

Industrial Remote Communication

TeleControl Basic for the control center

Telecontrol Server Basic

Ordering data

Article No.

Article No.

TeleControl Server Basic V3.0

Software for 8 to 5 000 stations; Single License for one installation; OPC (UA) server for GPRS and Ethernet/Internet communication with SIMATIC S7-1200 and SIMATIC S7-200 (GPRS only); connection management to remote stations; routing for connections between S7 stations; German and English operator interface; for Windows 7 Professional 32/64 bit + Service Pack 1
Windows 7 Enterprise 32/64 bit + Service Pack 1
Windows 7 Ultimate 32/64 bit + Service Pack 1
Windows Server 2008 32 bit + Service Pack 2
Windows Server 2008 R2 Standard 64 bit Service Pack 1

- | | |
|---|---------------------------|
| • TeleControl Server Basic 8 V3
Connection management for 8 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AA0 |
| • TeleControl Server Basic 32 V3
Connection management for 32 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AF0 |
| • TeleControl Server Basic 64 V3
Connection management for 64 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AB0 |
| • TeleControl Server Basic 256 V3
Connection management for 256 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AC0 |
| • TeleControl Server Basic 1000 V3
Connection management for 1 000 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AD0 |
| • TeleControl Server Basic 5000 V3
Connection management for 5 000 SIMATIC S7-1200 or S7-200 stations | 6NH9910-0AA21-0AE0 |
| • TeleControl Server Basic UPRG V3
Upgrade package from Version V2.x to V3 for all license sizes | 6NH9910-0AA21-0GA0 |

PowerPacks for TeleControl Server Basic

- | | |
|--|---------------------------|
| • PP TCSB 8 to 32 V3
for expansion from 8 to 32 stations | 6NH9910-0AA21-0AB1 |
| • PP TCSB 32 to 64 V3
for expansion from 32 to 64 stations | 6NH9910-0AA21-0AF1 |
| • PP TCSB 64 to 256 V3
for expansion from 64 to 256 stations | 6NH9910-0AA21-0AC1 |
| • PP TCSB 256 to 1000 V3
for expansion from 256 to 1 000 stations | 6NH9910-0AA21-0AD1 |
| • PP TCSB 1000 to 5000 V3
for expansion from 1 000 to 5 000 stations | 6NH9910-0AA21-0AE1 |

Accessories

CP 1242-7 communications processor

Communications processor for connecting SIMATIC S7-1200 to TeleControl Server Basic via a 2G mobile wireless network (GSM/GPRS)

6GK7242-7KX30-0XE0

CP 1243-1 communications processor

Communications processor for connection of SIMATIC S7-1200 to Telecontrol Server Basic or for secure connection to an Industrial Ethernet network via firewall and VPN mechanisms

6GK7243-1BX30-0XE0

MD720 MODEM

GPRS modem for IP-based data transmission over 2G mobile radio network, quad band, AT command interface, automatic establishment of GPRS connection, switchable to CSD mode, RS232, including gender changer for RS232/PPI adapter

6NH9720-3AA01-0XX0

ANT794-4MR antenna

Omnidirectional antenna for GSM (2G), UMTS (3G) and LTE (4G) networks; weather-resistant for indoor and outdoor use; 5 m cable with fixed connection to antenna; SMA connector; including mounting bracket, screws, wall plugs

6NH9860-1AA00

ANT794-3M antenna

Flat panel antenna for GSM (2G) networks, for triband with 900/1 800/1 900 MHz; weather-resistant for indoor/outdoor use, 1.2 m cable with fixed connection to antenna; SMA connector, incl. assembly adhesive tape

6NH9870-1AA00

Note:

Industrial Ethernet routers and wireless routers can be found under "Remote networks"

Industrial Remote Communication

TeleControl Basic for the stations

CP 1243-1

Overview



The CP 1243-1 communications processor is used for connecting a SIMATIC S7-1200 to the TeleControl Server Basic control center software via Ethernet, and for secure communication via IP-based networks.

