

SIMATIC

Process Control System PCS 7 Licenses and quantity structures (V8.0 SP1)

Installation Manual

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keys

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Valid for PCS 7 as of V8.0 SP1

Legal information

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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
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 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

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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.

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Preface

Purpose of this documentation

This documentation describes the licensing for the process control system PCS 7.

The following topics are described:

- Selecting the correct licenses, referred to as license keys, for different PCS 7 software products.
- PCS 7 software packages and the required license keys.

Options for accessing PCS 7 documentation

Note

PCS 7 Readme

The information in the *PCS 7 Readme* in the Internet takes precedence over all the PCS 7 manuals. Read this *PCS 7 Readme* carefully; it contains important information and amendments to PCS 7.

- The *PCS 7 Readme* on the *Process Control System; SIMATIC PCS 7* DVD contains important information about PCS 7 and takes precedence over the supplied PCS 7 documentation.
 - After installation of PCS 7, you will find the document *Process Control System PCS 7; PCS 7 Readme* in 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 points:

- 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 current 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 can 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*

Required basic knowledge

General knowledge in the area of automation engineering and basic knowledge of PCS 7 is required to understand this documentation. It is also assumed that the reader knows how to use computers or other equipment similar to PCs (such as programming devices) with the Windows operating system.

Selecting the correct license keys

Introduction

The **configurable** size of a PCS 7 plant is scalable. The software product licenses for engineering station, operator station, SIMATIC BATCH station, route control station and SIMATIC PDM are licensed as follows:

- Basic license depends on the version and activates the functionality, e.g. redundant OS server
- License for the scalable size; has the "Count Relevant License" type and determines the quantity structure of this functionality, for example, OS runtime 1000 PO
With licenses of the type "Count Relevant License", you can install several license keys whose licensed values are then added up.

Process object

The following applies to licensing of the "PO" process objects in SIMATIC PCS 7:

The following are counted as PCS 7 process object:

- all SFC
- all block instances that meet the following criteria:
 - they can be operated and monitored.
 - they generate alarms.
 - they are not components of the driver library.

These are the objects that are transferred to the OS and require licenses.

A block with operator control and monitoring has the attribute "S7_m_c = true" in the CFC block properties.

A process object can include the following blocks and objects:

- Blocks for operating and monitoring a system
- Objects for automation
- Objects for signal recording and signal processing

You can find additional information on process objects in the manual *Process Control System PCS 7; Engineering System*, for example in the section "Counting and booking of process object licenses".

Levels of licenses

The following table shows the available system size increments (for each component of the process control system).

Component of process control system	Levels of licenses		Comment
Engineering system (ES)	Loading of SIMATIC stations	PO: • 100 • 250 • 600 • 2000	• "AS RT PO" license key • Required for download to the AS, but not for test or S7 PLC Simulation. • Only required once in the case of redundant systems.
Operator station (OS)	PO: • 100 • 250 • 1000 • 2000 • 5000		• "OS RT PO" license key • Single station system: maximum 5000 PO • OS server: Maximum 8500 PO per OS server • Maximum number of PO = 60000; For 12 servers, however, maximum 5000 PO per OS server.
Archiving with central archive server and OS server	Archive values: • 1500 • 5000 • 10000 • 30000		• You can archive a maximum of 1,000 archive values per second with an OS server/OS single-station system. • You can archive a maximum of 12,000 archive values per second with a central archive server.
Process Historian	Archive values: • 1500 • 5000 • 10000 • 30000		Archive values from redundant data sources are counted as only one tag each.
Information Server	Clients: • 1 • 3 • 5 • 10		A license is required for each active client connection. A client is any installed plug-in for Microsoft Excel or Word as well as the client of the web application. Client licenses are counted per PC, not per client application. This means only one license is required even if more than one report client of a PC is connected with the information server.
Information Server	Data source access: • 1 • 3		• Number of OS servers per Information Server A redundant OS server is counted as one OS server. • The licenses are required if the Information Server directly accesses the OS server (without Process Historian).
Maintenance Station (MS)	Asset tags (hardware components): • 100 • 200 • 1000		Number of monitored hardware components within a PCS 7 project.
PCS 7 OS Web Option	Web clients: • 1 • 5 • 10		• Number of Web clients per Web server • max. 50 Web clients per PCS 7 project

