SS304	**1**
• Front door enclosure (FR), SS304	**2**
• Backdoor enclosure (BD), SS304; (only without wall mounting, without 240 V AC and without -30 °C options)	**3**
Keyboard with housing; layout	
• No keyboard	**A**
• Keyboard SS304, layout DE	**B**
• Keyboard SS304, layout US	**C**
• Keyboard SS304, layout FR	**D**
• Keyboard SS304, layout DK	**E**
Integrated mouse / trackball	
• No mouse/trackball	**A**
• Trackball 50 mm IP54 integrated	**B**
• Trackball 50 mm IP54 separate	**C**
Mounting options	
• Without, front panel mounting only	**0**
• Direct wall mounting	**1**
• Mount for pedestal or bracket mounting on enclosure base	**2**
• Mount for ceiling or bracket mounting on enclosure top part	**3**
Additional options	
• 100 .. 240 V AC power supply, (requires enclosure)	**A01**
• Outdoor to -20 °C (requires enclosure, only without keyboard)	**B01**
• -20°C (only without keyboard)	**C01**
• Emergency off button 8003 right (only with enclosure)	**D01**
• Emergency off button 8003 left (only with enclosure)	**E01**
• Outdoor to -30 °C (requires enclosure, only without keyboard)	**F01**
• Outdoor to -10 °C (requires enclosure, for keyboard)	**G01**

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or the configurator in the Industry Mall in order to ensure suitability; we do not accept any liability for configurations compiled by users themselves.

Accessories	
Digital KVM for HMI Thin Client Ex	**6AV7675-0EX00-0AA0**
USB drive	
• Intrinsically safe, 16 GB	**6AV7675-0FX00-0AA0**
• Intrinsically safe, 16 GB with recovery function	**6AV7675-0FX10-0AA0**

Dimensional drawings

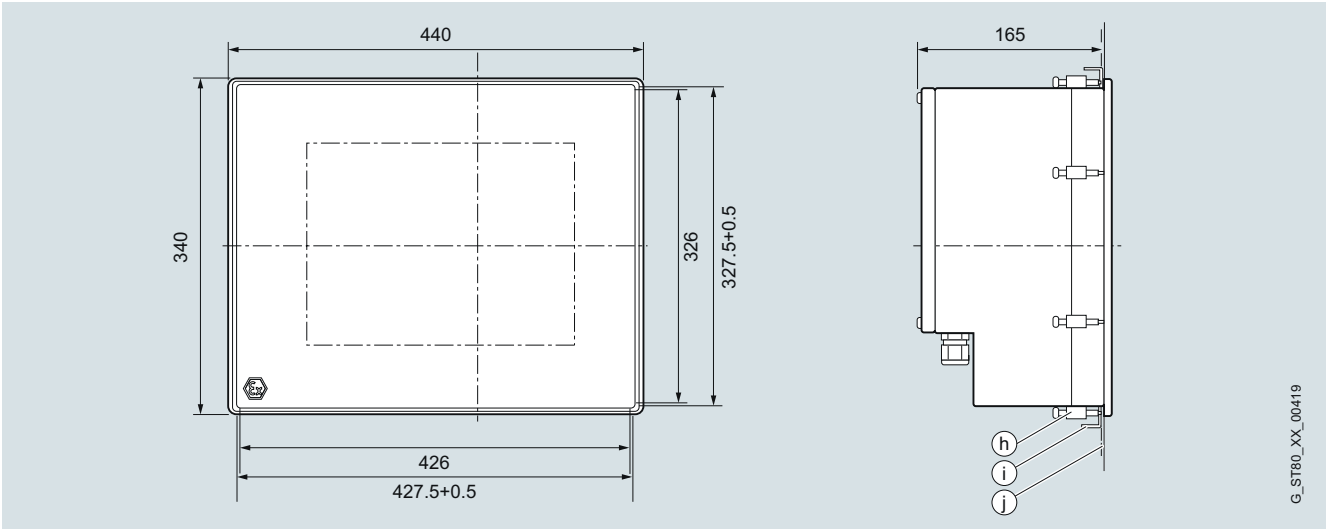
Legend:

h = Mounting clamp (10 x)

i = Clamping frame

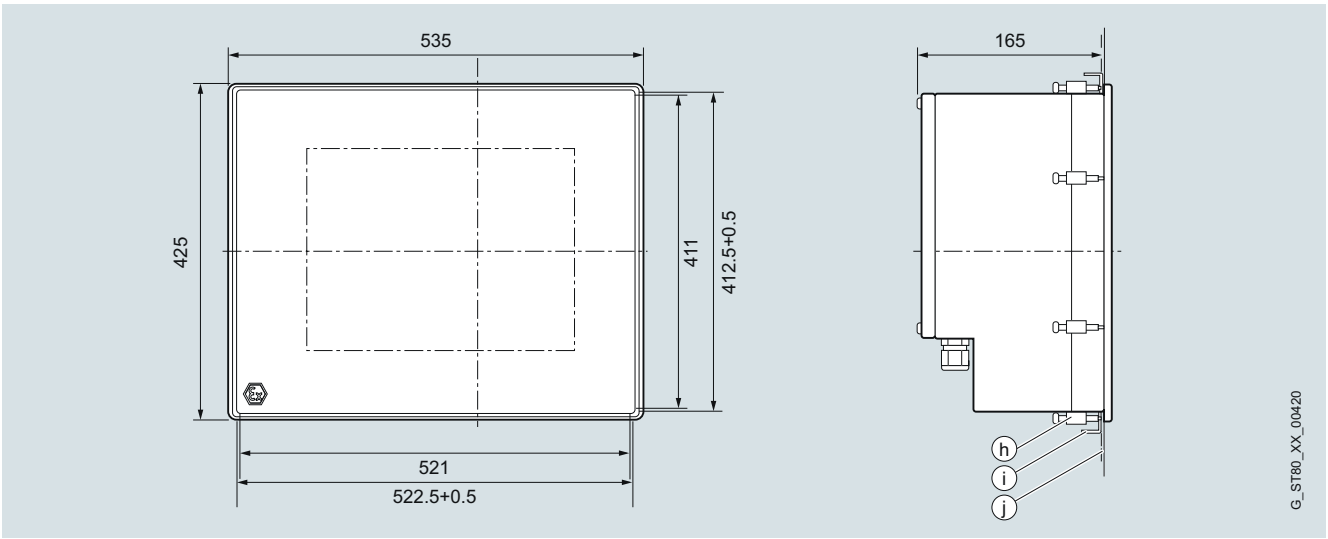
j = Control cabinet or enclosure

All dimensions in mm. For mounting cut-out see technical specifications.



SIMATIC HMI Thin Client Ex 15"

15" touch front	Width in mm	Height in mm	Depth in mm
Operating unit	440	340	165
Installation cutout	427.5 ± 0.5	327.5 ± 0.5	-



SIMATIC HMI Thin Client Ex 19"

19" touch front	Width in mm	Height in mm	Depth in mm
Operating unit	535	425	165
Installation cutout	522 ± 0.5	412.5 ± 0.5	-

More information

Additional information is available on the Internet at:

http://www.siemens.com/simatic-hmi-ex

Overview

As an alternative to the standard mouse, the "Mouse-Trak" trackball mouse is offered for operating SIMATIC PCS 7 operator stations. The Mouse-Trak is available in two versions for different applications. The devices are equipped either with a PS/2 or USB interface.

Note:

Mouse-Trak Professional and Mouse-Trak Industrial are compatible with SIMATIC PCS 7 V8.x and V9.0.

Design

- Mouse-Trak Professional for problem-free continuous use in office environments
  - B5XXMP-XROHS (PS/2)
  - B5XUSB-XROHS (USB)
- Mouse-Trak Industrial for harsh environmental requirements (see figure)
  - BMPIND-XROHS (PS/2)
  - BUSBID-XROHS (USB)

More information

pc-mäuse Versandhandel
Volker Knotek
Nenndorfer Str. 3
31542 Bad Nenndorf
Germany

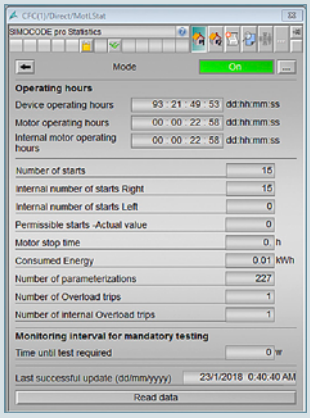
Tel.: +49 5723 908 6070
Fax: +49 5723 908 6072

Email: info@pc-maeuse.de

Additional information is available on the Internet at:
https://www.pc-maeuse.de

Notes

Overview



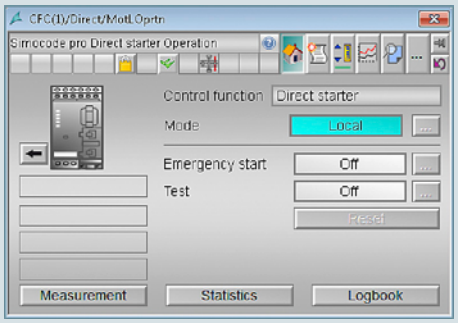
Advanced Process Library (APL) - faceplates and blocks for statistical data of the SIMOCODE pro library for PCS 7

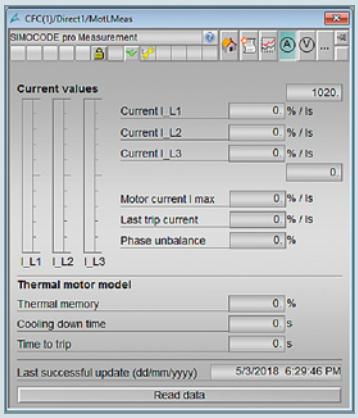
More information

Technical specifications,
see https://support.industry.siemens.com/cs/ww/en/ps/16718/td

Overview of the available versions incl. programming manuals, getting started, updates and hotfixes, compatibility check,
see https://support.industry.siemens.com/cs/ww/en/view/109760422

The PCS 7 block library can be used for simple and easy integration of SIMOCODE pro into the SIMATIC PCS 7 process control system. One focus is on easy configuration, because the number of configuration steps is reduced crucially. The configuration of the modules is based on the PCS 7 standard configuration processes and is optimally harmonized with the functions of SIMOCODE pro. Users who have previously integrated conventional motor feeders into PCS 7 will therefore find it easy to switch to SIMOCODE pro.



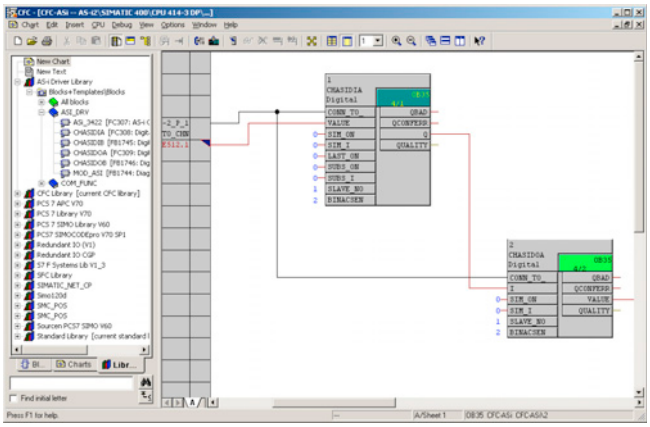


Advanced Process Library (APL) - faceplates and function blocks for control and measured data of the SIMOCODE pro library for PCS 7

Benefits

- Uniform and continuous integration into SIMATIC PCS 7
- Standardized function blocks for simple integration and optimal operation
- Greater process transparency due to greater information density in the I&C system

Overview



AS-Interface block library for SIMATIC PCS 7 in the CFC chart

More information	
Overview of the available versions incl. programming manuals, getting started, updates and hotfixes, compatibility check, see https://support.industry.siemens.com/cs/ww/en/view/109759605	For additional information on the use of analog AS-i slaves in a configuration with PCS 7 V8.1, see • https://support.industry.siemens.com/cs/ww/en/view/90880814 • https://support.industry.siemens.com/cs/ww/en/view/65710726

The AS-i function block library for PCS 7 is integrated in the SIMATIC PCS 7 process control system and expands it for integration of the AS-Interface system.

As the result, the advantages of AS-Interface such as the considerable reduction of wiring outlay for distributed actuators/sensors and very simple installation can also be used in a system based on PCS 7.

The library contains modules for accessing the I/O data of AS-i slaves, modules for diagnostics of the AS-i system, and a faceplate for the PCS 7 Maintenance Station.

Supported AS-Interface modules

The AS-Interface block library for PCS 7 can be used with the following AS-i master and link modules:

- CM AS-i master ST (in ET 200SP station) 3RK7137-6SA00-0BC1 (engineering software V9 and V8.1 only)
- CP 343-2 (in ET 200M station) 6GK7343-2AH01-0XA0
- CP 343-2P (in ET 200M station) 6GK7343-2AH11-0XA0
- DP/AS-i Link Advanced single master 6GK1415-2BA10
- DP/AS-i Link Advanced double master 6GK1415-2BA20
- IE/AS-i Link PN IO single master 6GK1411-2AB10 (engineering software V9 or V8.1 and V8 only)
- IE/AS-i Link PN IO double master 6GK1411-2AB20 (engineering software V9 or V8.1 and V8 only)

See also https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/8209999?tree=CatalogTree

The CM AS-i master ST module is supported with IM 155-6 PN High Feature within an ET 200SP station interfaced via PROFINET.

The AS-i masters CP 343-2 and CP 343-2P are supported within an ET 200M station interfaced via PROFINET or PROFIBUS.

With the CM AS-i master ST, CP 343-2 or CP 343-2P modules, digital AS-i slaves with standard addressing and extended addressing (A/B slaves; see also remark under the Area of Application heading) can be operated via the library.

In combination with the IE/AS-i Link PN IO and the DP/AS-i Link Advanced, it is possible to integrate digital and analog AS-i slaves with standard and extended addressing (A/B slaves).

Hardware and software requirements

The libraries require the following PCS 7 versions:

- Engineering software V9: PCS 7 version from V9
- Engineering software V8.1: PCS 7 version V8.0 SP1 Update 3 and higher, can also be used for PCS 7 versions V8.1 and V8.2
- Engineering software migration V7-V9: PCS 7 version V8.0 SP1 and higher, can also be used for PCS 7 Version V8.1, V8.2 and V9
- Engineering software V7: PCS 7 version V6.1, V7.0 or V7.1

The engineering software migration V7-V9 comprises the same interconnection logic of the CFC blocks as the engineering software V7 and is recommended for the switch to PCS 7 V8 or PCS 7 V9 with only a few adjustments required in the PCS 7 project.

The engineering software V9 and engineering software V8.1 use APL interconnection logic and are recommended for new PCS 7 projects.

Benefits

- Easy connection of AS-Interface to PCS 7
- Engineering work reduced to positioning and connecting the function blocks in the CFC
- With no additional configuring steps required for connection to the PCS 7 Maintenance Station, diagnostics for the AS-i system is optimally guaranteed.

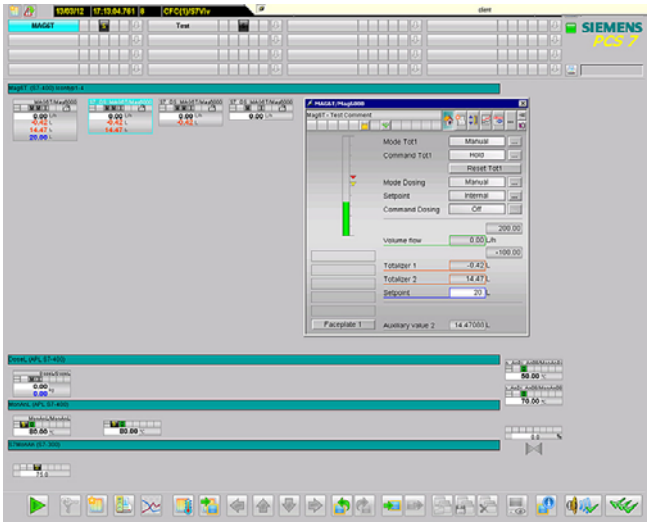
Application

The AS-Interface block library for PCS 7 is used in systems based on PCS 7 where the actuators and sensors are connected using AS-Interface.

Note:

The AS-i masters CP 343-2 and CP 343-2P do not transmit I/O data from AS-i slaves with a B address via the cyclic process image (partition), but via data records. To prevent delays in the communication of driver blocks for B slaves, we recommended avoiding the use of AS-i slaves with B addresses for PCS 7 configurations with CP 343-2 or CP 343-2P.

Overview



The SITRANS Library for SIMATIC PCS 7 V8.0 and higher extends the standard functionality of the SIMATIC PCS 7 process control system concentrated in the SIMATIC PCS 7 Advanced Process Library (APL) with technological blocks and faceplates for device-specific functions of the SITRANS field devices.

Benefits

The SITRANS Library allows you to easily operate all device functions, such as the dosing of the SITRANS F M MAG6000, in a single faceplate. It also supports operator control and monitoring via Touch Panels as well as the integration of SIMATIC S 7 applications (only SITRANS F M MAG6000). The SITRANS Library is based on the modern design of the Advanced Process Library (APL). Together with the APL, the SITRANS Library enables you to create harmonic overall solutions with a consistent look & feel and optimum use of the functions of the SITRANS field devices in many industries.

It helps accelerate the engineering process, reduces the time-to-market, and simplifies process control. In addition, operator functions (such as "dosing") and process-related diagnostic information (such as empty pipe detection and flow direction) are provided.

Note:

SITRANS Library can only be used in combination with SIMATIC PCS 7 V8.0 or higher.

Application

The SITRANS Library is best used in combination with SIMATIC PCS 7 and SITRANS field devices.

A current list of SITRANS field devices and the supported SIMATIC PCS 7 versions is available at
https://support.industry.siemens.com/cs/ww/en/view/85285872

The SITRANS Library can be used for all core sectors of the process industry. These are:

- Chemical industry
- Pharmaceutical industry
- Water and wastewater
- Glass and solar
- Oil & gas
- Food and beverage industry
- Minerals and mining

Design

The product structure is geared toward the operational environment in the SIMATIC PCS 7 process control system. Consequently, SITRANS Library is offered in the form of an engineering component:

- SITRANS Library engineering software with engineering license
- SITRANS Library Runtime license for one automation project (SIMATIC PCS 7 automation systems of all designs and S7-300 controllers)

The SITRANS Library product component enables you to perform configuration work on a SIMATIC PCS 7 engineering station.

The SITRANS Library product component allows you to run blocks from a library on an automation system.

When using function blocks from SITRANS Library in SIMATIC PC 7 automation systems, please note that SIMATIC PCS 7 AS Runtime POs are also booked.

Function

SITRANS Library for SIMATIC PCS 7/SIMATIC S7

Sublibrary for the functional expansion of the SIMATIC PCS 7 Advanced Process Library with:

- Function blocks and faceplates for SITRANS field devices
- Function blocks and faceplates for SITRANS field devices for S7-400 and SIMATIC S7-300 with WinCC

The function blocks are configured in CFC.

Operator control and monitoring from a panel is configured with the panel interface blocks for the SITRANS F M MAG 6000 DP. Taking operating rights and hierarchical operating concepts (multi-control room operation) into consideration, the technological function can then be operated from both an operator station and a Touch Panel.

