

Overview



- Modules for serial communication connections, scaled according to interface types, protocols, and performance
- 4 versions with different physical transmission characteristics:
 - RS 232C, max. 19.2 Kbps
 - RS 232C, max. 115.2 Kbps
 - RS 422/RS 485, max. 19.2 Kbps
 - RS 422/RS 485, max. 115.2 Kbps
- Protocols supported
 - Freepoint: User-parameterizable telegram format for universal communication
 - 3964(R) for improved transmission reliability
 - Modbus RTU Master
 - Modbus RTU Slave
 - USS, implemented through instructions

4

Ordering data

Article No.

Article No.

CM PtP RS 232 BA communications module Basic communications module with one RS 232 interface, Freepoint, 3964(R) and USS protocols, 9-pin D-sub connector, max. 19.2 Kbps	6ES7540-1AD00-0AA0
CM PtP RS 232 HF communications module High Feature communications module with one RS 232 interface, Freepoint, 3964(R), USS and Modbus RTU protocols, 9-pin D-sub connector, max. 115.2 Kbps	6ES7541-1AD00-0AB0
CM PtP RS422/485 BA communications module Basic communications module with one RS 422/485 interface, Freepoint, 3964(R) and USS protocols, 15-pin sub D socket, max. 19.2 Kbps	6ES7540-1AB00-0AA0
CM PtP RS422/485 HF communications module High Feature communications module with one RS 422/485 interface, Freepoint, 3964(R), USS and Modbus RTU protocols, 15-pin sub D socket, max. 115.2 Kbps	6ES7541-1AB00-0AB0

Accessories

RS 232 connecting cable

For linking to SIMATIC S7

5 m

6ES7902-1AB00-0AA0

10 m

6ES7902-1AC00-0AA0

15 m

6ES7902-1AD00-0AA0

RS 422/485 connecting cable

For linking to SIMATIC S7

5 m

6ES7902-3AB00-0AA0

10 m

6ES7902-3AC00-0AA0

50 m

6ES7902-3AG00-0AA0

SIMATIC Manual Collection

6ES7998-8XC01-8YE0

Electronic manuals on DVD, multi-language:
 LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC

SIMATIC Manual Collection update service for 1 year

6ES7998-8XC01-8YE2

Current Manual Collection DVD and the three subsequent updates

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CM PtP

Technical specifications

Article number	6ES7540-1AD00-0AA0 S7-1500, CM PTP RS232 BA	6ES7541-1AD00-0AB0 S7-1500, CM PTP RS232 HF	6ES7540-1AB00-0AA0 S7-1500, CM PTP RS422/485 BA	6ES7541-1AB00-0AB0 S7-1500, CM PTP RS422/485 HF
General information				
Product type designation	CM PtP RS 232 BA	CM PtP RS 232 HF	CM PtP RS 422 / 485 BA	CM PtP RS 422 / 485 HF
Product function				
• I&M data	Yes; I&M 0	Yes; I&M 0	Yes; I&M 0	Yes; I&M 0
• Fast startup	Yes	Yes	Yes	Yes
Engineering with				
• STEP 7 TIA Portal configurable/ integrated from version	V12 / V12	V12 / V12	V12 / V12	V12 / V12
• STEP 7 configurable/integrated from version	V5.5 SP2 with GSD file	V5.5 SP2 with GSD file	V5.5 SP2 with GSD file	V5.5 SP2 with GSD file
• PROFIBUS from GSD version/ GSD revision	- / -	- / -	- / -	- / -
• PROFINET from GSD version/ GSD revision	V2.3	V2.3 / -	V2.3	V2.3 / -
Installation type/mounting				
Rail mounting	Yes; S7-1500 mounting rail	Yes; S7-1500 mounting rail	Yes; S7-1500 mounting rail	Yes; S7-1500 mounting rail
Interface types				
RS 232				
• Transmission rate, max.	19.2 Kbps	115.2 Kbps		
• Cable length, max.	15 m	15 m		
• RS 232 auxiliary signals	RTS, CTS, DTR, DSR, RI, DCD	RTS, CTS, DTR, DSR, RI, DCD		
RS 485				
• Transmission rate, max.			19.2 Kbps	115.2 Kbps
• Cable length, max.			1 200 m	1 200 m
RS 422				
• Transmission rate, max.			19.2 Kbps	115.2 Kbps
• Cable length, max.			1 200 m	1 200 m
• 4-wire full duplex connection			Yes	Yes
• 4-wire multipoint connection			No	No
Protocols				
Integrated protocols				
Freepoint				
- Telegram length, max.	1 kbyte	4 kbyte	1 kbyte	4 kbyte
- Bits per character	7 or 8	7 or 8	7 or 8	7 or 8
- Number of stop bits	1 or 2 bit	1 or 2 bit	1 or 2 bit	1 or 2 bit
- Parity	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any
3964 (R)				
- Telegram length, max.	1 kbyte	4 kbyte	1 kbyte	4 kbyte
- Bits per character	7 or 8	7 or 8	7 or 8	7 or 8
- Number of stop bits	1 or 2 bit	1 or 2 bit	1 or 2 bit	1 or 2 bit
- Parity	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any	None, even, odd, always 1, always 0, any
Modbus RTU master				
- Address area		1 to 247, extended 1 to 65535		1 to 247, extended 1 to 65535
- Number of slaves, max.		1		32
MODBUS RTU slave				
- Address area		1 to 247, extended 1 to 65535		1 to 247, extended 1 to 65535
Telegram buffer				
• Buffer memory for telegrams	2 kbyte	8 kbyte	2 kbyte	8 kbyte
• Number of telegrams which can be buffered	255	255	255	255