Component of process control system	Levels of licenses	Comment
BATCH stations (batch processes)	Units: • 1 • 10 • 50	Number of units within a PCS 7 project.
Route Control Station (Route Control)	Routes: • 10 • 50	Number of activated routes in process mode (material transports)
PDM	Number of devices: • 10 • 100 • 1000	Number of configurable devices
SIMATIC Management Console	Assigned PC stations • 10 • 50 • 100	Number of managed computers

See also

Software and license keys for configuration with PCS 7 (Page 11)

Software and license keys for a single-station system with configuration (Page 13)

Software and license keys for Operator Stations (Page 15)

Software and license keys for BATCH Stations (Page 18)

Software and license keys for Route Control Stations (Page 20)

Software and license keys for the SIMATIC Management Console (Page 21)

Licensing of PC stations

3.1 Software and license keys for configuration with PCS 7

Overview

The following tables show the software packages and the required license keys for the engineering station of PCS 7:

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

You can learn about the versions for the current program package on the *Process Control System; SIMATIC PCS 7* DVD in the *Process Control System PCS 7; PCS 7 Readme* file.

Engineering station

Designation	License key	Optional	Comment
AS/OS engineering	AS Engineering OS Engineering		
Runtime license AS	AS RT PO		Only required for download
BATCH Engineering	-	X	
Route Control Engineering	Route Control Engineering	X	
Maintenance Station Engineering	Maintenance ES	X	
PDM	PDM Basic PDM Integration in STEP 7 PDM Routing PDM Extended	X	
PDM Tags	PDM TAG	X	Count relevant license
S7 PLC Simulation	S7-PLCSIM	X	
Version Trail	Version Trail	X	
Version Cross Manager	Version Cross Manager	X	
Import/Export Assistant	IEA	X	

3.1 Software and license keys for configuration with PCS 7

Designation	License key	Optional	Comment
Advanced Engineering System	AdvancedES	X	
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1. + 2.) alternative (3.) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

3.2 Software and license keys for a single-station system with configuration

Overview

The following tables show the software packages and the required license keys for a single-station system in PCS 7 with configuration.

- The single-station system includes the engineering station and the operator station (single-station system) as basic functions.
- The following can be installed as optional functions, for example:
 - BATCH station (single-station system)
 - Route Control (single-station system)
 - Maintenance Station (single-station system)
 - PDM

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

You can learn about the versions for the current program package on the *Process Control System; SIMATIC PCS 7* DVD in the *Process Control System PCS 7; PCS 7 Readme* file.

Single-station system

Designation	License key	Optional	Comment
AS/OS engineering	AS Engineering OS Engineering		
Runtime license AS	AS RT PO		Only required for download Count relevant license
OS software single station	OS Single Station Basic		
Runtime License OS	OS RT PO		max. 2000 PO Count relevant license
OS/PH archive	WinCC Archive	X	Count relevant license
BATCH single-station package	BATCH Single Station User BATCH Single Station System	X	
BATCH units	BATCH Units	X	Count relevant license
Route Control Engineering	Route Control Engineering	X	
Route Control server	Route Control Server	X	restricted to 30 routes; max. 300 simultaneous material transfer operations
Route Control Center	Route Control Center	X	Licensing for RC client
Route Control routes	Route Control Routes	X	Count relevant license

3.2 Software and license keys for a single-station system with configuration

Designation	License key	Optional	Comment
Maintenance Station Engineering	Maintenance ES	X	
Maintenance Station Runtime Basic Package	Maintenance RT	X	Count relevant license
PDM	PDM Basic PDM Integration in STEP 7 PDM Routing PDM Extended	X	
PDM Tags	PDM TAG	X	Count relevant license
S7 PLC Simulation	S7-PLCSIM	X	
Version Trail	Version Trail	X	
Import/Export Assistant	IEA	X	
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1. + 2.) alternative (3.) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

3.3 Software and license keys for Operator Stations

Overview

The following tables show the software packages and the required license keys for the following PC stations of PCS 7:

- Operator station (single-station system / redundant single-station system)
- Operation Station server / redundant server
- Operator station client

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

You can learn about the versions for the current program package on the *Process Control System; SIMATIC PCS 7* DVD in the *Process Control System PCS 7; PCS 7 Readme* file.