The CP has the following features:

- Ethernet-based connection to TeleControl Server basic, e.g. via Internet
- Data transfer of measured values, control variables, or alarms optimized for telecontrol systems
- Automatic sending of alert emails
- Data buffering of up to 64 000 values ensures a secure database even with temporary connection failures
- Secure communication via VPN connections based on IPsec
- Access protection by means of Stateful Inspection Firewall
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7

Benefits



- **Data security**
The CP 1243-1 has a large buffer for several thousand data values. Downtimes in the transmission link can then be bridged.
- **Fully automatic time stamp**
To enable subsequent and correct archiving of process data in the control system, all data frames are assigned with a time stamp at their place of origin.
- **Fast and flexible data communication**
Operators are therefore quickly provided with alarms, statuses and values from the process, and they can influence process control by entering commands or setpoints at any time.
- **Simple and low-cost engineering**
The cyclic or event-controller transfer of measurements, setpoints or alarms can be implemented in only a few operations and without programming effort.
- **Remote diagnostics**
Saving of traveling and maintenance costs due to cost-effective remote programming, diagnostics, control and monitoring via the Internet
- **Industrial Security**
Securing the system against unauthorized access by means of
 - Central access protection for any devices within an automation cell, e.g. by means of authentication of the network stations
 - Secure remote access via the Internet by means of data encryption (VPN) and data integrity checking

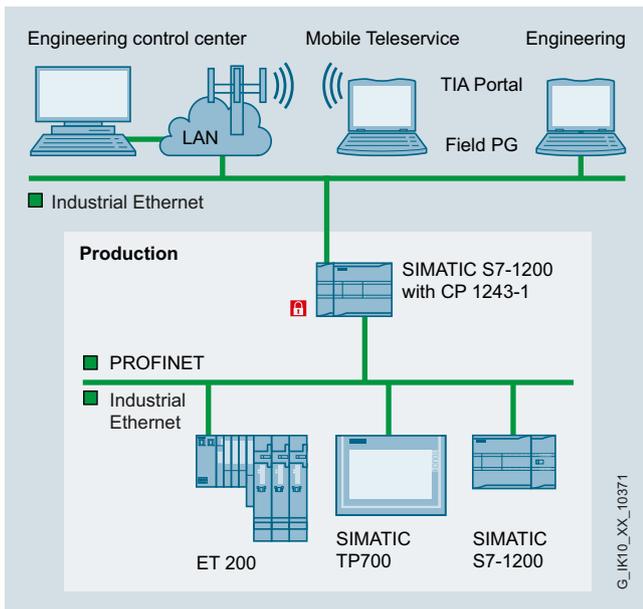
Application

By using the CP 1243-1, the S7-1200 can be used as a remote terminal unit (substation) in telecontrol applications. Typical uses include the collection of measured values in geographically widely distributed outdoor areas (level measurement for water tanks) or centralized opening and closing of valves (oil/gas transport in pipelines).

- Plants in water, wastewater or environmental sectors:
 - Irrigation systems
 - Drinking water supply
- Monitoring of power networks for consumption metering and cost control
 - District heating networks
 - Wind farms
- Plants in the oil and gas sector
 - Oilfield water injection
 - Pipelines
- Transportation systems
 - Ventilation control in tunnel systems
 - Traffic control

Regardless of the telecontrol features of the CP, it can also be used for purely security applications if the automation system is to be connected securely to a higher-level IT network. This protects the SIMATIC S7-1200 against unauthorized access from an Ethernet network. The CP 1243-1 allows secure access via a LAN and allows data transfer between devices or network segments to be protected from data manipulation/espionage.

Application (continued)



Cell protection for SIMATIC S7-1200 with CP 1243-1 (Security Integrated)

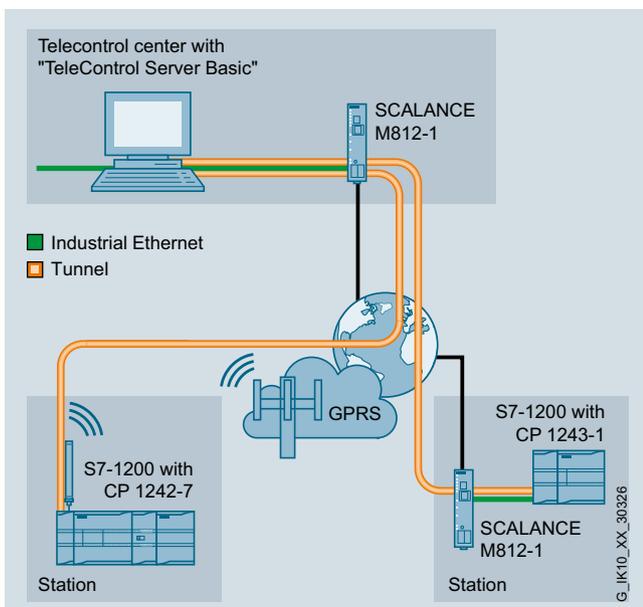
Design

The CP 1243-1 offers all the advantages of the S7-1200 design:

- Rugged, compact plastic enclosure
- Easily accessible connection and diagnostics elements, protected by front flaps
- Simple mounting on the mounting rail of the S7-1200

The CP 1243-1 DNP3 is plugged into the left-hand system bus interface of the S7-1200. Power is supplied directly via the S7-1200. No additional wiring is necessary. Any required modems or routers are connected via the Ethernet interface on the underside of the module.

Function



Connection of the S7-1200 to TeleControl Servers via mobile wireless and DSL Internet access

The CP 1243-1 is a communication module for the S7-1200. The module allows the S7-1200 to be connected as a remote station to TeleControl Server basic in just a few steps.

Completely configurable application through "data point configuration"

The introduction of the "data point configuration" in STEP 7 dispenses with all programming effort for transfer of data to the control center.

The data of the CPU relevant to the control center is selected via user-friendly "item browsing" in STEP 7. In a clearly-arranged menu, the data transfer parameters are then assigned to the data points selected in this way. The cyclic or event-controller transfer of measurements, setpoints or alarms can thus be implemented in only a few operations and without programming effort.

Data backup

Data losses are prevented by the data buffering mechanisms integrated in the product.

In the event of a connection failure, up to 64 000 time-stamped values are buffered. When the connection returns, the buffered values are automatically transferred to the control center in the right order.

E-mail alerting

Alert e-mails can be configured for timely provision of stations' states to service or maintenance personnel. If previously defined events (such as threshold violation) should occur, application-specific information is sent automatically by e-mail.

Diagnostics

The CP 1243-1 offers comprehensive diagnostic options for a quick and informative analysis of the station status. Elementary diagnostic information about the connection to the control center is signaled directly via LEDs at the CP.

Using STEP 7, comprehensive information can be retrieved, such as connection history, buffer status, and the transferred measured values.

Remote maintenance

For remote access from the control center to the substation, the CP provides a remote maintenance port in parallel with process operation. This ensures access for monitoring and program changes.

Interfaces

The CP 1243-1 has an Ethernet interface to connection to the control center. The S7-1200 can be connected via an existing network or via other media by using additional routers (e.g. SCALANCE M for Internet connection via DSL).

Power supply

Extra wiring for the CP power supply is not required. Power is supplied directly via the backplane bus of the S7-1200.

Industrial Remote Communication

TeleControl Basic for the stations

CP 1243-1

Technical specifications

Article No.	6GK7243-1BX30-0XE0
Product-type designation	CP 1243-1
Transmission rate	
Transfer rate • at the interface 1	10 ... 100 Mbit/s
Interfaces	
Number of electrical connections • at interface 1 in accordance with Industrial Ethernet	1
Design of electrical connection • at interface 1 in accordance with Industrial Ethernet	RJ45 port
Supply voltage, current consumption, power loss	
Type of supply voltage	DC
Supply voltage 1 from backplane bus	5 V
Resistive loss	1.25 W
Permitted ambient conditions	
Ambient temperature • for vertical installation during operating phase	-20 ... +60 °C
• for horizontal installation during operating phase	-20 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
• Comment	-
Relative humidity at 25 °C without condensation during operating maximum	95 %
Protection class IP	IP20
Design, dimensions and weight	
Module format	Compact module S7-1200 single width
Width	30 mm
Height	110 mm
Depth	75 mm
Net weight	0.122 kg
Product properties, functions, components general	
Number of modules • per CPU maximum	3
Performance data	
<u>Performance data open communication</u> • note	like CPU
<u>Performance data S7 communication</u> Number of possible connections for S7 communication • note	like CPU