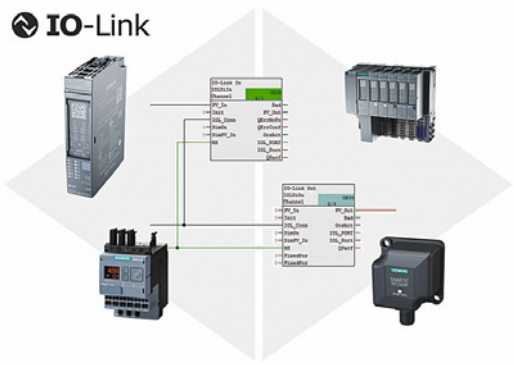
For detailed information on which field devices, which systems and system versions are supported as well as on the free download, see:

https://support.industry.siemens.com/cs/ww/en/view/85285872

Ordering data

	Article No.
SITRANS Library Block library for SIMATIC PCS 7 as of V8.0 and SIMATIC S7 with function blocks and faceplates as well as electronic documentation Engineering software, software class A, two languages (English, German), can be run under the following operating systems: • Windows XP Professional 32 bit • Windows 7 Ultimate 32/64 bit • Windows Server 2003 R2 Standard 32-bit • Windows Server 2008 R2 Standard 64-bit Engineering license for one customer plant Type of delivery: free download	**7MP2990-0AA00**

Overview



System-compliant integration of IO-Link devices

The IO-Link library enables the SIMATIC PCS 7-compliant integration of smart field devices with IO-Link. This includes engineering support by means of the SIMATIC PCS 7 driver wizard, comprehensive module and channel diagnostics, as well as the SIMATIC PCS 7 functionalities such as simulation, accompanying value formation, etc.

IO-Link technology

Smart sensors and actuators with IO-Link offer a large variety of possible uses thanks to flexible parameter assignment and comprehensive diagnostics data. One major advantage of IO-Link compared to other sensor bus systems is the transmission of data over an unshielded 3-wire cable that is also used for sensors without a bus connection. This means devices in an existing plant can be replaced with IO-Link sensors without changing the wiring. To replace a defective sensor without a parameterization tool, the device parameterization can also be saved in the IO-Link master module. This way the new device is automatically configured by the IO-Link master during startup.

The IO-Link library for SIMATIC PCS 7 enables the use of the integrated SIMATIC PCS 7 hardware and software engineering for IO-Link devices.

Note:

The IO-Link library has been released for SIMATIC PCS 7 V9.0 SP1, SP2. Please contact us if you need support for additional SIMATIC PCS 7 versions (see "More information" below).

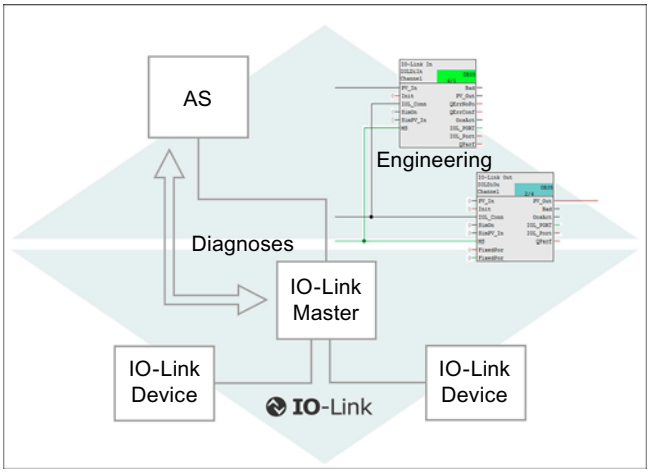
Application

With the IO-Link library for SIMATIC PCS 7, IO-Link devices of all manufacturers can be integrated.

A requirement is the use of an IO-Link master device that is supported by the library.

New master devices can be added depending on the requirement. Device blocks for IO-Link devices that support additional functionalities can be offered for specific projects.

Design



Included in the scope of delivery of the library:

- Diagnostics blocks for supported IO-Link master devices
- Device-independent channel drivers for various data types (e.g. IOL_DiIn, IOL_DiOu)
- Block for exchanging acyclic parameters
- Documentation in English

Technical specifications

Currently supported IO-Link masters:

Manufacturer	Device	Article No.	Firmware version(s)
Siemens AG	CM 4x IO-Link	6ES7137-6BD00-0BA0	V2.0, V2.1

Additional IO-Link masters upon request.

Ordering data

IO-Link library for SIMATIC PCS 7

- for SIMATIC PCS 7 V98.0 (SP1, SP2)
- Support for additional SIMATIC PCS 7 versions on request.

More information

Codewerk GmbH
Siemensallee 75
76187 Karlsruhe, Germany

Tel.: +49 721 174 537 95

Email: sales@codewerk.de

For more information, visit:
http://www.codewerk.com/PCS7IOL

Overview

SIPAPER DCS APL (Advanced Process Library) is the standard library for implementing automation and process control solutions in the fiber industry and, together with the predecessor libraries, has been a part of the industry for more than 30 years.

4

Benefits

Long-term investment security in the fiber industry

Since automation systems and their associated libraries are created for a relatively long service life, proactive management of the system life cycle is an absolute must. For libraries, it can be assumed that they will be updated one or more times, or replaced entirely, during their life cycle, and will therefore require migrations. For the entire bandwidth of different DCS libraries for the fiber industry, the ability to migrate a previous library to the current library has always been an important aspect of planning. This involves lowering life cycle costs, maintaining continuity, securing competitiveness and avoiding obsolescence.

SIPAPER DCS APL is a fixed component of the SIPAPER product family that also includes SIPAPER Drives APL, SIPAPER Winder APL and SIPAPER QCS APL.

Mode of operation

SIPAPER DCS APL AS bundle

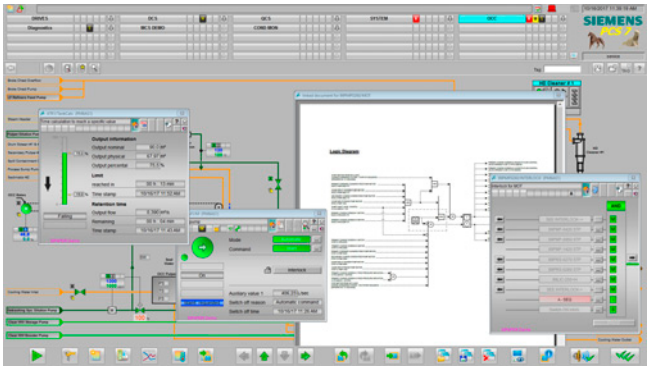
The SIMATIC PCS 7 library can be ordered as part of the SIPAPER DCS APL AS bundle. Its scope of delivery includes:

- SIMATIC PCS 7 AS 410 bundle
- SIPAPER DCS APL runtime license
- CPA Collector software

The SIPAPER DCS APL AS bundle equips you for:

- Plant-wide automation through the pre-assembled, pre-tested automation system with matching SIPAPER DCS APL for process automation
- Integrated engineering in COMOS with SIPAPER control module types including blocks, diagrams, manipulated variables and messages
- Efficient plant optimization with automatic control loop analysis through CPA (Control Performance Analytics)
- SIPAPER Extended Lifecycle Service over a contract period of up to 15 years including upgrades for SIPAPER DCS/QCS/Drives/Winder APL and SIMATIC PCS 7

Function



The SIPAPER DCS APL library consists of a comprehensive palette of tested blocks and preconfigured typicals with corresponding symbols and faceplates. Easy to configure and completely documented, the library ensures a high level of engineering quality and results in significantly shorter times during the construction and engineering phase.

The latest library, SIPAPER DCS APL, builds on previous libraries, our long-term experience in the fiber industry and our interaction with customers and industry consultants. It meets the standard specifications and offers visually appealing symbols and faceplates for easy navigation and user interaction.

A new version of SIPAPER DCS APL usually becomes available within four weeks of publication of a new SIMATIC PCS 7 version. Even though it was designed for the fiber industry, SIPAPER DCS APL is also used in other industries, such as water/wastewater and oil & gas.

Selection and ordering data

How do you form the article number?

- Select the SIMATIC PCS 7 AS 410 bundle that best matches your solution from the ST PCS 7 catalog.
- Write down its Article No., e.g. **6ES7**654-6CQ03-3BF1
- Replace the first 4 digits of the article number with 6FT1, e.g. **6FT1**654-6CQ03-3BF1

SIMATIC PCS 7 is **not** included in the scope of delivery of the SIPAPER DCS APL AS bundle. If required, it must be ordered separately.

More information

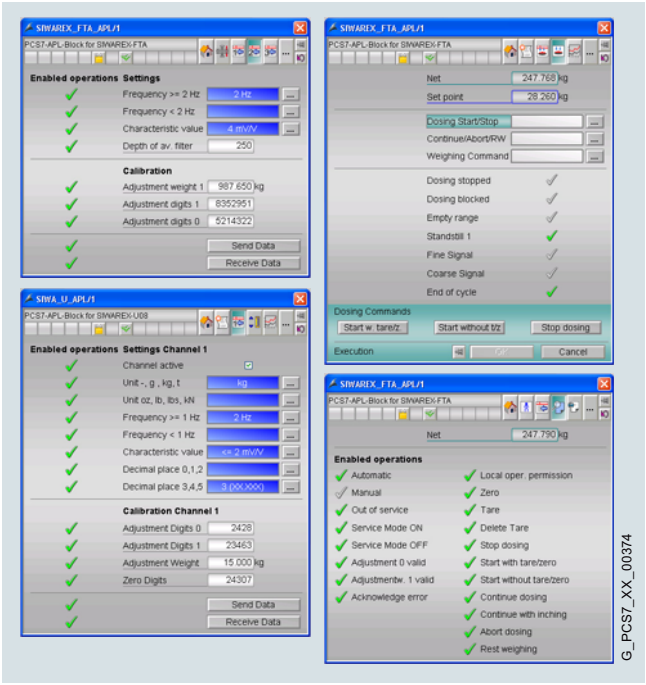
Siemens Energy
SE O SO FI PPM
Werner-von-Siemens-Str. 60
91052 Erlangen
Germany

Email: sipaper@siemens.com

Additional information is available on the Internet at:
http://www.siemens.com/sipaper

Distributed I/O on PROFIBUS/PROFINET

Overview



Level, proportioning, belt, and loss-in-weight scales in process engineering applications can be quickly and efficiently configured using pre-configured weighing blocks. The uniform design of the SIWAREX weighing controllers matching that of SIMATIC ET 200M or ET 200SP also enables easy and consistent wiring in the control cabinet.

For the SIMATIC PCS 7 process control system, Siemens offers the **SIWAREX PCS 7 AddOn Library** with function blocks for the SIWAREX U, SIWAREX FTA, SIWAREX FTC and SIWAREX WP321 weighing controllers. These weighing blocks are suitable for both standard and fault-tolerant automation systems. In high-availability automation systems, the singularly installed SIWAREX U/FTA/FTC/WP321 can be accessed via both subsystems.

The weighing blocks supplied with the faceplate not only allow the rational integration of the SIWAREX U/FTA/FTC/WP321 weighing controllers into the engineering system, they also enable user-friendly operation and commissioning of the scales via the SIMATIC PCS 7 operator stations. Integrated signaling behavior and maintenance functions such as the reading or writing of all scale parameters ensure short standstill times and help to increase the availability.

The pixel-graphics engineering with the CFC editor is very clear and easy to use. The use of prepared blocks also eliminates possible sources of errors and reduces the configuration costs.

The SIWAREX PCS 7 AddOn Library also supports communication via PROFINET.

Note:

The function blocks and faceplates for the weighing controllers can be used together with SIMATIC PCS 7 V8.x and V9.0.

For SIMATIC PCS 7 V8.x, configuration packages are still available in the style of the PCS 7 Standard Library for SIWAREX U and SIWAREX FTA.

Design

Product overview SIWAREX configuration packages for SIMATIC PCS 7 and the associated weighing controller

Configuration packages, variants	Associated hardware (SIWAREX weighing controller)	Article number	
SIWAREX U **(platform weighing machine/level measurement)** • SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design • Configuration package SIWAREX U for SIMATIC PCS 7 V8.x, PCS 7 Standard Library design	SIWAREX U (1-channel), in design of ET 200M	7MH4950-1AA01	
	SIWAREX U (2-channel), in design of ET 200M	7MH4950-2AA01	
SIWAREX FTA (automatic dosing and filling scales) • SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design • SIWAREX FTA configuration package for SIMATIC PCS 7 V8.x, PCS 7 Standard Library design	SIWAREX FTA, in design of ET 200M	7MH4900-2AA01	
SIWAREX FTC_B (conveyor scales) • SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design **SIWAREX FTC_L (differential proportioning weigher)** • SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design	SIWAREX FTC, with ET 200M design	7MH4900-3AA01	
SIWAREX WP321 **(platform weighing machine/level measurement)** • SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0, PCS 7 Advanced Process Library (APL) design	SIWAREX WP321, in design of ET 200SP	7MH4138-6AA00-0BA0	

Ordering data

	Article No.
SIWAREX PCS 7 AddOn Library	
SIWAREX PCS 7 AddOn Library for SIMATIC PCS 7 V8.x and V9.0 Consisting of function blocks, faceplates and manual, 2 languages (English, German), engineering license for SIWAREX weighing modules, single license for 1 installation • APL faceplates and function blocks for - SIWAREX U - SIWAREX FTA - SIWAREX FTC_B (conveyor scales) - SIWAREX WP321 • Classic faceplate and function block for - SIWAREX FTC_L (loss in weight) Engineering and runtime software, software class A Type of delivery: Software and electronic documentation on CD, engineering license (certificate of license)	**7MH4900-1AK61**
Associated hardware	
SIWAREX U weighing controller	
• SIWAREX U (1-channel)[1]	**7MH4950-1AA01**
• SIWAREX U (2-channel)[1]	**7MH4950-2AA01**
SIWAREX FTA weighing controller	
SIWAREX FTA[1]	**7MH4900-2AA01**
SIWAREX FTC weighing controller	
SIWAREX FTC[1]	**7MH4900-3AA01**
SIWAREX WP321 weighing controller	
SIWAREX WP321[1]	**7MH4138-6AA00-0BA0**

	Article No.
Configuration packages in PCS 7 Standard Library design for SIMATIC PCS 7 V8.x	
Configuration package SIWAREX FTA for SIMATIC PCS 7 V8.x Consisting of function block, faceplate and manual, 2 languages (English, German), engineering license for SIWAREX FTA, single license for 1 installation Engineering and runtime software, software class A Type of delivery: Software and electronic documentation on CD, engineering license (certificate of license)	**7MH4900-2AK63**

[1] For further accessories (ground terminal, etc.), refer to the corresponding Equipment Manual.

More information

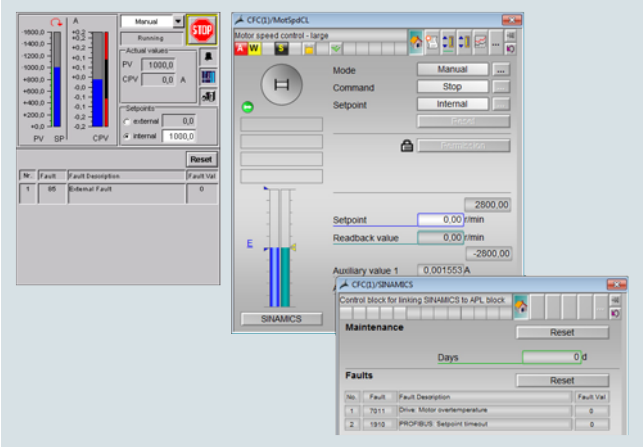
Siemens AG
Process Industries and Drives
Process Automation
Process Instrumentation, Weighing Technology

Tel.: +49 721 595-2811
Fax: +49 721 595-2901

E-mail: hotline.siwarex@siemens.com

You can find additional information on the Internet at:
http://www.siemens.com/weighing-technology

Overview



Faceplates in classic style (left) and APL style (right)

Drive ES PCS 7 enables Siemens drives to be controlled via SIMATIC PCS 7 and operated and monitored in the operator station. The Drive ES PCS 7 faceplates make the data relevant to plant operation available on the operator station.

Drive ES PCS 7 also provides the drive data relevant to the PCS 7 Asset Management for display on the maintenance station.

The Drive ES Basic Maintenance configuration software[1)] or the STARTER commissioning software[1)] (as of V4.3 SP2) can also be used on the engineering station for configuration, commissioning and detailed diagnostics of the drive.

Note:

Drive ES PCS 7 is offered in the following versions:

- Drive ES PCS 7 APL with blocks in the design of the PCS 7 Advanced Process Library (APL style) in versions for SIMATIC PCS 7 V8.0, V8.1, V8.2 or V9.0
- Drive ES PCS 7 with blocks in the design of the PCS 7 Standard Library (classic style) in versions for SIMATIC PCS 7 V8.0, V8.1, V8.2 or V9.0

1) The STARTER commissioning software (as of V4.3 SP2) must be used for MICROMASTER (4th generation) and SINAMICS drives; Drive ES Basic Maintenance for all other Siemens drive systems.

Application

Drive ES PCS 7 can integrate the following drive series into SIMATIC PCS 7:

- SIMOVERT MASTERDRIVES VC and MC[1)]
- MICROMASTER 3rd generation[1)]
- MICROMASTER 4th generation
- SIMOREG DC Master[1)]
- SINAMICS S110/S120/S150
- SINAMICS G120
- SINAMICS G120X
- SINAMICS G130/G150
- SINAMICS MV (product designations GM150, GL150, SL150, SM120)
- SINAMICS DC MASTER (SINAMICS DCM)
- SINAMICS DCP (bidirectional DC/DC actuator)

1) Only the library in the classic style is available for these drives.

As of Drive ES PCS 7 APL V8.0+SP1 or Drive ES PCS 7 V8.0+SP1 (classic), SINAMICS drives can be integrated on PROFINET in SIMATIC PCS 7 in addition to drives on PROFIBUS DP.

You can find a detailed list of the drives supported with Drive ES PCS 7 V8.2 and V9.0 on the Internet for:

- Drive ES PCS 7 APL V8.2
  https://support.industry.siemens.com/cs/ww/en/view/109755489
- Drive ES PCS 7 V8.2 (classic)
  https://support.industry.siemens.com/cs/ww/en/view/109755545
- Drive ES PCS 7 APL V9.0
  https://support.industry.siemens.com/cs/ww/en/view/109750294
- Drive ES PCS 7 V9.0 (Classic Style)
  https://support.industry.siemens.com/cs/ww/en/view/109745530

You can find detailed information on the drives supported by Drive ES PCS 7 predecessor versions in the respective product notifications in the Product Support section of Industry Online Support on the Internet:
https://support.industry.siemens.com

MICROMASTER

MICROMASTER converters are standard frequency converters in the performance range from 0.12 to 250 kW and can be used in numerous variable-speed drive applications. They are especially suitable for applications with pumps, fans and in conveyor systems. Their large range of line voltages enables them to be used all over the world.

Application (continued)

SINAMICS

SINAMICS is the latest family of drives from Siemens for innovative and future-proof drive solutions in a wide performance range from 0.12 to 4 500 kW with line voltages from 380 to 690 V. Characteristic of the devices from the SINAMICS family, which are based on a shared platform concept, is their integrated functionality, high degree of flexibility, and facility for combination.

