SIEMENS

Options for Accessing Documentation 1

Documentation for the Planning Phase 2

Documentation for the Realization Phase 3

Documentation on commissioning, operation, diagnostics and servicing 4

SIMATIC

Process Control System PCS 7 PCS 7 Documentation (V8.0)

Catalog Overview

03/2012
A5E03754551-02

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE

indicates that an unintended result or situation can occur if the relevant information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens AG
Industry Sector
Postfach 48 48
90026 NÜRNBERG
GERMANY

A5E03754551-02
℗ 05/2012 Technical data subject to change

Table of contents

1 Options for Accessing Documentation....5
2 Documentation for the Planning Phase....7
3 Documentation for the Realization Phase....9
4 Documentation on commissioning, operation, diagnostics and servicing....13
Index....15

Options for Accessing Documentation

1

Documentation for your support

This documentation gives you an overview of the most important documents available for PCS 7 in addition to this manual.

Types of documentation

We distinguish between the following types of documentation:

- **PCS 7 product documentation**
  This contains documentation for special hardware and software components providing detailed information on this product.
- **PCS 7 system documentation**
  This includes configuration manuals and Getting Started tutorials across the complete system which explain the interaction between the individual hardware and software components.

Note

Setup program for the documentation and the PCS 7 help system

On the Internet you can find a separate setup program for PCS 7 documentation and the PCS 7 help system for download.

Options for accessing PCS 7 documentation

Note

PCS 7 Readme

The information given in the *PCS 7 Readme* on the Internet takes precedence over all the PCS 7 manuals. Please read this *PCS 7 Readme* carefully; it contains important information and amendments on PCS 7.

- The *PCS 7 Readme* on the *Process Control System; SIMATIC PCS 7* DVD contains important information regarding PCS 7 and takes precedence over the PCS 7 documentation supplied.
- After installation of PCS 7, you can find documents such as Process Control System *PCS 7; PCS 7 Readme* and *What's New in PCS 7?* via the submenu **SIMATIC > Product Information > <Language>**.

Basic documents in this documentation

The basic documents in the PCS 7 documentation may be found at the following locations:

- On the *SIMATIC PCS 7* DVD in the "_Manuals" folder.
- On the Engineering Station as online help (CHM file) for the SIMATIC Manager application.
- On the Engineering Station as a PDF file in the **SIMATIC** and **Documentation** submenus of the Windows Start menu.

Current version of the documentation

As of PCS 7 V8.0, you receive basic PCS 7 system documentation with the *Process Control System; SIMATIC PCS 7* DVD.

The PCS 7 Internet site www.siemens.com/pcs7-documentation (www.siemens.com/pcs7-documentation) provides convenient access to the complete PCS 7 documentation. You can find the following for the latest PCS 7 versions:

- **In the section "Hardware manuals for SIMATIC PCS 7 ..."**
  - The manuals for components approved for a PCS 7 version
- **In the section "Software manuals for SIMATIC PCS 7 ..."**
  - The complete system documentation
  - The separate setup program for PCS 7 documentation and the PCS 7 help system for download. After the installation of the setup program, you will find the documentation at the following locations on the Engineering Station:
    - As online help (CHM file) for the SIMATIC Manager application
    - As a PDF file in the Windows Start menu with the SIMATIC documentation
  - The complete documentation for PCS 7 as a *Manual Collection*

In the following

Since the full documentation of PCS 7 is extremely wide-ranging, you will find a guideline in the following sections that will help you to find the information you require during various phases:

- Documentation for the Planning Phase (Page 7)
- Documentation for the Realization Phase (Page 9)
- Documentation on commissioning, operation, diagnostics and servicing (Page 13)

Documentation for the Planning Phase 2

Overview

You can find the following PCS 7 documentation in the table below:

- Documentation providing an overview of the systems and components for PCS 7
- Documentation providing support for planning your PCS 7 plant