Article No.	6GK7243-1BX30-0XE0
Product-type designation	CP 1243-1
<u>Performance data telecontrol</u>	
Suitability for use • node station • substation • control center	No Yes No
Connection to the control center • note • by means of a permanent connection	supported
Protocol is supported • DNP3 • IEC 60870-5	No No
Product function data buffering if connection is aborted • note	Yes 64 000 values
Number of data points per station maximum	200
<u>Performance data Teleservice</u>	
Diagnostic function online diagnostics with SIMATIC STEP 7	Yes
Product function • program download with SIMATIC STEP 7 • remote firmware update	Yes Yes
Product functions management, configuration	
Configuration software required	STEP 7 Basic/Professional V13 (TIAPortal) or higher + HSP
Product functions Security	
Design of the firewall	stateful inspection
Product function with VPN connection	IPSec
Type of encryption algorithms with VPN connection	
Type of authentication procedure with VPN connection	Preshared key (PSK), X.509v3 certificates
Type of hashing algorithms with VPN connection	MD5, SHA-1
Number of possible connections for VPN connection	8
Product function • password protection for Web applications • ACL - IP-based • ACL - IP-based for PLC/routing • switchoff of non-required services • blocking of communication via physical ports • log file for unauthorized access	No No No Yes No No
Product functions Time	
Protocol is supported NTP	No

Ordering data	Article No.	Article No.
Communications processor CP 1243-1 Communications processor for connection of SIMATIC S7-1200 to TeleControl Server Basic or for secure connection via IP-based networks	6GK7243-1BX30-0XE0	
Accessories TeleControl Server Basic V3.0 Software for 8 to 5 000 stations; Single License for one installation; OPC (UA) server for GPRS and Ethernet/Internet communication with SIMATIC S7-1200 and SIMATIC S7-200 (GPRS only); connection management to remote stations; routing for connections between S7 stations; German and English operator interface; for Windows 7 Professional 32/64-bit + Service Pack 1 Windows 7 Enterprise 32/64-bit + Service Pack 1 Windows 7 Ultimate 32/64-bit + Service Pack 1 Windows Server 2008 32-bit + Service Pack 2 Windows Server 2008 R2 Standard 64-bit Service Pack 1 <ul style="list-style-type: none"> • TeleControl Server Basic 8 V3 Connection management for 8 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic 32 V3 Connection management for 32 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic 64 V3 Connection management for 64 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic 256 V3 Connection management for 256 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic 1000 V3 Connection management for 1 000 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic 5000 V3 Connection management for 5 000 SIMATIC S7-1200 or S7-200 stations • TeleControl Server Basic UPGR V3 Upgrade package from Version V2.x to V3 for all license sizes 		Accessories (continued) IE FC RJ45 Plugs RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface <ul style="list-style-type: none"> • 1 pack = 1 unit • 1 pack = 10 units • 1 pack = 50 units
		6GK1901-1BB10-2AA0 6GK1901-1BB10-2AB0 6GK1901-1BB10-2AE0
		IE FC TP Standard Cable GP 2 x 2 (Type A) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; Sold by the meter; max. length 1 000 m; minimum order 20 m
		6XV1840-2AH10
		IE FC Stripping Tool Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables
		6GK1901-1GA00
		STEP 7 Basic Engineering Software V13 (TIA Portal) <i>Target system:</i> SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC <i>Requirement:</i> Windows 7 Professional (64 bit), Windows 7 Enterprise (64 bit), Windows 7 Ultimate SP1 (64 bit), Windows 8.1 (64 bit), Windows 8.1 Professional (64 bit), Windows 8.1 Enterprise (64 bit), Windows Server 2008 R2 StdE (full installation), Windows Server 2012 StdE (full installation) <i>Form of delivery:</i> German, English, Chinese, Italian, French, Spanish <ul style="list-style-type: none"> • STEP 7 Basic V13, Floating License • STEP 7 Basic V13, Trial License • Upgrade STEP 7 Basic V12 to STEP 7 Professional Basic V13, Floating License
		6ES7822-0AA03-0YA5 6ES7822-0AA03-0YA7 6ES7822-0AA03-0YE5
		Software Update Service For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version. <ul style="list-style-type: none"> • STEP 7 Basic V1x, Software Update Service Standard, 1 year • STEP 7 Basic V1x, Software Update Service Compact, 1 year;
		6ES7822-0AA00-0YL0 6ES7822-0AA00-0YMO
CSM 1277 Compact Switch Module Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-1200 module including electronic manual on CD-ROM	6GK7277-1AA10-0AA0	

More information

Technical requirements/compatibility

An S7-1200 CPU with firmware version 3 is required for operating the CP 1243-1 DNP3.

The CP 1243-1 DNP3 is configured using STEP 7 Basic/Professional V13 (TIA Portal) and higher.

To connect to PCS 7/WinCC control center systems, the TeleControl Server Basic V3 software package is required.