SINAMICS S

The SINAMICS S120 drive system is a modular system for high-performance applications in industrial machine construction and plant engineering. A wide range of matched designs, components and functions always enables you to find an optimum solution. SINAMICS S120 can be used to implement powerful single drives and coordinated drives (multi-axis applications) with vector or servo functionality.

SINAMICS S150 are designed as cabinet units for variable-speed drives in machine construction and plant engineering. They are particularly suitable for variable-speed drives with high requirements placed on dynamic response and speed accuracy, frequent braking cycles with high braking energies, and 4-quadrant operation.

SINAMICS G

SINAMICS G single drives (AC/AC converters) are specialists for all applications where solid, liquid or gaseous materials have to be moved, transported, pumped or compressed through the use of conveyor belts, pumps, fans and compressors.

The product range of universally deployable SINAMICS G120 single drives includes:

- Compact G120C single drives for the low performance range (0.55 to 18.5 kW)
- Modular G120 single drives for the low to medium performance range (0.37 to 250 kW)
- G120X modular single drives are optimized for infrastructure and industrial water / waste water applications as well as for pumps and fans in building automation and are available in a performance range from 0.75 kW to 630 kW

SINAMICS G130 built-in units and SINAMICS G150 cabinet units for powers from 75 to 2 700 kW round off the top performance range.

SINAMICS MV

SINAMICS MV is an integrated range of medium-voltage converters which is unique worldwide and covers all levels of dynamics and performance in voltage classes from 2.3 to 11 kV. These SINAMICS MV drives cover a performance range from 0.8 kW to 85 MW at motor speeds of 10 to 15 000 rpm. They can be used for single drives as well as for multi-motor drives.

SINAMICS DC MASTER

SINAMICS DC MASTER (SINAMICS DCM) is the name for the latest generation of DC converters from Siemens. The SINAMICS DCM DC power converters combine the advantages of the previous generation, SIMOREG DC MASTER, with those of the SINAMICS series and serve the performance range from 6 kW to 3 MW.

SINAMICS DCM can be optimally integrated in any plants with the following device versions:

- SINAMICS DCM DC Converters, the universal built-in unit
- SINAMICS DCM Control Module for the modernization of existing plants, particularly for extremely high performances
- SINAMICS DCM Cabinet, the ready-to-connect and ready-to-run drive cabinet for all DC drive technology applications

SINAMICS DCP (bidirectional DC/DC actuator)

The name SINAMICS DC Power Converter (SINAMICS DCP) represents a new generation of bi-directional DC/DC actuators from Siemens, which combines extensive expertise of DC technology with the advantages of the SINAMICS product series.

Typical applications and areas of application:

- Braking chopper
- Coupling of DC busses with different levels of voltage
- Battery check status
- Mining conveyor belts
- BESS (Battery Energy Storage Systems)
- Wind energy and photovoltaics

Ordering data	Article No.
Drive ES PCS 7 in the design of the PCS 7 Advanced Process Library (APL Style)	
Drive ES PCS 7 APL[1] Function blocks and faceplates in the style of the PCS 7 Advanced Process Library (APL) for integration of variable-speed drives in SIMATIC PCS 7, for example, SINAMICS, SINAMICS DCM, SINAMICS DCP, SINAMICS MV, SINAMICS S/G and MICROMASTER 4xx with electronic documentation (5 languages); single license for one engineering station each, consisting of: • Engineering license for one engineering station • Runtime license for one automation system Engineering and runtime software, software class A, 5 languages (English, German, French, Italian, Spanish), single license for 1 installation Type of delivery: Certificates of License; software and electronic documentation on CD	
• **V9.0 incl. SP**[2] **for SIMATIC PCS 7 V9.0** Runs on Windows 7 SP1 Enterprise/Ultimate/Professional 64-bit, Windows 10 Enterprise LTSB 2015 64-bit, Windows Server 2008 R2 SP1 Standard 64-bit, Windows Server 2012 R2 Standard Edition 64-bit or Windows Server 2016 Standard 64-bit	**6SW1700-1JD01-0AA0**
• **V8.2 incl. SP**[2] **for SIMATIC PCS 7 V8.2** Runs on Windows 7 SP1 Enterprise/Ultimate 32-bit, Windows 7 SP1 Enterprise/ Ultimate/Professional 64-bit, Windows Server 2008 R2 SP1 Standard 64-bit, Windows Server 2012 R2 Standard Edition 64-bit or Windows Server 2016 Standard 64-bit Only for OS component of the library on the OS client: Windows 10 Enterprise 2015 LTSB 64-bit	**6SW1700-8JD01-2AA0**

Ordering data	Article No.
Drive ES PCS 7 in the design of the PCS 7 Standard Library (classic)	
Drive ES PCS 7 (classic) Function blocks and faceplates in the style of the PCS 7 Standard Library for integration of variable-speed drives in SIMATIC PCS 7, for example, SIMOVERT MASTERDRIVES, MICROMASTER 4xx, SIMOREG DC MASTER, SINAMICS DCM, SINAMICS DCP; SINAMICS MV and SINAMICS S/G with electronic documentation (5 languages); single license for one engineering station each, consisting of: • Engineering license for one engineering station • Runtime license for one automation system Engineering and runtime software, software class A, 5 languages (English, German, French, Italian, Spanish), single license for 1 installation Type of delivery: Certificates of License; software and electronic documentation on CD	
• **V9.0 incl. SP**[2] **for SIMATIC PCS 7 V9.0** Runs on Windows 7 SP1 Enterprise/Ultimate/Professional 64-bit, Windows 10 Enterprise LTSB 2015 64-bit, Windows Server 2008 R2 SP1 Standard 64-bit, Windows Server 2012 R2 Standard Edition 64-bit or Windows Server 2016 Standard 64-bit	**6SW1700-1JD00-0AA0**
• **V8.2 incl. SP**[2] **for SIMATIC PCS 7 V8.2** Runs on Windows 7 SP1 Enterprise/Ultimate 32-bit, Windows 7 SP1 Enterprise/ Ultimate/Professional 64-bit, Windows Server 2008 R2 SP1 Standard 64-bit, Windows Server 2012 R2 Standard Edition 64-bit or Windows Server 2016 Standard 64-bit Only for OS component of the library on the OS client: Windows 10 Enterprise 2015 LTSB 64-bit	**6SW1700-8JD00-2AA0**

Ordering data

	Article No.
AS runtime license Drive ES PCS 7	
AS runtime license Drive ES PCS 7 for SIMATIC PCS 7 V8.2 and V9.0 For processing of function blocks i n an automation system language-neutral, single license for 1 installation Type of delivery: Certificate of License	**6SW1700-5JD00-1AC0**
Drive ES Basic Maintenance configuration software	
Drive ES Basic Maintenance Software package for easy parameterization, commissioning and diagnostics of existing Siemens drives that are not supported by STARTER using a central engineering station, including routing beyond network boundaries; with electronic documentation (5 languages) Engineering software, ' software class A, 5 languages (English, German, French, Italian, Spanish) Type of delivery: Certificate of License; software and electronic documentation on DVD	
• V5.6 including SP[2)4)] For SIMATIC PCS 7 V8.0, V8.1, V8.2 and V9.0, single license (floating license for 1 user) Note: This TIA functionality is provided with the STARTER commissioning tool (V4.3.2 and higher) for SINAMICS and MICROMASTER 4 drives.	**6SW1700-5JA00-6AA0**
Upgrades and software update service	
Drive ES PCS 7 APL upgrade[2)] For single license Engineering and runtime software, software class A 5 languages (English, German, French, Italian, Spanish), single license for 1 installation Type of delivery: Software and electronic documentation on CD	
• **V8.0/V8.1/V8.2 to V9.0**[2)4)] And when upgrading from Drive ES PCS 7 (classic) to Drive ES PCS 7 APL version[3)]	**6SW1700-1JD01-0AA4**
• **V8.0/V8.1 to V8.2**[2)4)] And when upgrading from Drive ES PCS 7 (classic) to Drive ES PCS 7 APL version[3)]	**6SW1700-8JD01-2AA4**

	Article No.
Drive ES PCS 7 upgrade (classic style) For single license Engineering and runtime software, software class A, 5 languages (English, German, French, Italian, Spanish), single license for 1 installation Type of delivery: Software and electronic documentation on CD	
• V6.x/V7.x/V8.0/8.1/V8.2 to V9.0[2)4)]	**6SW1700-1JD00-0AA4**
• V6.x/V7.x/V8.0/8.1 to V8.2[2)4)]	**6SW1700-8JD00-2AA4**
Software update service Contract for the delivery of all updates/upgrades for 1 year; if not canceled, the contract is automatically extended for one more year Type of delivery: Written contract	
• Drive ES PCS 7 APL, single license (for 1 installation) for Drive ES PCS 7 in the design of the PCS 7 Advanced Process Library (APL)	**6SW1700-0JD01-0AB2**
• Drive ES PCS 7 (classic), single license (for 1 installation)	**6SW1700-0JD00-0AB2**

1) For Drive ES PCS 7 APL as of V9.0 SPx, a trial version is available in the Siemens Industry Online Support to allow you to try out this library; see https://support.industry.siemens.com/cs/ww/en/view/109758271

2) The most recent Update/Service Pack (SP) is always supplied.

3) When upgrading from Drive ES PCS 7 (classic) to Drive ES PCS 7 APL, the SIMATIC PCS 7 user software must be reconfigured.

4) You can find information on the supported operating systems in the product notifications for the respective versions of Drive ES PCS 7, Drive ES PCS 7 APL or Drive ES Basic Maintenance in the Product Support section of the Industry Online Support on the Internet, see https://support.industry.siemens.com

More information

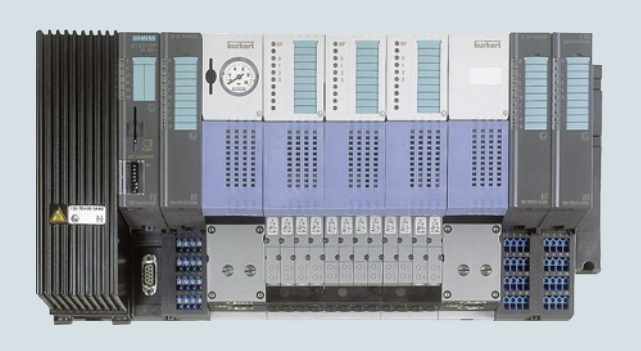
Siemens AG
Digital Factory
Motion Control
General Motion Control
Product Management Drives

Erlangen

Tel.: +420 733 671 999

You can also find the latest product information, FAQs and manuals at Product Support for Industry Online Support on the Internet (https://support.industry.siemens.com) under "Drive technology – Selection and engineering tools – DRIVE ES configuration software or STARTER commissioning software"

Overview



AirLINE Ex 8650 is a pneumatic valve block specially developed for the ET 200iSP distributed I/O system of SIMATIC PCS 7, and is used to control process and production sequences in hazardous areas of Zone 1/21. Through integration of the pneumatic valve block into the ET 200iSP station, the latter's electric I/O functions are expanded by pneumatic 3/2-way or 5/2-way control functions.

Pneumatic functions reduce the costs for wiring and the associated documentation. They save space, simplify the proof of intrinsic safety, and have a favorable effect on the power loss and the associated self-heating.

Typical fields of application can be found in process and production automation associated with biotechnology and in the pharmaceutical and chemical industries.

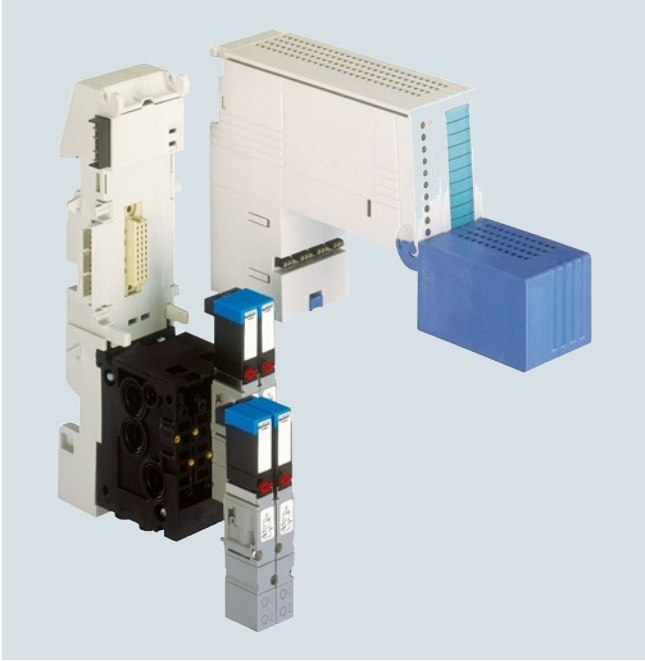
Note:

As an integral component of the ET 200iSP, the AirLINE Ex 8650 pneumatic valve block can be used in combination with SIMATIC PCS 7 V8.x and SIMATIC PCS 7 V9.x. It is linked using the IM 152-1 interface module of the ET 200iSP station. It is supported by means of the Generic Station Description (GSD), Electronic Device Description (EDD), Hardware Update Package (HUP) or the Hardware Support Package (HSP).

Design

In the context of the AirLINE Ex 8650 pneumatic valve block, every assembly comprising terminal module, function module and pneumatic module is referred to as "slice".

A valve slice comprises the terminal module with the permanent wiring, equipped with an electronic basic module and a pneumatic basic module. The valves are then mounted on the basic module.



Design of a valve slice (terminal module on left, electronic basic module at top, pneumatic basic module at bottom, valves)

The valves and their electronic modules have intrinsically safe design (Ex i). For servicing purposes, they can be replaced during ongoing operation. They are easy to install and remove from the front.

The AirLINE Ex 8650 pneumatic valve block is supplied with compressed air via pneumatic connection washers, and the exhaust air is also discharged in this manner. A connection washer on each side terminates the pneumatic backplane on the left and right to the modules of the ET 200iSP. Valve slices for the two available air supplies of 300 l/min and 700 l/min can be mixed in between as desired.

Depending on the configuration, smaller supply elements can be produced using further pneumatic connection washers for intermediate supply. In this way it is possible to work with different pressures or to completely depressurized certain areas of the valve terminal in safety-related applications.

Bürkert Fluid Control Systems can help you with the selection and combination of components. For your individual configuration, you get:

- Documentation
- Materials list
- Dimensions
- Various diagrams

Function

The AirLINE Ex 8650 pneumatic valve block can be used to implement 3/2-way and 5/2-way functions for controlling process valves, single-action or double-action pneumatic cylinders, linear or rotary actuators, etc. The valve slices for air supplies of 300 l/min or 700 l/min act like digital output modules. They convert the electric control signals of the interface module into pneumatic output signals.

The valves themselves have a low power consumption and permit high pressures to be switched with short switching times. They are optionally available with or without manual emergency actuation. Versions are also available with a separate auxiliary control air supply for use in an extended pressure range or with a non-return valve for venting connections. The configuration can be individually adapted using optional baffle elements or pressure shut-offs.

The valve output modules provide up to 8 channels. This means up to 128 valve functions can be configured per station depending on the types of valve used.

The electronics modules of the valve slices display the modules status (group fault display) and the channel status (channel open/closed) on LEDs. Status, diagnostics and switching cycle counters of the channels can be read out via PROFIBUS.

Additional functions such as a pressure switch, a pressure sensor or a valve for safety shutdown can also be integrated.

Technical specifications

AirLINE Ex	
Max. number of valve functions	128 (depending on valve type)
Max. width of complete station	1 185 mm
Rated flow	300 l/min or 700 l/min
Pressure range	0 … 8 bar
Ambient temperature in operation • Horizontal installation • All other mounting positions	 0 … 55 °C 0 … 50 °C
Ambient temperature during storage	-40 … +70 °C
Degree of protection	IP30
Approvals	ATEX, IEC, II 2G Ex ia/ib IIC T4

More information

Bürkert Fluid Control Systems
Christian-Bürkert-Str. 13-17
74653 Ingelfingen
Germany

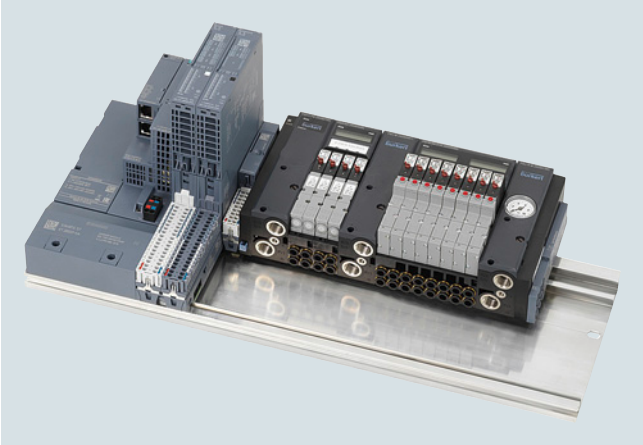
Phone: +49 7940 10-0
Fax: +49 7940 10-91204

Email: info@burkert.com

For further information, visit:
http://www.buerkert.com

Information on AirLine Ex type 8650:
https://www.buerkert.com/en/type/8650

Overview



Bückert AirLINE SP Type 8647

- For pneumatic control of actuators with ET 200SP HA
- Can be used together with system and IO components of the ET 200SP HA distributed I/O system
- Product of the product partners Bürkert Fluid Control Systems, and can only be obtained from Bürkert Fluid Control Systems

Note:

Product partners are external companies outside Siemens AG and its associated companies. Information and descriptions of products made by product partners are non-binding, and are the responsibility of the product partners. These products are manufactured independently and under the responsibility of the respective product partner, and are sold and supplied by it under its terms of business and delivery.

Unless compulsory by law, Siemens assumes no liability or warranty for these products or for connection with these products of the product partners. Refer also to the note on disclaimer of liability/use of hyperlinks*).

Benefits

- High degree of process safety by using non-return valves and pneumatic infeed modules with pressure monitoring
- System-wide detailed diagnostics in plain text, and also locally on an LC display
- Quick and easy valve change during operation (hot swapping)
- Reduced number of components in the control cabinet (enabling compact control cabinet)
- Quick installation & configuration of the pneumatic connections

Application

Valve terminals are widely used in industrial automation, and serve as pilot valves for controlling actuators in the food, pharmaceutical and water treatment industries. In combination with the AirLINE SP, type 8647 from the Bürkert Co., SIMATIC ET 200SP HA forms a universal interface between process and plant control, and enables the flexible, modular structure of pilot valves and I/O modules. The new diagnostic functions such as open circuit and short circuit detection provide transparent system status and thereby increase system availability.

More information

For more detailed information about the AirLINE SP, type 8647 (e.g. data sheet, operating manual) please contact Bürkert directly:
https://www.burkert.com/en/type/8647

* Disclaimer of liability
This information and the descriptions have been compiled with great care. However, it is not possible for Siemens to verify that the data supplied by product partners is complete, correct and up-to-date. The possibility that individual items of information might be incorrect, incomplete, or not up-to-date cannot therefore be ruled out. Unless compulsory by law, Siemens accepts no liability for the usability of the data or of the products for the user per se.