OS single-station system/redundant single-station system

Designation	License key	Optional	Comment
OS software single station	OS Single Station Basic		Not required for non-redundant OS
OS software single station redundancy	OS Single Station Redundancy		In the case of a redundant OS: Alternative license key to "OS Single Station Basic" license key
Runtime License OS	OS RT PO		max. 5000 PO Count relevant license
OS/PH archive	WinCC Archive	X	Count relevant license
StoragePlus	OS StoragePlus	X	
OpenPCS 7 for connecting to the local OPC server	OpenPCS 7 Station / OS or OpenPCS 7 Station	X	License key only (without software installation) required.
Web server	1. OS Web Server Basic 2. OS Web Server	X	1. Web server and Web diagnostics server are used alternately. 2. License key for number of Web clients

3.3 Software and license keys for Operator Stations

Designation	License key	Optional	Comment
Web diagnostics server Web diagnostics client	WebDiagnose Server WebDiagnose Client	X	Web server and Web diagnostics server are used alternately.
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1st + 2nd) alternative (3rd) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

OS server / redundant server

Designation	License key	Optional	Comment
OS software server	OS Server		Not required for non-redundant OS
OS software server redundancy	OS Server Redundancy		In the case of a redundant OS: Alternative license key to "OS Server" license key
Runtime License OS	OS RT PO		max. 8500 PO Count relevant license
OS/PH archive	WinCC Archive	X	Count relevant license
StoragePlus	OS StoragePlus	X	Required when using a central archive server (CAS)
Information Server	Information Server		Required for when using an Information Server
Information Server	Information Server - Client Access	X	Count relevant license
Information Server	Information Server - Datasource Access	X	Count relevant license
BATCH server	BATCH Server	X	
BATCH units	BATCH Units	X	Count relevant license
Route Control server	Route Control Server	X	restricted to 30 routes; max. 300 simultaneous material transfer operations
Route Control routes	Route Control Routes	X	Count relevant license
OpenPCS 7 for connecting to the local OPC server	OpenPCS 7 Station / OS	X	License key only (without software installation) required. Software installation only necessary for connecting to all OS servers.

3.3 Software and license keys for Operator Stations

Designation	License key	Optional	Comment
Maintenance Station Runtime Basic Package	Maintenance RT	X	Count relevant license
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1st + 2nd) alternative (3rd) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

OS client

Designation	License key	Optional	Comment
OS software client	OS Client		
Web server	1. OS Web Server Basic 2. OS Web Server	X	1. Web server and Web diagnostics server are used alternately. 2. License key for number of Web clients
Web diagnostics server Web diagnostics client	WebDiagnose Server WebDiagnose Client	X	Web server and Web diagnostics server are used alternately.
BATCH client	BATCH Client	X	
Route Control Center	Route Control Center	X	The license for RC client is either located directly on the client or, alternatively, on the ES.
SFC visualization	SFC Visualization	X	
OpenPCS 7 (OS client)	OpenPCS 7 Station / OS	X	

3.4 Software and license keys for BATCH Stations

Overview

The following tables show the software packages and the required license keys for the following PC stations of PCS 7:

- BATCH server/BATCH redundant server
- BATCH Client

Additional information on the single-station system for BATCH can be found in the section "Software and license keys for a single-station system with configuration (Page 13)".

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

The versions for the current program package *DVD Process Control System; SIMATIC PCS 7* can be found in the *Process Control System PCS 7; PCS 7 Readme* document.

BATCH server/BATCH redundant server

Designation	License key	Optional	Comment
BATCH server	BATCH Server		• One license key per server computer for redundant servers
BATCH Basic	BATCH Basic		• Alternative to "BATCH Server" license key, restricted functionality; • One license key per server computer for redundant servers
BATCH units	BATCH Units		Count relevant license
BATCH API	BATCH API	X	
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1st + 2nd) alternative (3rd) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

BATCH Client

Designation	License key	Optional	Comment
BATCH client	BATCH Client		
BATCH recipe system	BATCH Recipe System	X	Only required if recipes will be created on the BATCH client.

3.5 Software and license keys for Route Control Stations

Overview

The following tables show the software packages and the required license keys for the PC stations of PCS 7 Route Control.

Additional information on the single-station system with Route Control can be found in the section "Software and license keys for a single-station system with configuration (Page 13)".