Documentation	Content
Information about the range of services	
Catalog ST PCS 7	Ordering information and prices for all hardware and software components you may require for automating a PCS 7 plant
Catalog ST PCS 7.1	Ordering information and prices for SIMATIC PCS 7 add-ons that can be integrated in your PCS 7 plant to create a total solution
Interactive catalog CA 01	Catalog ST PCS 7 in electronic form
PCS 7 brochures	An introduction to the principles of communication and range of features in SIMATIC PCS 7; shows the technical possibilities and the suitable features for fulfilling your automation requirements.
Getting Started *PCS 7 - First Steps*	Uses a simple example project to show you the fundamental procedures and the interaction of the software components of SIMATIC PCS 7 during engineering and runtime. Time required for tutorial: approx. 1 hour
Specifying the components and the systems for the PCS 7 plant	
Configuration manual *PCS 7 Engineering System* (Basic documentation)	Section "Engineering system": • Capacity options in configuring a PCS 7 plant • Selecting the network components • Selecting PC components for engineering and operator control and monitoring • Selecting AS components • Selecting I/O components • Preparations for efficient engineering
Manual *PCS 7 PC configuration and authorization* (Basic documentation)	Comprehensive overview of PC configurations for engineering and operator control and monitoring: • Areas of application for the various PC configurations • Design and configuration of the PC networks • Required hardware and software for the PC components • Installation instructions and settings for the operating system • Installation instructions and settings for PCS 7

Documentation	Content
Whitepaper *Security Concept PCS 7 and WinCC*	Guide for network administrators for planning and installation of securely networked PCS 7 plants with connected PCS 7 Web clients, SIMATIC IT applications and customer-specific office networks: • Planning security cells and access points • Managing computers and users • Managing user permissions and access rights in PCS 7 and integration in the Windows management • Implementing patch management • Secure network access to security cells
List *PCS 7 - Enabled modules*	List of modules released for PCS 7 versions
Function manual *PCS 7 Time Synchronization*	Support for planning time synchronization in a PCS 7 plant

Documentation for the Realization Phase 3

Overview

You can find the following PCS 7 documentation in the table below:

- Documentation providing support for installing the PCS 7 software
- Documentation providing support for configuring the wiring of the hardware
- Documentation explaining the basic concept of engineering with PCS 7
- Documentation which helps you to fully configure your PCS 7 plant

Documentation	Content
Installation	
PCS 7 readme	Latest information with information about installation and using PCS 7 software
PCS 7 What's new?	Compact summary of the new or changed features in PCS 7 in comparison to previous versions
Manual *PCS 7 PC configuration and authorizations* (Basic documentation)	Comprehensive overview of PC configurations for engineering and operator control and monitoring: • Which PC configuration can be used for specific purposes? • How can the PC network be designed and configured? • Which software and hardware are needed for specific PC components? • Installation instructions and settings for the operating system and PCS 7 software
Whitepaper *Security Concept PCS 7 and WinCC*	Guide for network administrators for planning and installation of securely networked PCS 7 plants with connected PCS 7 Web clients, SIMATIC IT applications and customer-specific office networks: • Planning security cells and access points • Managing computers and users • Managing user permissions and access rights in PCS 7 and integration in the Windows management • Implementing patch management • Secure network access to security cells
Assembling components and systems	
Configuration manual *PCS 7 Engineering System* (Basic documentation)	In the section "Configuration of PCS 7 Plants": • Basic configurations of a PCS 7 plant • Guide to the Installation Instructions for the Products • Special considerations, differences between PCS 7 and specifications in the product installation instructions • Rules for plant changes in runtime (CiR) • Installation Guidelines for PCS 7: EMC and lightning protection
Function manual *Time synchronization*	Instructions for configuration and parameter assignment of time synchronization