Overview

Radio Frequency Identification (RFID) systems for contactless identification and localization of products as well as for automatic recording and storage of data have already been tried and tested in numerous manners for automation technology. Such systems use mobile data carriers (transponders/tags) to identify products, and readers to monitor the data in the transponders.

SIMATIC Ident RFID systems from Siemens enable you to perfectly control and optimize the material flow and the complete logistics sequence. The systems are also highly suitable for container management and asset management.

Note:

The SIMATIC Ident identification systems can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Design

The SIMATIC Ident RFID systems consist of matched individual components, the function and performance of which vary depending on the task:

- Mobile data carriers (transponders/tags)
- Read/write devices (readers) and mobile handheld terminals
- Antennas
- Communication modules for connection to the automation system
- Software for system integration

Integration of the SIMATIC Ident RFID systems into the SIMATIC PCS 7 process control system is possible in a variety of ways. The readers of the RF200, RF300 systems are integrated into the process control system via RF185C, RF186C/CI, RF188C/CI, RF166C and ASM 475/ET 200M communication modules, while the RF600 readers can be integrated directly into the process control system.

The communication modules and readers communicate with the SIMATIC PCS 7 automation system via PROFINET or PROFIBUS.

Function

SIMATIC Ident RFID systems with a tag memory of up to 64 KB can be configured in a wide variety of ways. Application examples with a CFC block and with a RFID faceplate provide you with effective support. It is available for download on the Internet:

https://support.industry.siemens.com/cs/ww/en/view/29351305

In order to utilize the full functionality of the RFID system for SIMATIC PCS 7, these examples can be changed or extended as required. A customized CFC block can also be created by direct adaptation of the function blocks FB 45 or the Ident profile.

Ordering data

	Article No.
RF186C communication module for connecting two readers directly to PROFINET	**6GT2002-0JE20**
RF166C communication module at the end of two readers directly on PROFIBUS	**6GT2002-0EE20**
RF685R (ETSI) reader with internal antenna for direct connection to PROFINET	**6GT2811-6CA10-0AA0**
ASM 475 communication module for SIMATIC S7-300 and ET 200M; for connecting two readers	**6GT2002-0GA10**
RFID Systems Software & Documentation with FB for SIMATIC/SIMATIC PCS 7, application example and RFID documentation in multiple languages	**6GT2080-2AA20**

More information

Siemens AG
Process Automation and Drives
Process Automation
Communication and Identification
Nuremberg, Germany

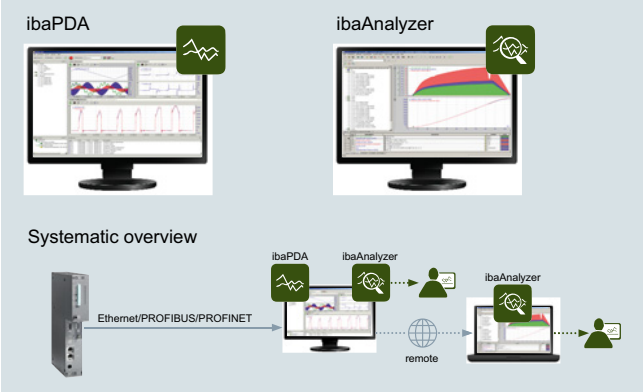
Phone: +49 (911) 895-2905

email: presales.ci.industry@siemens.com

For further information, visit:
http://www.siemens.com/rfid

Diagnostics

Overview



Process control systems usually feature integrated measured value acquisition (trending) with relatively slow cycle times of 500 ms or more. In addition, examination of the collected data for troubleshooting and process analysis is often insufficiently supported in trending. However, high-cycle, ideally cycle-precise, continuous recording of measured values is required to detect sporadic disturbances and programming errors in the CPUs. A convenient measured data acquisition system is provided by ibaPDA . The measured data collected in this way can be subsequently analyzed offline with the high-performance ibaAnalyzer.

ibaPDA

ibaPDA is a software package for measured data acquisition on a separate recording computer (PC). This measured data acquisition system offers various options for high-cycle acquisition of data from the SIMATIC world, e.g.

- Cycle-precise coupling of data via bus monitors, e.g. ibaBM-DP (PROFIBUS bus monitor), ibaBM-PN (PROFINET bus monitor) or via CP 1616 (PROFINET connection)
- Software-based interfaces, e.g. OPC UA, **ibaPDA-Interface-PLC-Xplorer** for communication with the CPUs of the automation systems via MPI, CP/PG or Ethernet TCP/IP interface

Due to the various interfaces to a wide variety of automation and bus systems, higher-level data acquisition with uniform acquisition time can also be realized in systems with heterogeneous automation technology.

Using a recording computer, digital and/or analog signals can be recorded at rate down to 1 ms, or even down to 10 µs when the appropriate hardware is used.

On the recording computer, the measured data can be accessed and selected online with **ibaPDA-Request-S7** without having to re-program or shut down the CPU of the automation system.

ibaAnalyzer

The signals recorded centrally with ibaPDA are stored in files and can be analyzed from any number of workstations using the freeibaAnalyzer software package.

The supplementary **ibaAnalyzer-DB** package permits the user-friendly further processing of the recorded data with database support. Recorded data can be written to various databases (e.g. Microsoft SQL Server, Microsoft Access, Oracle) and read again according to selectable query criteria.

Note:

ibaPDA and ibaAnalyzer can be used in combination with SIMATIC PCS 7 V8.x and V9.0.

Function

ibaPDA

- Simple user interface with online signal visualization
- Client-Server architecture with multiple clients
- Client can be integrated in the OS visualization via ActiveX based on the .NET compatibility
- Numerous display options for measured data e.g. trend, oscilloscope, FFT, digital meter
- Central configuration dialog with flexible modular structure and integrated online diagnostics
- OPC DA/UA server and OPC DA/UA client functionality integrated
- Virtual signals (formula editor)
- Signal groups
- Technostrings for recording asynchronous, non-cyclic data, e.g. batch numbers, setpoints
- Combination with ibaCapture CAM/HMI for synchronous acquisition of camera images and HMI screen data
- Staggered licensing model based on the number of detectable signals (64, 256, 1024, 2048, unlimited)
- Several recordings in parallel (expandable)
- Complex trigger conditions for data recording
- Recording with ibaHD server as an endless strip chart recorder
- Digital output signals (alarm messages) also per TCP/IP
- E-mail notifications
- Time synchronization via DCF77, PTP (IEEE 1588), IEC 1131
- Synchronized multi-station operation with several ibaPDA systems

ibaAnalyzer

- Graphic user interface with intuitive operation
- Automatic scaling
- Report generator for automatic generation of graphic and tabular reports in various formats (PDF, HTML etc.)
- Powerful mathematical formulae and operations
- Views: Y/T, X/Y, FFT, Y/length, 2D plan, 3D false colors and 3D grid
- Mathematically generated "virtual signals"
- Graphical digital filter editor
- Data export in ASCII format
- Automatic presentation of measurement files (slide show)
- Generation of analysis guidelines for use on several measurement files
- Combination of signals on a shared scale or on different scales
- Simultaneous consideration of analog and digital signals
- Simple measurement of signals
- X/Y zoom, infinitely variable
- Special functions for length representations

Function (continued)

ibaAnalyzer-DB

- Data extraction of time-based and/or length-based measurement segments via ODBC in a database (e.g. Microsoft SQL Server, Microsoft Access, Oracle)
- Database query wizard (Query Builder)
- Database analysis with full scope of ibaAnalyzer instructions

ibaPDA-Request-S7

- Modifying the measurement data to be recorded without making changes on the CPU
- ibaPDA integration via PROFIBUS DP slaves or PROFINET devices with the bus monitors ibaBM-DP or ibaBM-PN
- Optional online access to all operands of the S7-CPUs
- Cycle-precise acquisition of measurement data

ibaPDA-Interface-PLC-Xplorer

- ibaPDA interface to the automation system's CPU via MPI, CP/PG or Ethernet TCP/IP
- Optional online access to all operands and symbols of the S7-CPUs
- Output of measured data via the selected communication connection (MPI, CP/PG or Ethernet TCP/IP)

Operating system platforms for all program packages

- Windows 7 32/64-bit
- Windows Server 2008
- Windows Server 2008 R2
- Windows 8 32/64-bit
- Windows 8.1 32/64-bit
- Windows Server 2012
- Windows Server 2012 R2
- Windows 10 32/64-bit

More information

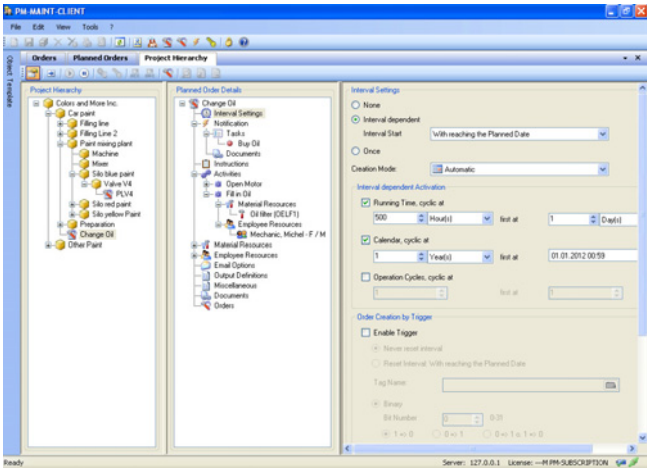
iba AG
Königswarterstraße 44
90762 Fürth
Germany

Tel.: +49 911 97282-0
Fax: +49 911 97282-33

E-mail: sales@iba-ag.com

You can find more information on the Internet at:
http://www.iba-ag.com

Overview



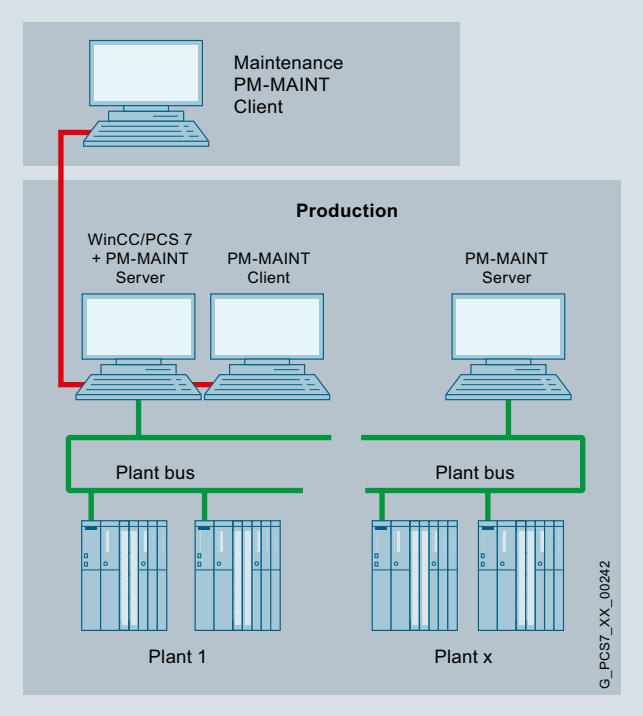
PM-MAINT is a sector/technology-independent maintenance management system for inspection, servicing and maintenance of production plants, and is primarily designed for preventive, performance-dependent maintenance. With the objective of maximizing plant availability, PM-MAINT uses the performance data or calendar intervals to generate predictive planning of maintenance measures. PM-MAINT determines the optimum time with regard to production and maintenance. Whereas prematurely conducted inspections and servicing shorten the intervals and thus increase the maintenance costs, and delayed implementation can result in production losses with high repair and downtime costs.

PM-MAINT is linked to the automation level of the process control system via the SIMATIC PCS 7 operator system or per OPC. With its numerous import and export options, it is an ideal supplement for the SIMATIC PCS 7 Maintenance Station.

Note:

The maintenance management system, PM-MAINT, can be use in plants in combination with SIMATIC PCS 7 V8.x and V9.0.

Design



Example configuration of PM-MAINT in a client/server architecture

PM-MAINT is scalable, and grows with your requirements. It can be used as a local single-user system or also as a distributed multi-user system in a client/server architecture. PM-MAINT can be installed in addition to the SIMATIC PCS 7 OS software on an operator station of version Single Station, Server, or Client.

The PM-MAINT system software is structured as follows:

- Type S for Single Station (single-user system) or Server (multi-user system)
- Type C for Client (multi-user system)

PM-MAINT supports the operating systems Windows 7, Windows 8.1, Windows 10, Windows Server 2008 R2 and Windows Server 2012 R2.

Function

PM-MAINT permits mapping of the hierarchical plant structure of the company down to the level of the smallest units for maintenance. Maintenance jobs can be created for each maintenance object.

Maintenance planning and activation

In the case of performance-dependent maintenance, PM-MAINT utilizes operating hours and switching cycles from the current process data to calculate the recommended maintenance dates. When these dates are reached, PM-MAINT automatically creates the maintenance job. Additional options for creating maintenance jobs are process events or calendar intervals (days, weeks, months, quarters, years).

Assignment of documents

Any documents can be added as supplementary information to each maintenance object or job in the object tree, e.g.

- Dimension drawings
- Technical specifications
- Maintenance information

Job recording/checklists

Maintenance jobs can be recorded manually or automatically. These reports are then used by the maintenance personnel as a checklist. Lists with ordering data for material requirements planning are additionally available for printing depending on the job. Processing of measures can also be documented in a report.

Material and personnel assignment

The required material and personnel resources can be assigned to the maintenance jobs. The materials and working hours actually required can then be entered in the feedback relating to maintenance activities.

Archiving and analysis

All maintenance activities are saved in an archive which is permanently evaluated to achieve a continuous improvement in maintenance procedures. Unexpected maintenance jobs can be recorded manually or by means of the SIMATIC PCS 7 Maintenance Station, and integrated into the long-term archiving.

Ordering data

Ordering data	Article No.
PM-MAINT system software for SIMATIC PCS 7 V8 and V9	
PM-MAINT system software Type S For a single station (single-user system) or a server (multi-user system) Engineering and runtime software, software class A, 2 languages (German, English), single license for 1 installation Delivery package: Software and electronic documentation on DVD, dongle (hard lock), and Certificate of License	**9AE7104-2SS30-1AA0**
PM-MAINT system software Type C For a client (multi-user system) Engineering and runtime software, software class A, 2 languages (German, English), single license for 1 installation Delivery package: Software and electronic documentation on DVD, dongle (hard lock), and Certificate of License	**9AE7104-4SC00-1AA0**

More information

Siemens AG
Siemens Germany
Mannheim branch

Process Industries and Drives
WinCC Competence Center Mannheim

Tel.: +49 621 456-3269
Fax: +49 621 456-3334

E-mail: WinCCAddon.automation@siemens.com

You can find additional information on the Internet at:
http://www.siemens.com/process-management

Notes

Telecontrol

Overview

Telecontrol applications for controlling and monitoring geographically distributed plants usually consist of a supervisory control system (telecontrol center) and one or more outstations (Remote Terminal Units) connected over large distances.

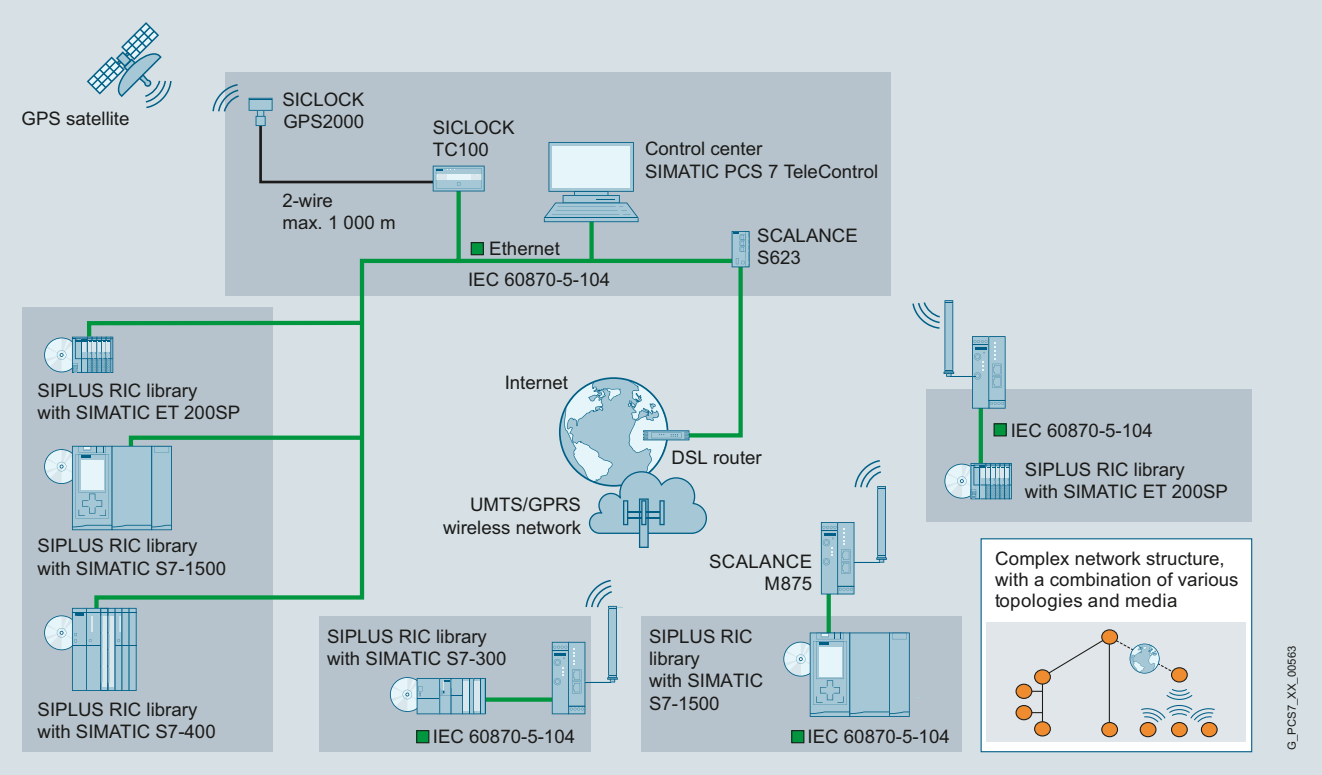
The Remote Terminal Units (RTUs) installed locally in such an automation plant may be exposed to extreme climatic conditions.

The SIPLUS RIC product range supports telecontrol with the IEC 60870-5-101 (serial) and IEC 60870-5-104 (Ethernet TCP/IP) telecontrol protocols.

In the context of SIMATIC PCS 7, SIPLUS RIC permits:

- Telecontrol connection of RTUs to a control center integrated in SIMATIC PCS 7
- Telecontrol connection of SIMATIC PCS 7 automation systems to a third-party control center

Overview



Example of complex TCP/IP-based WAN with cable and wireless networks

The telecontrol communication between a telecontrol center integrated in SIMATIC PCS 7 and its outstations (Remote Terminal Units) is based on SIPLUS RIC libraries and is possible via serial communication links as well as via Ethernet TCP/IP communication links – with telecontrol protocol option

- IEC 60870-5-104 (Ethernet TCP/IP)
- IEC 60870-5-101 (serial)

Advantages of the TCP/IP-based connection through IEC 60870-5-104 are simultaneous data transfer to multiple devices and diagnostics using SIMATIC Manager.