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

You can learn about the versions for the current program package on the *Process Control System; SIMATIC PCS 7 DVD* in the *Process Control System PCS 7; PCS 7 Readme* file.

RC Server

Designation	License key	Optional	Comment
Route Control server	Route Control Server		restricted to 30 routes; max. 300 simultaneous material transfer operations
Route Control routes	Route Control Routes		Count relevant license
SIMATIC NET	1. BCE 2. Industrial Ethernet 3. S7-REDCONNECT	(1. + 2.) alternative (3.) X	1. Only for a standard Ethernet interface module (not required for SIMATIC NET CP). 2. When using SIMATIC NET CP, e.g. CP1623. 3. When using SIMATIC NET CP, e.g. CP1623, with fault-tolerant connections.

RC Client

Designation	License key	Optional	Comment
Route Control Center	Route Control Center		The license for RC client is either located directly on the client or, alternatively, on the ES.

3.6 Software and license keys for the SIMATIC Management Console

Overview

The following tables show the software packages and the required license keys for working with the SIMATIC Management Console.

You can find information on license key levels in section "Selecting the correct license keys (Page 7)".

Note

You can learn about the versions for the current program package on the *Process Control System; SIMATIC PCS 7* DVD in the *Process Control System PCS 7; PCS 7 Readme* file.

Computers with the Management Console

Designation	License key	Optional	Comment
SIMATIC Management Console	SIMATIC Management Console		We recommend only one computer per network with a Management Console
SIMATIC Management Console (x;x;x)	SIMATIC Management Console (x;x;x)		Per managed computer; number of managed computers in the PCS 7 system Count relevant license

Managed computers

Note

License keys for working with the SIMATIC Management Console

You must install the license keys so that they are available on the computer with the SIMATIC Management Console (local or in network).

Data volumes

4.1 Overview of the quantity structures of PCS 7

Introduction

The section describes the following PCS 7-specific quantity structures:

- Automation systems
- Operator Station

Additional information

- Information on the quantity structure of SIMATIC BATCH can be found in the manual *SIMATIC BATCH* in the section "Product introduction and installation > Quantity structures".
- Information on the quantity structure of SIMATIC Route Control can be found in the manual *SIMATIC Route Control* in the section "Appendix > Quantity structures".

4.2 Quantity structures for automation systems of PCS 7

Quantity structures of AS systems with standard and high availability

The values in the following tables are not AS-specific maximum values for the corresponding position, but rather represent a typical distribution of the available AS total capacity in mixed operation of all positions of a related block.

4.2 Quantity structures for automation systems of PCS 7

- Quantity frameworks (SIMATIC PCS 7 Advanced Process Library)**

The following table shows typical mixed quantity frameworks for SIMATIC PCS 7 automation systems based on the SIMATIC PCS 7 Advanced Process Library.

	AS 412H V6.0	AS 414-3IE V6.0	AS 414H V6.0	AS 416-3IE V6.0	AS 416H V6.0	AS 417H V6.0
Analog value measurements	10	100	100	400	400	600
Digital value measurements	20	250	250	800	800	1000
PID controllers	5	50	50	150	150	200
Motors	7	75	75	200	200	400
Valves	7	75	75	200	200	400
SFC	0	15	15	100	100	200
Steps	0	150	150	1000	1000	2000
Dosing	0	3	3	25	25	50
Digital inputs (DI)	30	350	300	1200	1200	1800
Digital outputs (DO)	10	100	110	400	400	650
Analog inputs (AI)	15	175	150	600	600	900
Analog outputs (AO)	5	75	50	200	200	350
Process objects (PO)	30	350	350	1200	1200	2000
	AS 414-3 V5.3	AS 416-2 V5.3	AS 416-3 V5.3	AS 417-4 V5.3	AS RTX 2010	AS mEC 2010
Analog value measurements	50	200	400	500	300	300
Digital value measurements	160	450	800	1000	600	600
PID controllers	35	75	150	180	200	200
Motors	40	100	200	350	150	150
Valves	40	100	200	350	250	250
SFC	15	40	100	200	100	100
Steps	150	400	1000	2000	800	800
Dosing	3	15	25	50	50	50
Digital inputs (DI)	200	600	1200	1700	1200	1200
Digital outputs (DO)	60	200	400	550	400	400
Analog inputs (AI)	100	300	600	800	600	600
Analog outputs (AO)	30	100	200	250	200	200
Process objects (PO)	200	600	1200	1800	1200	1200

- Quantity frameworks (PCS 7 Standard Library)**

The following table shows typical mixed quantity frameworks for SIMATIC PCS 7 automation systems based on the SIMATIC PCS 7 Standard Library.