Documentation	Content
Manuals for the automation system S7-400H/FH	• Instructions for configuring automation systems • Memory concept and startup scenarios • Cycle and reaction times • Technical specifications • Operation lists
Manuals for S7-300 I/O Modules	• Manual for hardware configuration and parameter assignment of components • Technical specifications
Manuals on CPs and FMs (S7-400, S7-300)	• Manual for hardware configuration and parameter assignment of components • Technical specifications
Manuals for ET 200 components • ET 200M • ET 200S • ET 200iSP • ET 200pro	• Manual for hardware configuration and parameter assignment of components • Technical specifications
Manuals for additional DP components: • Diagnostic repeaters • DP/PA-Link • FF Link • Y-Link • DP/AS-i-Link	• Manual for hardware configuration and parameter assignment of components • Technical specifications
Manuals for industrial networks, e.g: • Industrial Ethernet • PROFIBUS • PROFINET	• Topologies and network configuration • Configuration of the communication
Manuals for SIMATIC NET components: CPs for Industrial Ethernet and PROFIBUS, SCALANCE X, OSM/ESM ...	• Topologies and network configuration • Installation instructions • Technical specifications
Engineering	
Getting Started *PCS 7 - Part 1*	Introduction to the basic functions of PCS 7 based on the PCS 7 example project "COLOR". It contains the most important background information required to understand the individual engineering tasks and detailed instructions for step-by-step post-configuration. On completion of configuration, the OS can be put into process mode. We recommend working through this Getting Started tutorial **before** beginning work with the *PCS 7 Engineering System* configuration manual. Time required for tutorial: approx. 16 hours
Getting Started *PCS 7 - Part 2*	Introduction to using the Efficient Engineering functions in PCS 7. The basis for this is the PCS 7 "COLOR" project in Getting Started PCS 7 - Part 1. We recommend working through this Getting Started tutorial if you plan to configure large PCS 7 plants with a large number of process tags. Time required for tutorial: approx. 16 hours

Documentation	Content
SIMATIC BATCH Getting Started	Introduction of the basic functions of SIMATIC BATCH. It contains the most important background information required to understand the individual engineering tasks and detailed instructions for step-by-step post-configuration. Once configuration has been completed, you can start the process mode. It is advisable to study this Getting Started **before** you work with SIMATIC BATCH.
PCS 7 manual *Software Update without Utilization of the New Functions*	Step-by step instructions for migrating your PCS 7 project from PCS 7 V7.1 SP3 to V8.0, without subsequent utilization of new PCS 7 functions.
PCS 7 manual *Software Update without Utilization of New Functions*	Step-by-step instructions for migrating your PCS 7 project from PCS 7 V7.1 SP3 to V8.0, with subsequent utilization of new PCS 7 functions.
Configuration manual *PCS 7 Engineering System* (Basic documentation)	Sections for configuring the engineering system: • Basic concepts of engineering • Configuration of the engineering system • Implementing the PCS 7 configuration • Compiling, downloading, testing, archiving and documenting project data
Configuration manual *PCS 7 Operator Station* (Basic documentation)	Complete information about configuring the operator station and the HMI system of PCS 7: • Configuring OS data • Creating process pictures • Settings in the alarm system • Options for archiving • Downloading a project and configuration changes • Time synchronization and lifebeat monitoring • Using server-server communication
Manual *PCS 7 Maintenance Station*	Using diagnostic functions (maintenance station)
Manual *PCS 7 Web Option for OS*	Using PCS 7 Web Server and PCS 7 Web Client
Manual *SIMATIC PCS 7/SIMATIC IT Integration Manual*	Information for a better understanding of the integration of MES functions in PCS 7 with SIMATIC IT: • Basics of SIMATIC IT and PCS 7 • Implementing the ISA-95/ISA-88 standards • Integration of SIMATIC IT Historian and SIMATIC BATCH • Data management in SIMATIC IT and PCS 7 • Functionality and data communication and data flow • Configuration procedure based on an example project
Operating manual *PCS 7 SIMATIC BATCH*	Complete information about configuring the BATCH station, the system for automating batch processes: • Technological basis according to ISA-88.01 • Configuring batch plant data • Creating recipes • Planning and controlling batches • Managing and archiving batch data