Security mechanisms are not defined in the application area of IEC 60870-5-104. Therefore, encryption of the user data (data integrity) and authentication of the communication partners must be implemented separately (Industrial Security).

The telecontrol center integrated with SIMATIC PCS 7 TeleControl into the operator system of the process control system is the master during telecontrol communication. The Remote Terminal Units (RTUs) are slaves of the control center on the one hand, but can additionally function as masters for subordinate outstations with the following protocols:

- IEC 60870-5-104 (Ethernet TCP/IP)
- IEC 60870-5-101 (serial)
- IEC 60870-5-103 (serial)

Note:

Telecontrol integration into the SIMATIC PCS 7 process control system using SIPLUS RIC libraries with IEC 60870-5-104 or IEC 60870-5-101 protocols requires one of the following software combinations:

- SIMATIC PCS 7 V9.0 and SIMATIC PCS 7 TeleControl V9.0
- SIMATIC PCS 7 V8.2 and SIMATIC PCS 7 TeleControl V8.2
- SIMATIC PCS 7 V8.1 and SIMATIC PCS 7 TeleControl V8.1
- SIMATIC PCS 7 V8.0+SP1 and SIMATIC PCS 7 TeleControl V8.0+SP1/SP2
- SIMATIC PCS 7 V8.0 incl. Update 1 and SIMATIC PCS 7 TeleControl V8.0

Design

Remote terminal units (RTUs)

RTUs with hardware controller

In combination with a type-specific SIPLUS RIC library, hardware controllers from the following product series can be used as remote stations in telecontrol applications with IEC 60870-5-101 (serial) or IEC 60870-5-104 (Ethernet TCP/IP) telecontrol protocols:

Controller	Number of I/Os (dependent on CPU size, protocol type, and application)	Number of information or data points
Integrated in SIMATIC ET 200S	30 … 200 I/Os	Approx. 200
Integrated in SIMATIC ET 200SP	30 ... 500 I/Os	Approx. 500
SIMATIC S7-300/S7-300F	100 … 2 000 I/Os	Approx. 2 000
SIMATIC S7-400/S7-400F	500 … 5 000 I/Os	Approx. 5 000
SIMATIC S7-400H/S7-400FH	500 … 5 000 I/Os	Approx. 5 000
SIMATIC S7-1500	200 ... 5 000 I/Os	Approx. 5 000

Comparable controllers from the SIPLUS extreme product spectrum can be used for especially demanding environmental conditions. Information about the controllers from the SIPLUS extreme product spectrum can be found in the ST 70 catalog and on the Internet at:http://www.siemens.com/siplus

Controller for use as a RTU – parameters and scaling

RTU type	ET 200S		S7-300				S7-400			
CPU	IM 151-7 IM 151-7F	IM 151-8 IM 151-8F	CPU 314C-2 PN/DP	CPU 315-2 PN/DP CPU 315F-2 PN/DP	CPU 317-2 PN/DP CPU 317F-2 PN/DP	CPU 319-3 PN/DP CPU 319F-3 PN/DP	CPU 412-2 PN CPU 412-5H PN/DP	CPU 414-3 PN/DP CPU 414-5H PN/DP	CPU 416-3 PN/DP CPU 416-5H PN/DP	CPU 417-5H PN/DP CPU 410-5H Process Automation
Work memory	128/192 KB	192/256 KB	192 KB	384/512 KB	1024/1536 KB	2048/2560 KB	1 MB	4 MB	16 MB	32 MB
Data memory, non-volatile	64 KB	64 KB	64 KB	128 KB	256 KB	700 KB	–	–	–	–
Data memory, volatile	64/128 KB	128/192 KB	128 KB	256/384 KB	768/1280 KB	1348/1860 KB	–	–	–	–
Code	–	–	–	–	–	–	512 KB	2 MB	8/6 MB	16 MB
Data	–	–	–	–	–	–	512 KB	2 MB	8/10 MB	16 MB
SIPLUS RIC program	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB
Buffer (volatile)	64 KB	64 KB	64 KB	192 KB	704 KB	1024 KB	–	–	–	–
Buffer (message frames)	Approx. 1 500	Approx. 1 500	Approx. 1 500	Approx. 4 500	Approx. 16 000	Approx. 24 000	Approx. 4 500	Approx. 12 000	Approx. 24 000	Approx. 24 000
Recommended memory card	512 KB	512 KB	512 KB	512 KB	2 MB	2 MB	–	–	–	–
Number of Ethernet interfaces on CPU	0	1	1	1	1	1	1	1	1	1/2
Number of TCP/IP connections	–	8	8	8	16	32	46	62	94	118
Recommended number of information or data points	200	200	200	1 000	2 000	5 000	1 000	2 000	5 000	5 000

Design (continued)

RTU type	**ET 200SP**		**S7-1500**					
CPU	CPU 1510-1 PN CPU 1510F-1 PN	CPU 1512-1 PN CPU 1512F-1 PN	CPU 1511-1 PN CPU 1511F-1 PN	CPU 1513-1 PN CPU 1513F-1 PN	CPU 1515-2 PN CPU 1515F-2 PN	CPU 1516-3 PN/DP CPU 1516F-3 PN/DP	CPU 1517-3 PN/DP CPU 1517F-3 PN/DP	CPU 1518-4 PN/DP CPU 1518F-4 PN/DP
Work memory	0.85/0.9 MB	1.3 MB	1.15/1.225 MB	1.8/1.95 MB	3.5/3.75 MB	6/6.5 MB	10/11 MB	24/26 MB
Data memory, non-volatile	–	–	–	–	–	–	–	–
Data memory, volatile	–	–	–	–	–	–	–	–
Code	0.1/0.15 MB	0.2/0.3 MB	0.15/0.225 MB	0.3/0.45 MB	0.5/0.75 MB	1/1.5 MB	2/3 MB	4/6 MB
Data	0.75 MB	1 MB	1 MB	1.5 MB	3 MB	5 MB	8 MB	20 MB
SIPLUS RIC program	0.096 MB	0.096 MB	0.096 MB	0.096 MB	0.096 MB	0.096 MB	0.096 MB	0.096 MB
Buffer (volatile)	–	–	–	–	–	–	–	–
Buffer (message frames)	Approx. 3 000	Approx. 6 000	Approx. 6 000	Approx. 12 000	Approx. 24 000	Approx. 24 000	Approx. 24 000	Approx. 24 000
Recommended memory card	12 MB	12 MB	12 MB	12 MB	24 MB	24 MB	256 MB	256 MB/ 2 GB
Number of Ethernet interfaces on CPU	1	1	1	1	2	2	2	3
Number of TCP/IP connections without/with CPs	54	78	54/86	78/118	108/192	118/246	150/310	182/374
Recommended number of information or data points	200	800	200	1 000	1 000	2 000	5 000	5 000

For detailed technical information and ordering data for the RTU types listed in the table, refer to the ST 70 and ST PCS 7 catalogs.

RTUs with software controller

In combination with a SIPLUS RIC library, SIMATIC PC-based systems with a software controller (SIMATIC WinAC RTX, SIMATIC S7-1500 Software Controller or SIMATIC ET 200SP Open Controller) are also suitable as remote stations in telecontrol applications with remote control protocol IEC 60870-5-101 (serial) or IEC-60870-5-104 (Ethernet TCP/IP).

SIPLUS RIC Libraries

The SIPLUS RIC libraries for IEC 60870-5-101 and -104 protocols are delivered as master and slave. The library for the IEC 60870-5-103 protocol is only available as a master.

The product package for all SIPLUS RIC libraries include a CD with software and documentation and a certificate of license for all protocols and interfaces. With SIPLUS RIC libraries for SIMATIC ET 200S, SIMATIC ET 200SP, SIMATIC S7-300 and SIMATIC S7-1500 RTU types, a memory card (MMC/SMC) is also included. The product variations offered for a hardware controller type are distinguished by the storage capacity of the memory card.

A license is required for each of the two CPUs when redundant SIMATIC S7-400 systems are used.

Depending on the RTU type, activation can be performed using either the supplied memory card (ET 200S, ET 200SP, S7-300, S7-1500) or via the e-mail address siplus-ric.automation@siemens.com (S7-400). All libraries of the respective series are activated.

Design (continued)

Communication and network components

Communication and network components from the IK PI Catalog supplement the product range for configuration of IEC 60870-5-101/104 telecontrol applications using SIPLUS RIC libraries such as:

- TCP/IP converter and serial modem module
- Mobile radio components
- Industrial Ethernet switches, TCP/IP routers, and media converters
- SCALANCE W industrial wireless LAN components
- SCALANCE S industrial security modules, e.g. S612
- Dedicated line accessories
- Connecting cables

Network topologies

For the configuration of complete, hierarchical telecontrol networks, it is possible to implement basic topology types such as point-to-point, multipoint, star and ring in various media forms and to combine them as required depending on the infrastructure requirements.

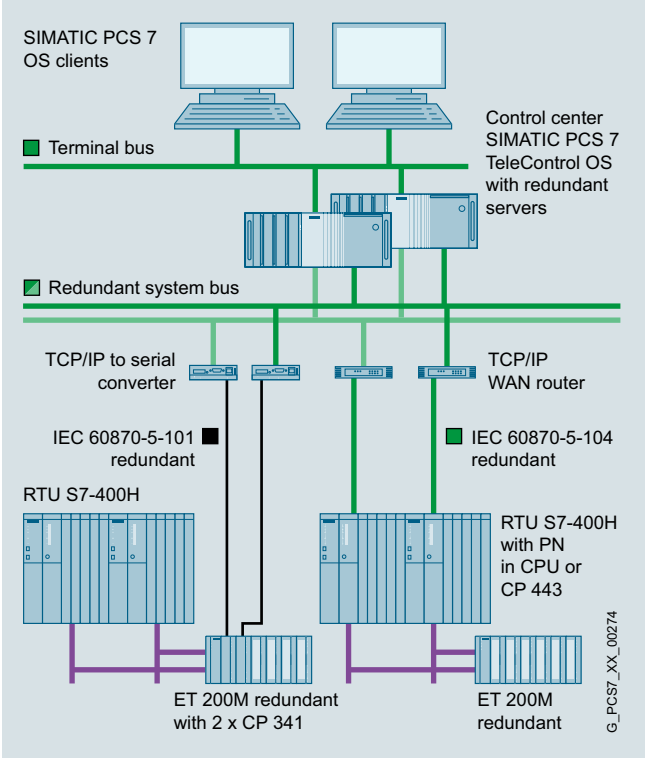
Examples of media forms

- Private networks
  - Radio
  - Dedicated line via fiber-optic cable or via modem
  - Ethernet network, e.g. with SCALANCE X and fiber-optic cables
  - WLAN, e.g. with SCALANCE W
- Public networks
  - GPRS
  - EGPRS
  - UMTS
  - LTE
  - DSL
  - Satellite communication, e.g. Inmarsat

Redundancy

Telecontrol communication availability can be improved by connecting the RTU to the control center in the process control system via two transmission paths. The two redundant transmission paths can be based on the same or different telecontrol protocols.

The use of redundant RTUs of type S7-400H (high availability) or S7-400FH (safety-related and high availability) results in further options for increasing the availability, e.g. redundant design of telecontrol communication, fieldbus and process I/O. As a result of the seamless integration of the telecontrol system in the SIMATIC PCS 7 process control system, its implementation depends on the redundancy concept of the complete system (see example of redundant telecontrol configuration with the IEC 60870-5-101/104 telecontrol protocols).



Example of redundant telecontrol configuration with the IEC 60870-5-101/-104 telecontrol protocols

Connection of SIPROTEC protection devices

SIPLUS RIC IEC 60870-5-103 Master can also be used to connect protection devices such as SIPROTEC via SIMATIC PCS 7 TeleControl. The RTU then serves as a converter between the IEC 60870-5-103 protection data protocol and the IEC 60870-5-101 or IEC 60870-5-104 protocol.

Compared to PROFIBUS DP interfacing of the protective equipment, this configuration provides the following advantages:

- Longer distances achievable
- High precision time stamps are transferred from the protective equipment to the control system

Function

Telecontrol communication with SIPLUS RIC is characterized by the following features:

- Uniform configuration using the SIMATIC Manager (except for the controller SIMATIC S7-1500 and ET 200SP and SIMATIC S7-1500 Software Controller and SIMATIC ET 200SP Open Controller)
- Event-driven data transfer
- Monitored output of commands for reliable detection of malfunctions
- Diagnostics functions for rapid tracing and elimination of faults
- High availability thanks to redundant data communication

Additional special features of the IEC 60870-5-101 and IEC 60870-5-104 telecontrol protocols include:

- Time stamping for data acquisition in the outstation
- Data buffering for bridging communication interruptions (for RTU-specific information on buffering, see tables in the "Remote Terminal Units" section)
- Time synchronization via the control center

Ordering data

SIPLUS RIC libraries for the telecontrol connection to a control center in SIMATIC PCS 7

	Article No.
SIPLUS RIC libraries for RTU type SIMATIC ET 200S (CPU integrated) Note: Activation with memory card included in the product package	
SIPLUS RIC library for SIMATIC ET 200S Consisting of CD (software and documentation), certificate of license and Micro Memory Card (can be used for all supported SIMATIC ET 200S CPUs):	
• 512 KB Micro Memory Card (MMC)	**6AG6003-5CF00-0CA0**
• 2 MB Micro Memory Card (MMC)	**6AG6003-5CF00-0DA0**
SIPLUS RIC libraries for RTU type SIMATIC ET 200SP (CPU integrated) Note: Activation with memory card included in the product package	
SIPLUS RIC library for SIMATIC S7-1500 For SIMATIC S7-1500 CPUs and SIMATIC ET 200SP CPUs, consisting of CD (software and documentation), certificate of license and SIMATIC Memory Card	
• 12 MB SIMATIC memory card (SMC)	**6AG6003-8CF00-0LE0**
SIPLUS RIC libraries for RTU type SIMATIC S7-300 Note: Activation with memory card included in the product package	
SIPLUS RIC library for SIMATIC S7-300 Consisting of CD (software and documentation), certificate of license and Micro Memory Card (can be used for all supported SIMATIC S7-300 CPUs as of firmware V2.6):	
• 512 KB Micro Memory Card (MMC)	**6AG6003-1CF00-0CA0**
• 2 MB Micro Memory Card (MMC)	**6AG6003-1CF00-0DA0**

	Article No.
SIPLUS RIC libraries for RTU type SIMATIC S7-400 Note: Activation via e-mail address siplus-ric.automation@siemens.com	
SIPLUS RIC library for SIMATIC S7-400 Consisting of CD (software and documentation) and certificate of license Note: A memory card, a CPU (CPU 41x as of firmware V4.x) or a system expansion card of the CPU 410-5H Process Automation (as of SIPLUS RIC V1.6 UPD3) are licensed; 2 licenses are required for redundant systems.	**6AG6003-3CF00-0AA0**
SIPLUS RIC libraries for RTU type SIMATIC S7-1500 Note: Activation with memory card included in the product package	
SIPLUS RIC library for SIMATIC S7-1500 Consisting of CD (software and documentation), certificate of license and SIMATIC memory card (can be used for all supported SIMATIC S7-1500 CPUs):	
• 12 MB SIMATIC memory card (SMC)	**6AG6003-8CF00-0LE0**
• 24 MB SIMATIC memory card (SMC)	**6AG6003-7CF00-0LF0**
• 256 MB SIMATIC memory card (SMC)	**6AG6003-7CF00-0LL0**
• 2 GB SIMATIC memory card (SMC)	**6AG6003-7CF00-0LP0**
SIPLUS RIC library for SIMATIC PC-based automation Software for SIMATIC WinAC RTX, SIMATIC S7-1500 Software Controller and ET 200SP Open Controller, consisting of CD (software and documentation) and certificate of license Note: Activation via e-mail address siplus-ric.automation@siemens.com	**6AG6003-0CF00-0AA0**

Telecontrol connection to third-party control center

Overview

SIMATIC PCS 7 automation systems can also communicate with a remote third-party control center by means of the telecontrol protocol IEC 60870-5-101 (serial) or IEC 60870-5-104 (TCP/IP).

The IEC 60870-5-101 protocol permits use of classic WAN connections over modems and dedicated lines. The IEC 60870-5-104 protocol supports TCP/IP-based WAN-connections like Internet/DSL, GPRS or LTE.

Application

Possible fields of application include:

- Interfacing of power plant automation based on SIMATIC PCS 7 to network control centers for power distribution
- Interfacing of pumping and compressor stations automated using SIMATIC PCS 7 to higher-level control centers for gas, oil or water pipelines

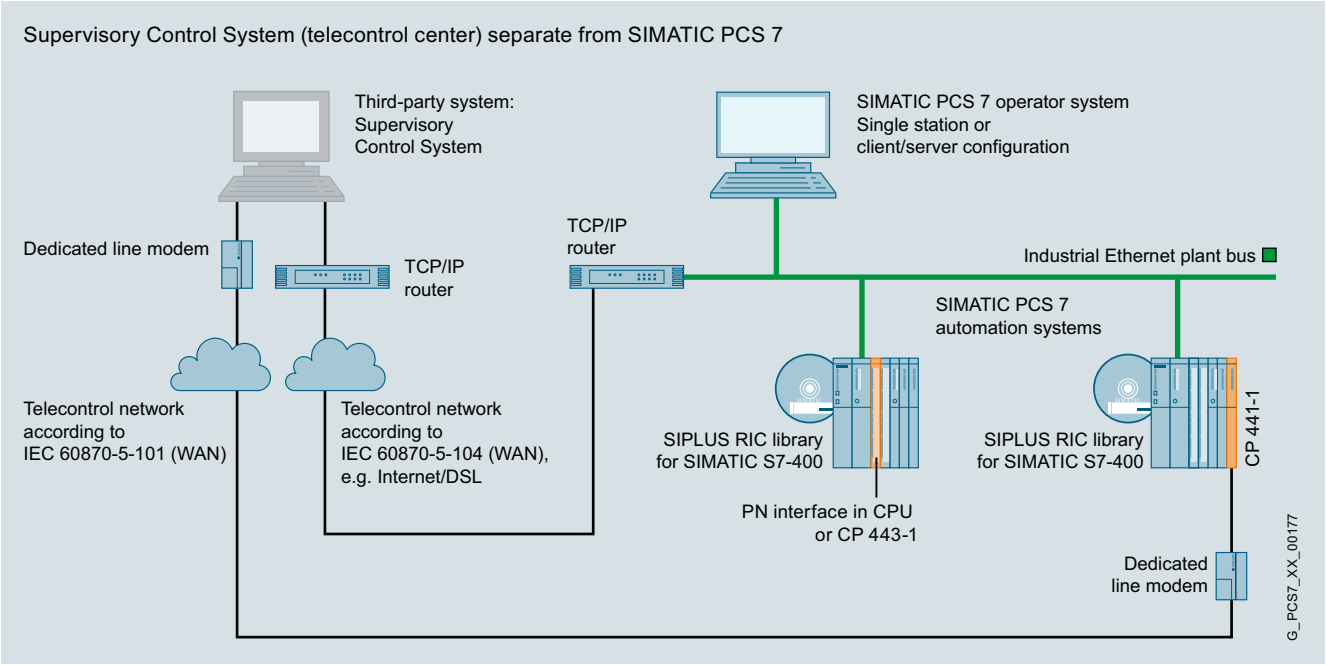
Design

Notes:

With the telecontrol configurations described below for connection of SIMATIC PCS 7 automation systems to a third-party control center, use of the SIPLUS RIC for SIMATIC S7-400 library is independent of SIMATIC PCS 7 TeleControl.