4.2 Quantity structures for automation systems of PCS 7

	AS 412H V6.0	AS 414-3IE V6.0	AS 414H V6.0	AS 416-3IE V6.0	AS 416H V6.0	AS 417H V6.0
Analog value measurements	10	50	150	250	500	700
Digital value measurements	15	150	300	600	1000	1200
PID controllers	6	50	50	200	200	300
Motors	10	75	100	300	400	450
Valves	10	75	100	300	400	450
SFC	0	20	20	120	150	200
Steps	0	200	200	1200	1500	2000
Dosing	0	5	5	30	35	50
Digital inputs (DI)	50	300	300	1500	2000	2000
Digital outputs (DO)	25	150	150	700	1000	1000
Analog inputs (AI)	20	100	100	600	800	800
Analog outputs (AO)	10	50	50	220	400	400

	AS 414-3 V5.3	AS 416-2 V5.3	AS 416-3 V5.3	AS 417-4 V5.3	AS RTX 2010	AS mEC 2010
Analog value measurements	35	125	200	700	250	600
Digital value measurements	110	350	450	1200	600	200
PID controllers	35	110	150	300	200	300
Motors	50	125	250	450	300	300
Valves	50	125	250	450	300	120
SFC	15	40	100	200	120	1200
Steps	150	400	1000	2000	1200	30
Dosing	3	15	25	45	30	1500
Digital inputs (DI)	220	800	1200	2000	1500	1500
Digital outputs (DO)	110	300	500	1000	700	700
Analog inputs (AI)	80	250	400	800	600	600
Analog outputs (AO)	40	110	180	400	220	220

4.3 Quantity structures for the operator station

OS quantity structure (per multiproject)

Information on licensing and process objects "PO" can be found in section "Selecting the correct license keys (Page 7)".

Parameter	Value
Max. number of OS servers / server pairs	12
Max. number of automation systems per OS server / server pairs	64
Max. number of OS clients in multi-client operation ¹⁾ (per multi-station system)	32
Max. number of monitors per operator station in multi-channel operation	4
Max. number of OS areas	64
Max. number of windows per monitor	1 up to 16 (adjustable)
Number of trends per trend window	10
OS process picture time-out (100 process symbols)	< 2 s
Max. number of process objects:	
• per OS single-station system	5 000 PO
• per OS server	8 500 PO
Max. number of configurable alarms per server / single-station	150 000
Number of process tags:	
• per OS single-station system	approximately 3 000
• per OS server	approximately 5 000
• per multi-station system	approximately 60 000
Integrated high-performance archive system (cyclic buffer)	
Based on Microsoft SQL server for:	
• Process value archiving (per OS server/single-station system)	approximately 1 000/s
• Message archiving (per OS server/single-station system)	Continuous load approximately 10/s Message burst approximately 3 000 / 4 s
Long-term archiving	
Archiving OS data (process values and messages) with StoragePlus	Archive values of up to 4 single-station systems, servers or server pairs
1. Archive values of a server	1. approximately 1000/s
2. Archive values of all servers	2. approximately 1600/s
Archiving OS data (process values and messages) with central archive server (CAS)	Archive values of up to 11 servers or server pairs
1. Archive values of a server	1. approximately 1000/s
2. Archive values of all servers	2. approximately 10 000/s
Process value archiving with SIMATIC Process Historian	For additional information on the quantity structure, refer to the SIMATIC Process Historian documentation.

¹⁾ if each OS client has access to all OS servers/server pairs

OS quantity structure (per multiproject) with use of the Parallel Redundancy Protocol (PRP) on the redundant terminal bus

The following should be noted for the use of the Parallel Redundancy Protocol (PRP) on the redundant terminal bus:

- Max. number of OS servers/server pairs: 8
- Max. number of OS clients in multi-client operation (per multi-station system): 12
- Max. number of process objects/process tags per OS server: 2000 PO
- Max. number of process objects/process tags per multi-station system: 16000 PO
- Long term archive tags: 17000
- Message traffic: maximum of 2 messages per second and OS server

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