Documentation	Content
Manual *PCS 7 SIMATIC Route Control*	Complete information about configuring the route control station, the system for controlling routes: • Creating the program for route control • Functions of the block library • Configuring materials and transport routes
Function manual *PCS 7 Fault-tolerant Process Control Systems*	Description of the solution concepts, function mechanisms and most important configurations for installing fault-tolerant systems with PCS 7. It will show you the fault-tolerant solutions at all levels of automation (control level, process level, field level).
Function manual *PCS 7 High-precision Stamping*	Comprehensive overview of required components, the interaction among the components and their configuration for using high-precision time stamps
Function manual *PCS 7 Time Synchronization*	Comprehensive overview of required components, the interaction among the components, and their configuration for using time synchronization.
Manual *PCS 7 Basis Library*	Driver and diagnostic blocks Description of methods of operation, block I/Os and input/output fields of the respective faceplates
Manual *PCS 7 Advanced Process Library*	Process automation blocks - expandable Description of methods of operation, block I/Os and input/output fields of the respective faceplates
Manual *PCS 7 Programming for Instructions for Blocks*	Explanation of how AS blocks and faceplates conforming to PCS 7 can be created to achieve the following: • Monitor parameter values through a faceplate • Control parameter values and therefore the reactions of blocks through a faceplate • Report asynchronously occurring events and block states on the OS and display them in a faceplate or a WinCC message list
Manual *PCS 7 Programming for Instructions for Blocks*	Information, design guidelines and rules for adapting project-specific blocks to the "Standard Library".
Manual *Programming ManualAPL Styleguide*	Information, design guidelines and rules for adapting project-specific blocks to the "Advanced Process Library". (separately ordered)
Manuals for the individual engineering tools: CFC, SFC, STEP 7, SFC visualization, PDM, WinCC, LT options, SCL, DOCPRO	• Basics of the engineering tool • Working with the engineering tool • Testing and commissioning the engineering tool
Readme and *What's new* for the individual engineering tools: CFC, SFC, STEP 7, SFC visualization, PDM, SCL, DOCPRO	• Latest information with notes about installation of the engineering tool • Compact summary of the new or changed features in comparison to previous versions
PCS 7-in_Practice; Foundation Fieldbus documentation	Description of the solution concepts, functional mechanisms and most important configurations for the integration of devices on a Foundation Fieldbus in PCS 7.

Documentation on commissioning, operation, diagnostics and servicing

4

Overview

You can find the following PCS°7 documentation in the table below:

- Documentation providing support for commissioning and operating in process mode
- Documentation providing support for performing servicing

Documentation	Content
Process mode	
Manual *PCS 7 OS Process Control* (Basic documentation)	Graphical user interface and operator input at the PCS 7 OS in process mode: • Message system • Trend system • Group display • Operator process control
Manual *PCS 7 Web Option for OS*	Working with PCS 7 Web Client/PCS 7 Web Diagnose Client
Manual *PCS 7 Maintenance Station*	Using diagnostic functions (maintenance station)
Operating manual *PCS 7 SIMATIC BATCH*	• Batch control • Managing and archiving batch data
Manual *PCS 7 SIMATIC Route Control*	• Route control • Managing and logging routes
Manual *PCS 7 Service Support and Diagnostics*	This documentation is aimed at trained service personnel (Service Level 1): PCS 7 users and SIMATIC S7 specialists This manual contains the information to support you in the following tasks: • Ensuring the availability of your PCS 7 plant • Understanding the alarm concept of your PCS 7 plant • Finding the right diagnostic tools when a fault occurs • Using the right procedure when a fault occurs and providing qualified, detailed information about the state of the PCS 7 plant to service experts
Manuals for the automation system S7-400H/FH	• Commissioning • Maintenance
Manuals on CPs and FMs (S7-400, S7-300)	• Diagnostics
Manuals for ET 200 components • ET 200M • ET 200S • ET 200iSP • ET 200pro	• Commissioning • Diagnostics • Maintenance

Documentation	Content
Manuals for additional DP components: • Diagnostic repeaters, • PA Link • Y-Link • FF Link • DP/AS-i-Link	• Commissioning • Diagnostics
Manual *Programming with STEP 7*	Hardware diagnostics and troubleshooting

Index

Basic documentation, 7, 9, 11, 13

C

Commissioning
    Documentation, 13

D

Diagnostics
    Documentation, 13
Documentation
    Access options, 5
    Commissioning, 13
    Diagnostics, 13
    for planning and configuration, 5
    Operation, 13
    Planning phase, 7
    Realization phase, 9
    Service, 13

O

Operation
    Documentation, 13

P

Planning phase
    Documentation, 7

R

Realization phase
    Documentation, 9

S

Service
    Documentation, 13