The materials required to design a telecontrol link, e.g. TCP/IP router, CP 443-1, CP 441-1, CP 341, dedicated line modem, cables etc. are accessories which are not included in this catalog. For additional information and ordering data, see IK PI and ST 70 catalogs

Telecontrol connection for single SIMATIC PCS 7 automation systems (single station)



Configuration examples of the telecontrol connection of SIMATIC PCS 7 automation systems of single station design with the IEC 60870-5-101 and IEC 60870-5-104 telecontrol protocols

Depending on the protocol, the following automation system connection options can be used for communication:

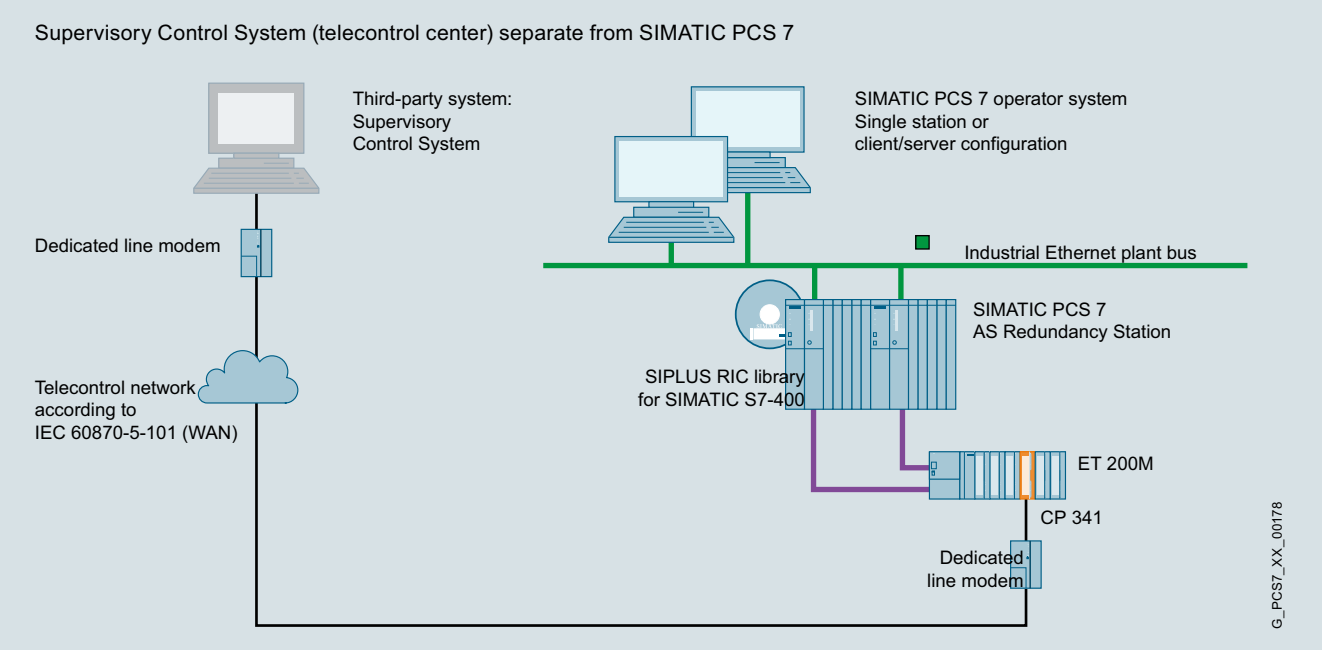
- CP 441 (IEC 60870-5-101)
- PN interface in CPU/CP 443-1 (IEC 60870-5-104)

In the SIMATIC PCS 7 automation system, additive driver blocks from the SIPLUS RIC library for SIMATIC S7-400 adapt the interface for communication using the IEC 60870-5-101 or IEC 60870-5-104 standardized protocols. Configuration is performed using the SIMATIC Manager as usual for SIMATIC PCS 7. This equally applies to automation systems designed as single station or redundant station.

Design (continued)

Telecontrol connection for redundant SIMATIC PCS 7 automation systems (redundant station)

Redundant configuration with IEC 60870-5-101 telecontrol protocol (serial)



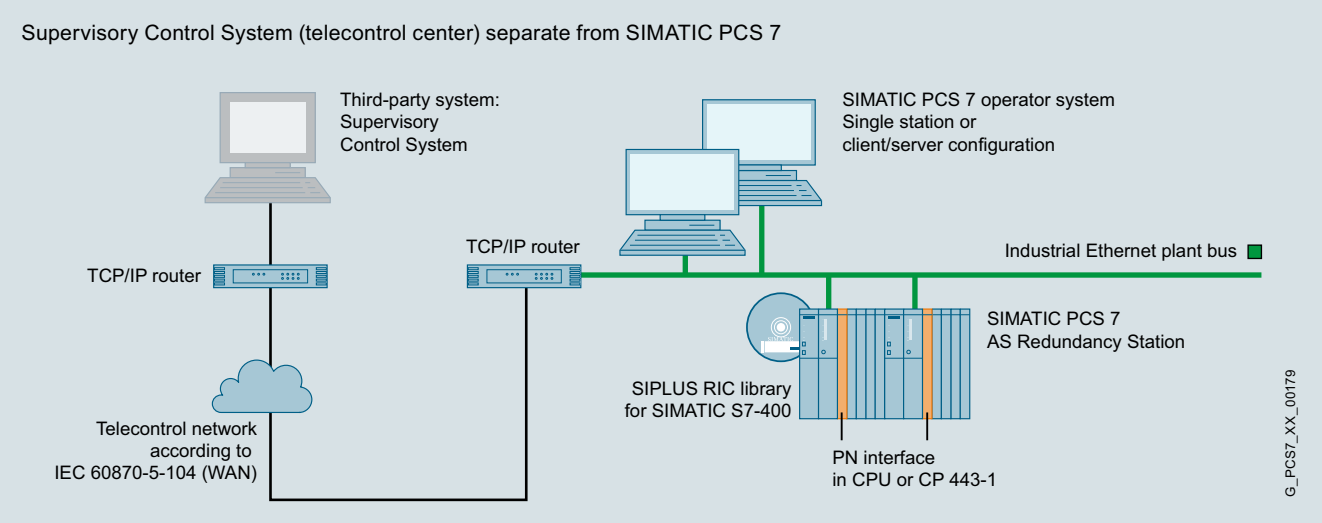
Configuration example of the telecontrol connection of redundant SIMATIC PCS 7 AS with the IEC 60870-5-101 telecontrol protocol

- The control center is linked via a serial telecontrol connection with IEC 60870-5-101 protocol to a CP 340 or CP 341 in an ET 200M station of the SIMATIC PCS 7 system.
- If the master system fails, the standby system of the redundant automation system takes over data exchange with the control center bumpless via the CP 341 in the ET 200M station.
- Failure of the master system can be signaled to the control center.

Telecontrol connection to third-party control center

Design (continued)

Redundant configuration with IEC 60870-5-104 telecontrol protocol (TCP/IP)



Configuration example of the telecontrol connection of redundant SIMATIC PCS 7 AS with the IEC 60870-5-104 telecontrol protocol

- The control center is linked via a TCP/IP-based WAN to the SIMATIC PCS 7 system bus.
- The control center establishes a TCP/IP connection to an AS subsystem with each of the two communication interfaces via which the redundant automation system is integrated into the system bus.
- The control center starts the IEC 60870-5-104 telecontrol protocol via the TCP/IP connection to the master system and monitors the TCP/IP connection to the standby system using test frames.
- If the master system fails, the control center signals the associated connection as being faulty, and starts the IEC 60870-5-104 telecontrol protocol via the TCP/IP connection to the standby system. It then attempts to reestablish the faulty connection.

7

Ordering data

	Article No.
SIPLUS RIC libraries for RTU type SIMATIC S7-400 Note: Activation via e-mail address siplus-ric.automation@siemens.com	
SIPLUS RIC library for SIMATIC S7-400 Consisting of CD (software and documentation) and certificate of license Note: A memory card, a CPU (CPU 41x as of firmware V4.x) or a system expansion card of the CPU 410-5H Process Automation (as of SIPLUS RIC V1.6 UPD3) are licensed; 2 licenses are required for redundant systems.	**6AG6003-3CF00-0AA0**

More information

As a specialist for complete solutions in the product and system business, we would be pleased to advise you concerning generation of an individual configuration and the selection of accessories. If required, we can also supply preconfigured bundles or turnkey outstations installed in wall enclosures, cabinets or containers. Contact address for quotation and consulting:

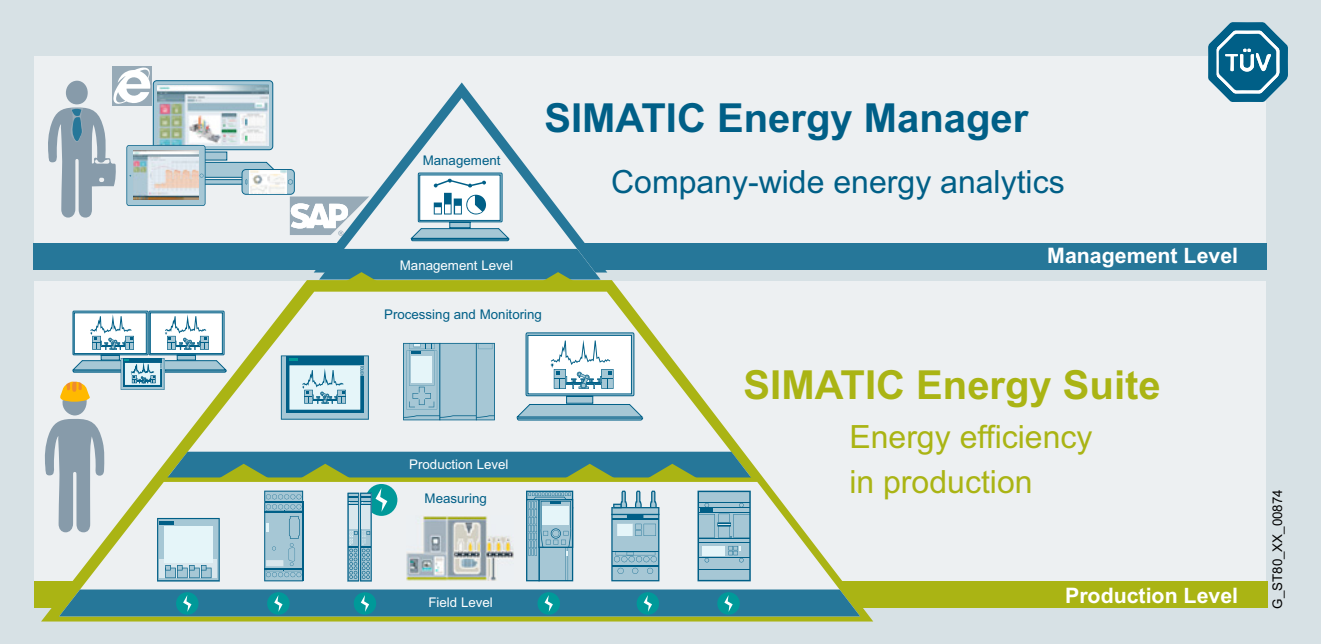
Siemens AG
Breslauer Str. 5
90766 Fürth
Germany

Tel.: +49 911 750 - 4790
Fax: +49 911 750 - 9917

E-mail: siplus-ric.automation@siemens.com

You can find additional information on the Internet at:
http://www.siemens.com/siplus-ric

Overview



SIMATIC Energy Manager V7.2 energy management system

SIMATIC Energy Manager V7.2 makes energy flows and costs transparent – in both infrastructure and production.

SIMATIC Energy Manager provides users with a scalable, non-sector-specific energy data management system.
Its functions range from energy monitoring, energy controlling, energy invoicing, baseline management and prognosis, through to the management of energy efficiency measures.
Among other things, SIMATIC Energy Manager provides an extensive and easy-to-use report system, as well as a dynamic, widget-based web dashboard for analyzing and distributing data once it has been acquired and analyzed.

SIMATIC Energy Manager is available in a **Basic** and a **PRO version**.

Advantages:

- Appropriate energy efficiency measures can be devised based on performance indicators and display options. When implemented successfully, cost savings are achieved.
- Power monitoring offers the basis for a secure power supply
- Transparency at cost center level raises employee awareness and forms the basis for specifying clear, easy-to-understand aims, as well as for monitoring their achievement
- Technological processes and plants in production (E.g. analysis based on machine status) can easily be connected and allow for energy performance evaluation.
- Transparency combined with prognosis functions increases planning reliability and opens up new opportunities in energy procurement
- Energy controlling, with its flexible reporting and analysis functions, helps to ensure that efficient systems remains efficient
- Characteristic values can be freely defined to facilitate substantiated statements on increasing the efficiency of power generation systems and consumers
- Transparency – with the OPC UA (HA) server, data can be made available to additional applications
- It fulfills the legal obligations for monitoring and reporting on greenhouse gas emissions (CO2 emissions)

Easy introduction to energy data management with the Energy Manager Basic:

- Easy configuration of dashboards, charts and reports
- With power monitoring, it is possible to analyze detail data of the measuring instruments
- Configuration of data points and the OPC UA, OPC DA, OPC HDA, Energy Suite, WinCC/PCS 7, Modbus/TCP, Modbus/TCP, Desigo CC and ASCII interfaces, as well as manual data acquisition
- Definition of derived data points in order to store performance indicators as a time series and export them, for example.
- Simple authorization concept
- Web client available in the languages en, de, it, fr, es and cn
- Configuration of performance indicators data with a formula editor
- Configuration of parameters to display prices or factors
- Tabular overview and options for structuring data sources, data points, performance indicators and parameters
- Configuration of essential settings, e.g. email settings, backup, units, regional settings, account settings
- Provision of data with the OPC UA server

Overview (continued)

Support of the S7 energy efficiency monitor by Energy Manager PRO:

- The S7 energy efficiency monitor as an instruction in the TIA Portal allows machine status-related energy data acquisition. Data is transferred to Energy Manager PRO via a communication module.
- Uniform and comparable display of efficiency indicators of machines/lines/cost centers
- Display of energy consumption and costs at machine level and cost center level
- Energy consumption and costs per workpiece or shift
- Benchmarking of same machines/workpieces from different manufacturers

Note:

Upgrading from SIMATIC Energy Manager 7.1 to SIMATIC Energy Manager 7.2 is possible at any time and is included in the SIMATIC Energy Manager SUS.

Benefits

Highlights of version 7.2

- Parameter selection via a structure web browser
- Power monitoring – acquisition and analysis of the measuring instruments to enhance availability of their electrical power distribution
- Provision of data via OPC UA server (HA) possible, even with Energy Manager Basic
- Additional interfaces in Energy Manager Basic:
  - ASCII interface
  - Desigo CC WebService interface
- Simple data analysis with the new chart in the Web Client
- Filtering of rogue data for counter values
- Batch analysis based on data from the short-term archive
- Settings for the Internal information Services can be defined directly from setup

Design

SIMATIC Energy Manager V7.2

SIMATIC Energy Manager is available in a Basic and a PRO version.
Basic is the starter version and is entirely web-based. An upgrade from the Basic to PRO version is possible by means of a license key.
Both versions are supplied in a basic package to which tag packages can be added.

The **SIMATIC Energy Manager Basic** package includes:

- 50 tags
- 1 Energy Manager PRO acquisition component
- 1 Energy Manager web client

The **SIMATIC Energy Manager PRO** basic package includes:

- 50 tags
- 1 Energy Manager PRO acquisition component
- 1 Energy Manager PRO client
- 1 Energy Manager web client

Available tag packages:

- 50 tags
- 100 tags
- 250 tags
- 500 tags
- 1 000 tags
- 5 000 tags
- 30 000 tags

SIMATIC Energy Manager Software Update Service (SUS)

For each Energy Manager system there is a corresponding SUS (Software Update Service), which is dependent on the number of tags or consumer packages.

The SUS is valid for 1 year. The contract is automatically extended by 1 more year unless canceled 3 months prior to expiration.

SIMATIC Energy Manager extensions

The scope of Energy Manager can be extended with add-on packages:

- Energy Manager web clients (3, 20 or 60)
- Energy Manager PRO client
- Energy Manager PRO acquisition component
- Energy Manager PRO Planning and Forecast
- Consumer Package 1 with S7-EE monitor
- Consumer Package 5 with S7-EE monitor
- Consumer Package 25 with S7-EE monitor
- Consumer Package 1 without S7-EE monitor
- Consumer Package 5 without S7-EE monitor
- Consumer Package 25 without S7-EE monitor

The number of clients and web clients indicates the number of times simultaneous access is possible.

Function

Acquisition and pre-processing of energy and operating data

- In addition to an interface to the SIMATIC Energy Suite, SIMATIC Energy Manager also offers the latest interface standards such as WinCC, PCS7, Desigo CC, OPC UA, OPC DA (DA, HA), OPC HDA, MODBUS TCP, ODBC, ASCII and XML, as well as machine drivers to the S7-EE monitor
- Preprocessing of energy data in a real-time calculation core that can be freely modeled including a formula editor for defining and configuring new calculation functions (heat calculations for boilers, quality for cogeneration plants, etc.)

Simple definition of performance indicators enabling rapid identification of relationships and dependencies:

- Energy Manager app for iOS and Android for mobile counter data acquisition
- Automatic plausibility check and generation of substitute values
- Long-term archive with versioning and compression functions
- Matrix editor and measured value editor for entering and processing energy and operating values
- Chart for presenting up-to-date (online) and historical load curves, as well as setpoint/actual value analyses
- Management and analysis of energy data
- Energy management dashboards for creating cross-company transparency through visualization of performance indicators and display of Sankey diagrams.

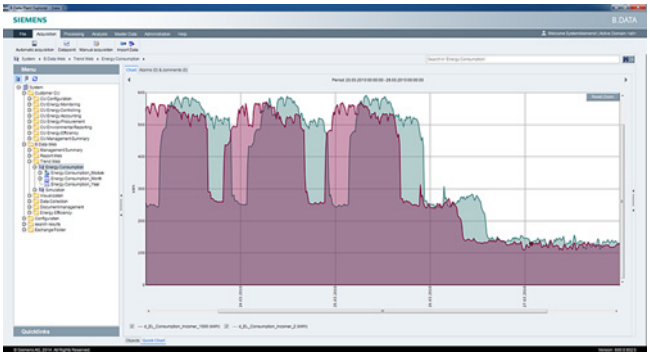
Function (continued)

Monitoring

An important component of energy data management is the display and evaluation of operating data and performance indicators for the purpose of identifying actions for optimization and lowering costs and consumption.

Energy Manager provides the appropriate tools for displaying and evaluating operating data and performance indicators:

- Display of current and projected operating values together in one chart
- Reporting on quantities produced, consumption and costs
- Display of all relevant company data on a single dashboard



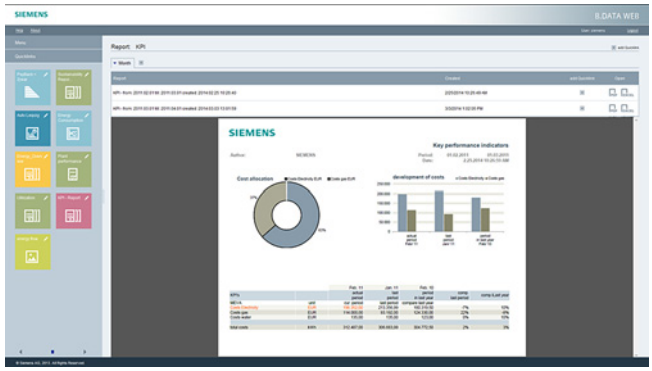
Controlling

Effective energy controlling is based on information about when and where energy is required. This is the only way that detailed information about optimization and potential savings can be provided. Reliable performance indicators form the basis for reports, such as those required for implementation of ISO 50001 requirements.

Energy Manager is the tool for effective controlling tasks:

- Freely configurable accounting of the energy flows of different media such as electricity, gas, or steam, from the main supply down to sub-distribution systems
- Determination of performance indicator values with direct reference to production batches or quantities for energy-related evaluation of production equipment
- Evaluation of energy purchase invoices for various media by entering counter readings, power and calculation parameters
- Target-performance analysis of energy consumption and costs according to predefined reference profiles or parameters
- Determination and display of statistical parameters such as time lines, distribution of hours or daily temperature figures
- Benchmarking of various plants or sites
- Machine-status-related energy analyses

Energy Manager's automatic reporting system is used for presentations:
Information is displayed in Microsoft Excel or Microsoft Word and can be prepared there as a table or diagram overview. In this way, you can generate, for example, monthly reports with current figures in Microsoft Excel, Microsoft Word or PDF format without additional configuration effort.

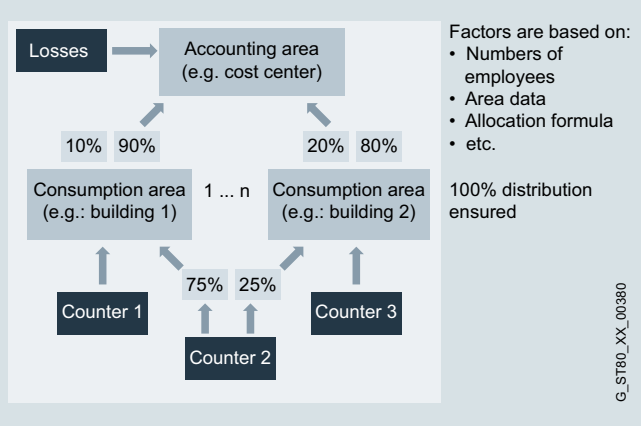


Cost-center-oriented accounting

Clear allocation creates awareness for saving energy and regulates accountability. Only those who are charged directly with the costs that they cause will be willing to change their behavior. By assigning costs according to the "costs-by-cause principle" and through incentive systems, cost center managers can accelerate energy-saving measures. Energy Manager enables costs-by-cause accounting of energy and material flows as well as allocation to individual plants, customers or cost units.

- Flexible modeling of hierarchic accounting structures
- Tariff allocation of quantities, flexible price assessment with tariff and price time series
- Transfer of consumption figures/costs to the ERP system

Function (continued)



Baseline management

The ability to calculate performance indicators is a core task of an energy data management system. However, even if performance indicators are available, the user often still has to interpret them. With baseline management, a model based on historical data can calculate a theoretical energy consumption (baseline) for any time.

This theoretical energy consumption serves as a default value for energy monitoring or energy controlling. This enables the user to see at any time whether the actual energy consumption is above or below the calculated theoretical level. If the cumulative deviation of these two values over time is calculated, it is possible to determine the efficiency of a plant.

Energy forecast

Energy Manager PRO places all relevant information at your fingertips to give you the most accurate forecast possible of energy demand and of the load curve for one or more sites, buildings, production areas or individual consumers.

- Generation of requirement forecasts based on production-dependent factors (production planning) and basic load profiles (typical days)
- With multi-variable regression analysis, it is simple to evaluate and model influencing factors. This model can be used to calculate the future energy demand

Management of energy efficiency measures

- All of a site's energy efficiency measures are recorded centrally in Energy Manager PRO. Each energy efficiency measure can be assigned to a certain region, department or even a specific plant
- Automatic calculation of efficiency based on potential savings and costs of each energy efficiency measure
- Predefined status for implementation progress of energy efficiency measures
- Categorization: Predefined priorities or categories help to prioritize energy efficiency measures

Power monitoring

With power monitoring, it is easy to acquire and analyze detail data of the measuring instruments in order to enhance the availability of their electrical power distribution.

- With just a few clicks, it is possible to make measured values of current, voltage and cos phi, visible.
- Should a system fail, it is possible to accurately analyze the detail data for this point in time and detect potential causes such as transients and voltage dips.

Energy reporting

- Freely parameterizable report generator for creating balances, protocols, bills
- Fully automated reporting, email dispatch and document management
- Energy Manager web client for company-wide viewing of dashboards, reports and results
- Information about discrepancies from specified parameters through KPI warning system

Technical specifications

	SIMATIC Energy Manager PRO V7.0
Operating system	• Windows Server 2008 R2 (English/German) • Windows Server 2012 R2 (English/German) • Windows Server 2016 (English/German) • Windows Server 2019 (English/German) • Windows 7 Professional/Ultimate SP1 (English/German) • Windows 8.1 Pro/Enterprise 64-bit (English/German) • Windows 10 Pro/Enterprise 64-bit (English/German) • Minimum of 4 GB RAM
Interface	In addition to an interface to WinCC, PCS7, Desigo CC and S7 controllers Energy Manager PRO also offers the latest interface standards such as OPC DA, OPC HDA, OPC UA, MODBUS TCP, ODBC, ASCII and XML.
WinCC versions [1]	• SIMATIC WinCC V7.3 SE, V7.4, V7.5 • SIMATIC WinCC RT Professional V14, V15, V15.1
PCS 7 versions [2]	• SIMATIC PCS 7 V8.2 • SIMATIC PCS 7 V9
Virtualization	• VMWare Workstation 12.5, 14, 15 • VMWare ESX 6.5, 6.7 • Microsoft Hyper-V for Windows Server 2012 R2, 2016, 2019 • Microsoft Hyper-V server 2012 R2, 2016, 2019

[1] If an acquisition computer is installed on a WinCC system, these requirements must also be complied with.

[2] The SIMATIC Energy Manager PRO system for connection to the PCS 7 must always be installed on a separate PC.

Ordering data	Article No.
SIMATIC Energy Manager V7.2	
Standard scope of supply	
• SIMATIC Energy Manager Basic incl. 50 tags [1]	**6AV6372-1DF07-2AX0**
• SIMATIC Energy Manager PRO incl. 50 tags [1]	**6AV6372-2DF07-2AX0**
• SIMATIC Energy Manager PRO Powerpack Basic -> PRO	**6AV6372-2DF07-2AX3**
• Tag Package 50 [1]	**6AV6372-2DF07-0CX0**
• Tag Package 100 [1]	**6AV6372-2DF07-0DX0**
• Tag Package 250 [1]	**6AV6372-2DF07-0EX0**
• Tag Package 500 [1]	**6AV6372-2DF07-0FX0**
• Tag Package 1 000 [1]	**6AV6372-2DF07-0GX0**
• Tag Package 5 000 [1]	**6AV6372-2DF07-0HX0**
• Tag Package 30 000 [1]	**6AV6372-2DF07-0JX0**
Download	
• SIMATIC Energy Manager Basic incl. 50 tags [1]	**6AV6372-1DF07-2AH0**
• SIMATIC Energy Manager PRO incl. 50 tags [1]	**6AV6372-2DF07-2AH0**
• SIMATIC Energy Manager PRO Powerpack Basic -> PRO	**6AV6372-2DF07-2AH3**
• Tag Package 50 [1]	**6AV6372-2DF07-0CH0**
• Tag Package 100 [1]	**6AV6372-2DF07-0DH0**
• Tag Package 250 [1]	**6AV6372-2DF07-0EH0**
• Tag Package 500 [1]	**6AV6372-2DF07-0FH0**
• Tag Package 1 000 [1]	**6AV6372-2DF07-0GH0**
• Tag Package 5 000 [1]	**6AV6372-2DF07-0HH0**
• Tag Package 30 000 [1]	**6AV6372-2DF07-0JH0**
SIMATIC Energy Manager extensions	
Standard scope of supply	
• SIMATIC Energy Manager, 3 web clients[4]	**6AV6372-2DF27-0AX0**
• SIMATIC Energy Manager, 20 web clients[4]	**6AV6372-2DF27-0BX0**
• SIMATIC Energy Manager, 60 web clients[4]	**6AV6372-2DF27-0CX0**
• SIMATIC Energy Manager PRO client[4]	**6AV6372-2DF37-0AX0**
• SIMATIC Energy Manager PRO Planning and Forecast	**6AV6372-2DF47-0AX0**
• SIMATIC Energy Manager PRO acquisition component	**6AV6372-2DF57-0AX0**
Download	
• SIMATIC Energy Manager, 3 web clients[4]	**6AV6372-2DF27-0AH0**
• SIMATIC Energy Manager, 20 web clients[4]	**6AV6372-2DF27-0BH0**
• SIMATIC Energy Manager, 60 web clients[4]	**6AV6372-2DF27-0CH0**
• SIMATIC Energy Manager PRO client[4]	**6AV6372-2DF37-0AH0**
• SIMATIC Energy Manager PRO Planning and Forecast	**6AV6372-2DF47-0AH0**
• SIMATIC Energy Manager PRO acquisition component	**6AV6372-2DF57-0AH0**

	Article No.
SIMATIC Energy Manager PRO Consumer Package	
Standard scope of supply	
• Consumer Package 1 with S7 EE monitor[3]	**6AV6372-2DF67-1AX0**
• Consumer Package 5 with S7 EE monitor[3]	**6AV6372-2DF67-1BX0**
• Consumer Package 25 with S7 EE monitor[3]	**6AV6372-2DF67-1CX0**
• Consumer Package 1 without S7-EE monitor	**6AV6372-2DF77-1AX0**
• Consumer Package 5 without S7-EE monitor	**6AV6372-2DF77-1BX0**
• Consumer Package 25 without S7-EE monitor	**6AV6372-2DF77-1CX0**
Download	
• Consumer Package 1 with S7 EE monitor[3]	**6AV6372-2DF67-1AH0**
• Consumer Package 5 with S7 EE monitor[3]	**6AV6372-2DF67-1BH0**
• Consumer Package 25 with S7 EE monitor[3]	**6AV6372-2DF67-1CH0**
• Consumer Package 1 without S7-EE monitor	**6AV6372-2DF77-1AH0**
• Consumer Package 5 without S7-EE monitor	**6AV6372-2DF77-1BH0**
• Consumer Package 25 without S7-EE monitor	**6AV6372-2DF77-1CH0**
SIMATIC Energy Manager SUS [2]	
Standard scope of supply	
• For max. additional 50 tags and/or 1 Consumer Package[2]	**6AV6372-2DF00-0CL0**
• For max. additional 100 tags and/or 5 Consumer Packages[2]	**6AV6372-2DF00-0DL0**
• For max. additional 500 tags and/or 25 Consumer Packages[2]	**6AV6372-2DF00-0FL0**
• For max. additional 5 000 tags and/or 100 Consumer Packages[2]	**6AV6372-2DF00-0HL0**
• For more than 5 000 tags and/or 100 Consumer Packages[2]	**6AV6372-2DF70-0XL0**
Download	
• For max. additional 50 tags and/or 1 Consumer Package[2]	**6AV6372-2DF00-0CY0**
• For max. additional 100 tags and/or 5 Consumer Packages[2]	**6AV6372-2DF00-0DY0**
• For max. additional 500 tags and/or 25 Consumer Packages[2]	**6AV6372-2DF00-0FY0**
• For max. additional 5 000 tags and/or 100 Consumer Packages[2]	**6AV6372-2DF00-0HY0**
• For more than 5 000 tags and/or 100 Consumer Packages[2]	**6AV6372-2DF70-0XY0**

Ordering data

	Article No.
SIMATIC Energy Manager upgrades	
Standard scope of supply	
• Upgrade of systems with up to 50 tags and/or 1 Consumer Package	**6AV6372-2DF07-2CX4**
• Upgrade of systems with up to 100 tags and/or 5 Consumer Packages	**6AV6372-2DF07-2DX4**
• Upgrade of systems with up to 500 tags and/or 25 Consumer Packages	**6AV6372-2DF07-2FX4**
• Upgrade of systems with up to 5 000 tags and/or 100 Consumer Packages	**6AV6372-2DF07-2HX4**
• Upgrade of systems with more than 5 000 tags and/or more than 100 Consumer Packages	**6AV6372-2DF77-2XX4**
Download	
• Upgrade of systems with up to 50 tags and/or 1 Consumer Package	**6AV6372-2DF07-2CH4**
• Upgrade of systems with up to 100 tags and/or 5 Consumer Packages	**6AV6372-2DF07-2DH4**
• Upgrade of systems with up to 500 tags and/or 25 Consumer Packages	**6AV6372-2DF07-2FH4**
• Upgrade of systems with up to 5 000 tags and/or 100 Consumer Packages	**6AV6372-2DF07-2HH4**
• Upgrade of systems with more than 5 000 tags and/or more than 100 Consumer Packages	**6AV6372-2DF77-2XH4**
SIMATIC Energy Manager TRIAL	**6AV6372-2DF17-2AX0**
Standard scope of supply	

1) The tag packages dynamically expand the number of tags. The total number of tags is incremented by the value of the tag package in each case.

2) The SUS contract runs for 1 year. The contract is automatically extended by a further year unless canceled 3 months prior to expiration.

3) The license number on the certificate is used to activate the S7 instruction; a separate license certificate is required for each machine.

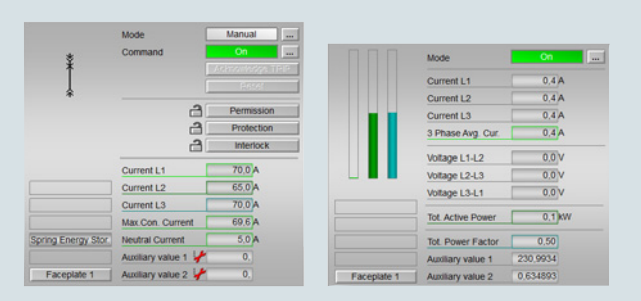
4) The Client license and Web Client license are licensing which only takes into account one simultaneous access. Example: If 5 users use the Energy Manager via the web client but only 3 work with it simultaneously, only 3 web client licenses are necessary. The same applies for the desktop client.

More information

Additional information is available on the Internet at:

http://www.siemens.com/energymanager

Overview



Faceplates for circuit breakers (left) and measuring devices (right)

The LIBRARY PAC/3WL/3VA SIMATIC PCS 7 block library enables seamless integration of the 3WL/3VA circuit breakers and 7KM PAC3200/3220/4200 measuring devices in the SIMATIC PCS 7 process control system with driver module, diagnostics block and faceplates.

The blocks executed in the CPUs of the automation systems (controllers) supply the faceplates of the operator stations of the process control system with energy data, generate messages, and manage the link to the SIMATIC PCS 7 Maintenance Station.

Faceplates

The faceplates of the LIBRARY PAC/3WL/3VA SIMATIC PCS 7 block library are used in the operator stations of the process control system as a user interface for the supported measuring devices and circuit breakers. Technologically relevant values and functions of these devices can thus be displayed and used as SIMATIC PCS 7 objects.

System-side bidirectional communication links between faceplates and blocks as well as between blocks, measuring devices and circuit breakers support the display of values in the faceplates and forwarding of input to the devices.

Note:

1. The LIBRARY PAC/3WL/3VA SIMATIC PCS 7 can be used together with SIMATIC PCS 7 V8.2 SP1 and V9.0 SP1 and SP2. It supports all operating systems of these system versions.

2. 3WL is supported with the LIBRARY PAC/3WL/3VA SIMATIC PCS 7 V2.2 via COM35 via PROFINET IO.

3. PAC3200/3220/4200 and the 3VA2/3VA6 molded-case circuit breakers are supported with Switched Ethernet PROFINET Module V3 (MLFB 7KM9300-0AE02-0AA0) with PROFINET IO PCS 7 Ready, i.e. with S2 system redundancy and configuration in run (CiR).

More information

Siemens AG
Energy Management Division
Low Voltage & Products
Nuremberg

Tel.: +49 911 895-7222
Fax: +49 911 895-7223

Support Request:
http://support.industry.siemens.com/My/ww/en/requests

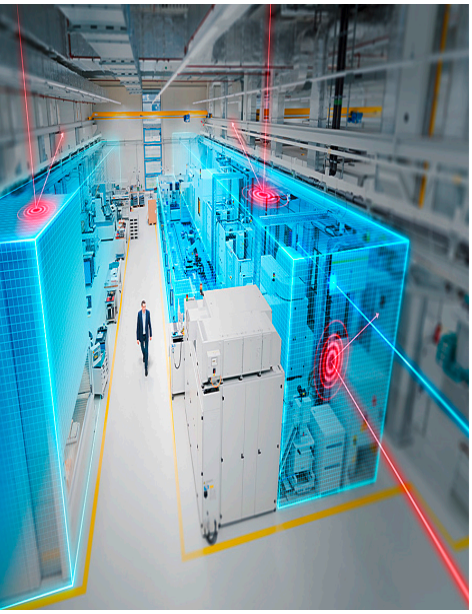
You can find more information on the Internet at:
http://www.siemens.com/lowvoltage

Function

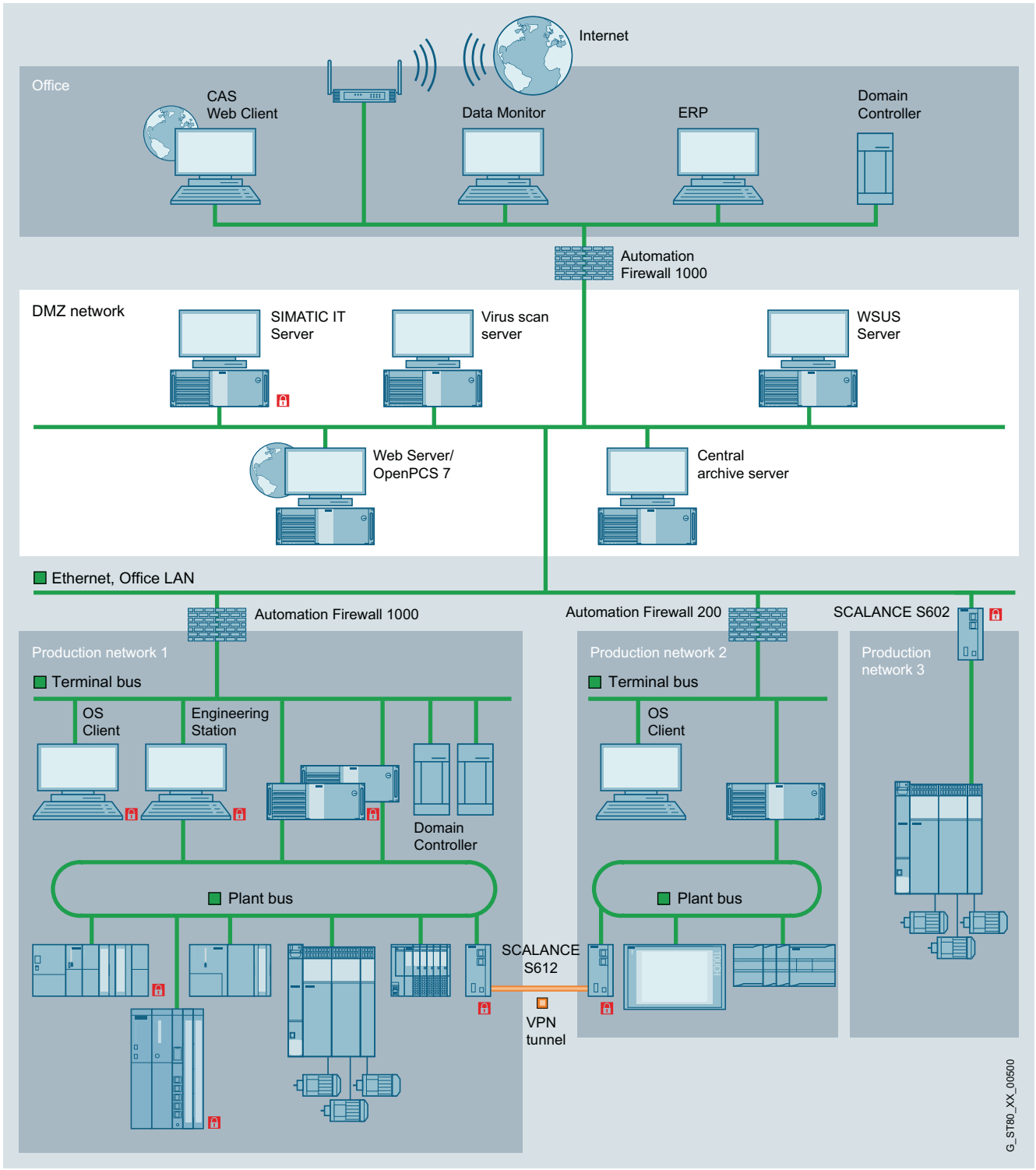
- Full integration of 7KM PAC3200/3220/4200 measuring devices and the 3WL/3VA circuit breakers in the SIMATIC PCS 7 process control system
- Connection of all devices via PROFIBUS DPV1 possible
- All 7KM PAC3200/3220/4200 measuring devices and all circuit breakers, including 3WL, can be integrated via PROFINET
- 7KM PAC4200 measuring device can be used within functional scope of 7KM PAC3200 measuring device
- Cyclic and acyclic communication (for pure visualization tasks)
- Input of limits for monitoring by the driver block
- Resetting of values on the device (min./max. values)
- Remote switching of the 3WL and 3VA circuit breakers
- Device monitoring and reading of maintenance information
- Automatic information in event of overload, short circuit or faults
- Read-out and display of device data

Ordering data

Ordering data	Article No.
Block library for 7KM PAC3200/3220/4200 measuring devices and 3WL/3VA circuit breakers	
LIBRARY PAC/3WL/3VA SIMATIC PCS 7 AS blocks and faceplates for integration of the 3WL/3VA circuit breakers and 7KM PAC3200/3220/4200 measuring devices in SIMATIC PCS 7 V8.2 SP1 and V9.0 SP1 and SP2 (1x required for each SIMATIC PCS 7 operator station in single station / server version), comprising: • Engineering license for a SIMATIC PCS 7 operator station in single station/server version • Runtime license for one automation system (1x required for each automation system, additional AS Runtime licenses can be ordered separately) Engineering and runtime software, software class A, 2 languages (German, English), single license for one installation Type of delivery: software and electronic documentation on CD, engineering and runtime licenses as Certificate of License	**3ZS2787-1CC30-0YG0**
AS runtime license for LIBRARY PAC/3WL/3VA SIMATIC PCS 7 For each automation system Runtime software, software class A, 2 languages (English, German), single license for one installation Type of delivery: runtime license as Certificate of License without software or documentation	**3ZS2787-1CC30-6YH0**



Overview



DMZ network

Overview (continued)

The availability and security of production plants is of great importance in industrial environments. Integration of the process control system into the corporate network increases the risk of damage by viruses or malware.

In order to avoid production failures and downtimes, data traffic between the networks must be checked, analyzed and selectively approved without impairing the function of the process control system. Only in this way is it possible to provide optimum protection for the plant without impairing productivity. Firewalls with supplementary services are most appropriate for this.

The Automation Firewall from Siemens is a tested and validated standard firewall available in two performance classes (Automation Firewall 200 and 1000). It has been tuned for use with SIMATIC PCS 7 and WinCC.

The Automation Firewall works excellently with SIMATIC NET communication products. It features comprehensive hardware and software functions for SIMATIC PCS 7 and WinCC projects, e.g.:

- Stateful Inspection packet filter
- Application layer firewall
- VPN gateway
- Intrusion Detection System (based on Suricata IDS)
- Web proxy
- Industrial Wizard

The value of the Automation Firewall is increased even further by integrated services, e.g.:

- Hotline support
- Replacement service
- Software Update Service

Depending on the plant configuration and size, the Automation Firewall is preferably used as:

- Three-homed firewall for small to medium-sized plants with minimal perimeter network
- Front and back firewall for maximum protection in larger plants with extensive perimeter network

Note:

Use of the Automation Firewall 200 or 1000 is independent of the version of the SIMATIC PCS 7 process control system on which the process control installation is based.

Design

Automation Firewall 200/1000

Automation Firewall 200 and 1000 differ as follows:

Type	Automation Firewall 200	Automation Firewall 1000
		
Position	Entry-level variants for small systems, SecureGUARD Communication Gateway license	QuadCore variants for medium-sized and large systems, SecureGUARD Communication Gateway license
Form factor	19", 1 HM	19", 1 HM
Drives	1 × SATA SSD	2 × SATA SSD RAID1
Ethernet interfaces	4 × 10/100/1000 NIC	4 × 10/100/1000 NIC
Suitable for:		
• Data volume	Low	Medium to large
• Frequency of data transfer	Sporadic	Continuous
• Additional utilities supported	WSUS, antivirus server in the perimeter network	WSUS, Antivirus server, Data Historian, Web server, OPC server in the perimeter network

Additional services

- Perimeter Firewall installation
  - Planning and implementation of firewall configuration
  - Integration and startup
  - Preparation of customer documentation
- Perimeter Firewall Management
  - Continuous monitoring of functionality and up-to-dateness of firewall solution
  - Services for signaling critical statuses in the system network
  - Monthly reporting on security and system status
  - Customer-specific update of the firewall configuration
- Customer-specific firewall solutions for special requirements

Ordering data

	Article No.
Perimeter firewall installation Service for planning and implementation of firewall configuration, integration and commissioning, preparation of customer documentation Note: Additional travel times and costs will be charged for on-site visits.	**9AS1433-1AA11-1AB3**
Customized firewall solutions	On request

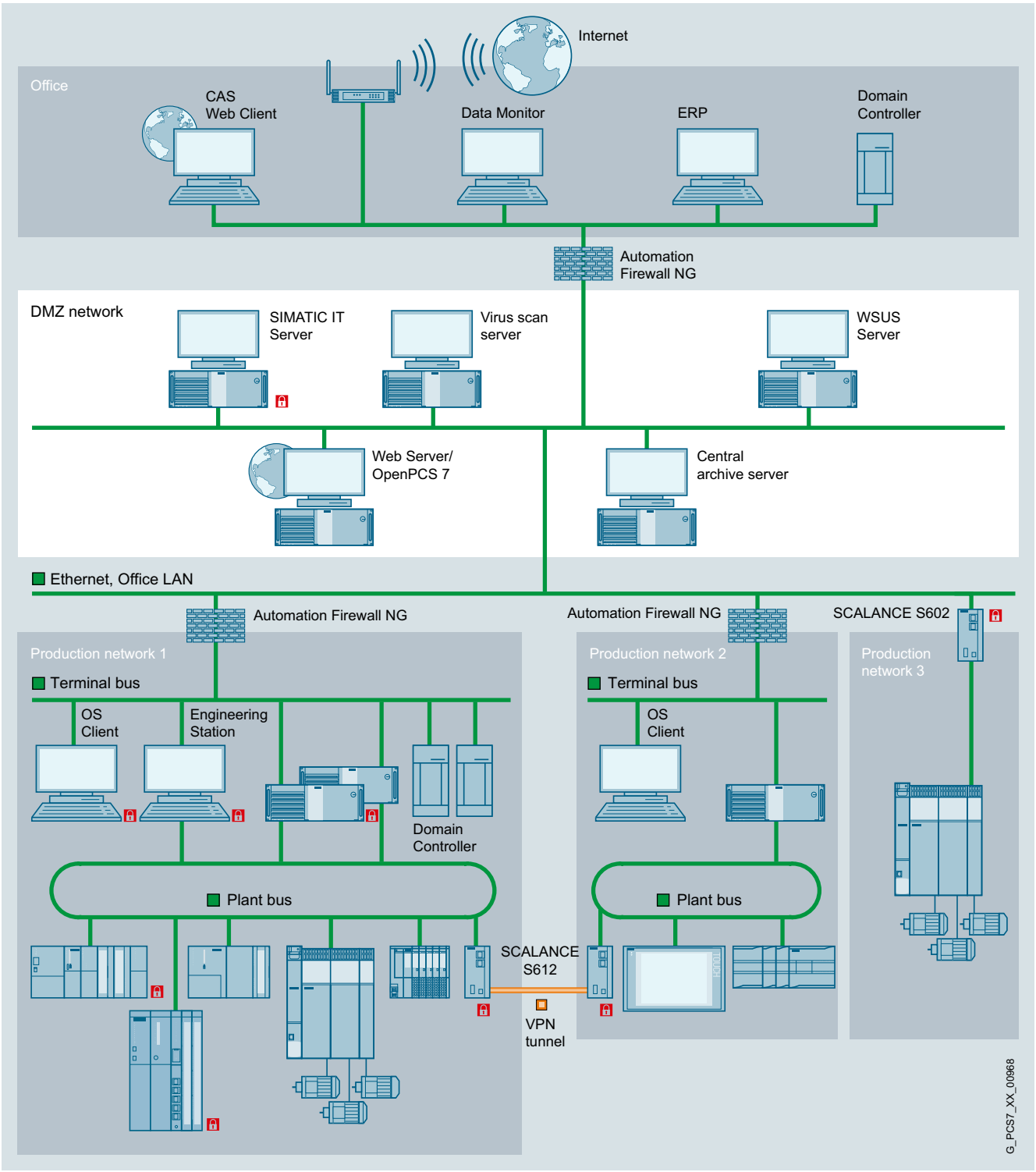
More information

Support in selecting the firewall as well as information on integrated and additional services

Customer Service

E-mail: industrialsecurity.i@siemens.com

Overview



Automation Firewall NG

Overview (continued)

The availability and security of production plants is of great importance in industrial environments. Integration of the process control system into the corporate network increases the risk of damage by viruses or malware.

In order to avoid production failures and downtimes, data traffic between the networks must be checked, analyzed and selectively approved without impairing the function of the process control system. Only in this way is it possible to provide optimum protection for the plant without impairing productivity. Firewalls with supplementary services are most appropriate for this.

The Automation Firewall NG from Siemens is a tested and validated standard firewall available in three performance classes (220, 820, and 850). It has been tuned for use with SIMATIC PCS 7 and WinCC.

The Automation Firewall NG works excellently with SIMATIC NET communication products. It features comprehensive hardware and software functions for SIMATIC PCS 7 and WinCC projects, e.g.:

- Application layer / Stateful Inspection Firewall
- IPSec VPN gateway
- Intrusion detection system
- Antivirus (optional add-on)
- Based on Palo Alto Networks Next-Generation Firewalls
- Palo Alto Networks is the "Gartner Magic Quadrant Leader" for Enterprise Network Firewalls for the eighth time in succession
- Threat prevention (additional order necessary)
- Advanced malware protection (additional WildFire order necessary)
- File and data filtering
- Protection against known and unknown threats
- High availability (active/active and active/passive)
- Redundant power supply for increased availability (PA-220 and PA-850)
- Fanless design (PA-220)

The Palo Alto Networks firewall has multiple advantages compared with conventional firewalls, e.g.:

- Excellent price/performance ratio
- Robust operating system (PanOS based on Linux)
- Hardware-based (instead of software)
- Secure system architecture
- The NGFW device consists of a dedicated management level and a data control level which ensure that handling is not impaired by the network load.
- Firmware (bundle comprising OS and FW software: one update for both)
- Detects Layer 7 traffic, e.g. an S7 protocol (detects: start, stop, read, write)
- Numerous application protocols are recognized within the box – making time savings possible

Depending on the plant configuration and size, the Automation Firewall NG is the preferred choice for:

- Three-homed firewalls for small to medium-sized plants with minimal perimeter networks
- Front and back firewalls for maximum protection in larger plants with extensive perimeter networks

Design

Automation Firewall NG

The three Palo Alto Networks Firewall models 220, 820 and 850 offered as Automation Firewall NGs differ as follows:

Type	PA-220	PA-820	PA-850
			
Firewall data throughput	500 Mbps	940 Mbps	1.9 Gbps
Applications	Small automation networks with copper interfaces only (8 × copper)	Medium-sized automation networks with a small number of copper interfaces (4 + x SFPs), additional (glass-fiber) SFPs option	Large automation networks with a small number of copper interfaces (4 + x SFPs), additional (glass-fiber) SFPs option
Onboard interfaces (copper)	(8) 10/100/1 000	(4) 10/100/1 000	(4) 10/100/1 000
Optional interfaces (SFPs)	–	(8) SFP	(4/8) SFP, (0/4) 10 SFP+
Redundant power supply	Yes	No	Yes
Dimensions in inches (H×D×W)	1.62"H × 6.29"D × 8.07"W	1U, 19" standard rack (1.75"H x 14"D x 17.125"W)	1U, 19" standard rack (1.75"H x 14.5"D x 17.125"W)
Dimensions in cm (H×D×W)	4.11H × 15.98 D × 20.50 W	1U, 19" standard rack (4.45 H x 35.56 D x 43.50 W)	1U, 19" standard rack (4.45 H x 36.83 D x 43.50 D)

Design (continued)

Additional services

Perimeter firewall installation (9AS1433-1AA11-1AB3):

- Check of architecture and plant network design
- Creation of a perimeter firewall concepts together with the customer: Definition of IDS settings, selected system solutions (deployment model), alarm settings, communication matrix and other firewall-specific settings
- Installation and configuration of the perimeter firewall with 1:1 implementation of the present firewall rules and those implemented on the previous plant perimeter firewall (alternatively: development of a maximum of 40 new firewall rules where firewall is not to be replaced)
- Check of data and management connectivity if required (remote connection is via cRSP, which must be purchased separately)
- Perimeter firewall communication test
- Detailed final report on the installation of a plant perimeter firewall

Ordering data

	Article No.
Palo Alto 220 NGFW	**9AS1424-2AA22-1AA1**
Palo Alto 220 Premium Support, 3 years	**9AS1424-2AA22-1BA1**
Palo Alto 220 Premium Support, 5 years	**9AS1424-2AA22-1BB1**
Palo Alto 820 NGFW	**9AS1424-2AA82-1AA1**
Palo Alto 820 Premium Support, 3 years	**9AS1424-2AA82-1BA1**
Palo Alto 820 Premium Support, 5 years	**9AS1424-2AA82-1BB1**
Palo Alto 850 NGFW	**9AS1424-2AA85-1AA1**
Palo Alto 850 Premium Support, 3 years	**9AS1424-2AA85-1BA1**
Palo Alto 850 Premium Support, 5 years	**9AS1424-2AA85-1BB1**

More information

Support in selecting the firewall as well as information on integrated and additional services

Customer Service

Email: industrialsecurity.i@siemens.com

Notes

1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for installation work the "General Conditions for Erection Works – Germany"[1] ("Allgemeine Montagebedingungen – Deutschland" (currently only available in German)) and/or
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"[1] and/or
- for consulting services the "General Terms and Conditions for Consulting Services of the Division DF – Germany"[1] and/or
- for other supplies and/or services the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1].
  In case such supplies and/or services should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1], a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside Germany

For customers with a seat or registered office outside Germany, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for services the "International Terms & Conditions for Services"[1] supplemented by "Software Licensing Conditions"[1] and/or
- for consulting services the "General Terms and Conditions for Consulting Services of the Division DF – Germany"[1] and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"[1] supplemented by "Software Licensing Conditions"[1]

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

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The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

[1] The text of the Terms and Conditions of Siemens AG can be downloaded at
https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

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If required for the purpose of conducting export control checks, you (upon request by us) shall promptly provide us with all information pertaining to the particular end customer, final disposition and intended use of goods delivered by us respectively works and services provided by us, as well as to any export control restrictions existing in this relation.

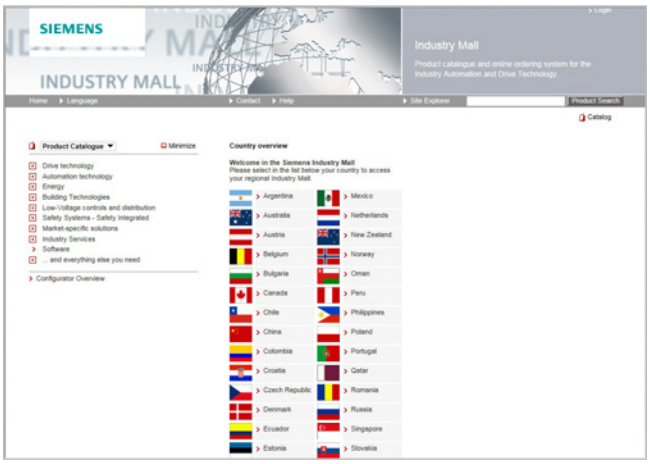
The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

Appendix

Notes

Easy product selection and ordering: Industry Mall



Industry Mall

The Industry Mall is a Siemens AG Internet ordering platform. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAx data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

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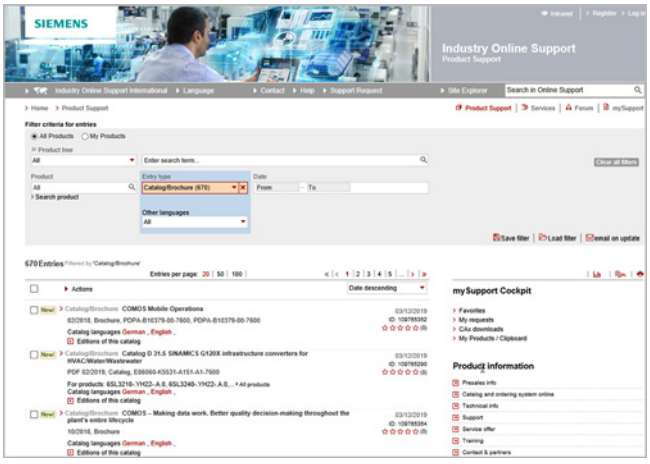

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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit
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Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

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