Technical specifications

Article number	6ES7540-1AD00-0AA0	6ES7541-1AD00-0AB0	6ES7540-1AB00-0AA0	6ES7541-1AB00-0AB0
	S7-1500, CM PTP RS232 BA	S7-1500, CM PTP RS232 HF	S7-1500, CM PTP RS422/485 BA	S7-1500, CM PTP RS422/485 HF
Interrupts/diagnostics/status information				
Diagnostics function	Yes	Yes	Yes	Yes
Alarms				
• Diagnostic alarm	Yes	Yes	Yes	Yes
• Hardware interrupt	No	No	No	No
Diagnoses				
• Wire-break	Yes	Yes	Yes	Yes
Diagnostics indication LED				
• RUN LED	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED
• ERROR LED	Yes; red LED	Yes; red LED	Yes; red LED	Yes; red LED
• Receive RxD	Yes; Yellow LED	Yes; Yellow LED	Yes; Yellow LED	Yes; Yellow LED
• Transmit TxD	Yes; Yellow LED	Yes; Yellow LED	Yes; Yellow LED	Yes; Yellow LED
Potential separation				
between backplane bus and interface	Yes	Yes	Yes	Yes
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	40 °C	40 °C	40 °C	40 °C
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual
Decentralized operation				
to SIMATIC S7-300	Yes	Yes	Yes	Yes
to SIMATIC S7-400	Yes	Yes	Yes	Yes
to SIMATIC S7-1500	Yes	Yes	Yes	Yes
to standard PROFINET controller	Yes	Yes	Yes	Yes
Dimensions				
Width	35 mm	35 mm	35 mm	35 mm
Height	147 mm	147 mm	147 mm	147 mm
Depth	127 mm	127 mm	127 mm	127 mm
Weights				
Weight, approx.	0.22 kg	0.22 kg	0.22 kg	0.22 kg

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CM 8xIO-Link

Overview



- Communication module for connecting up to 8 IO-Link devices (three-wire connection) or 8 standard sensors
- Can be used directly downstream of an S7-1500 CPU or distributed in ET 200MP via PROFINET or PROFIBUS
- Powerful diagnostics functions facilitate preventive maintenance to avoid plant standstills
- Easy replacement of sensors/actuators without time-consuming parameter assignment

Ordering data

Article No.

Ordering data	Article No.
CM 8xIO-Link communication module Communication module for connecting up to 8 IO-Link devices (three-wire connection) or 8 standard sensors	6ES7547-1JF00-0AB0
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC TDC	6ES7998-8XC01-8YE0
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2

Technical specifications

Article number	6ES7547-1JF00-0AB0 S7-1500, CM 8xIO-Link
General information	
Product type designation	CM 8xIO-Link
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/ integrated from version	V15.1 with HSP 274
• STEP 7 configurable/integrated from version	Configurable via GSD file
• PROFIBUS from GSD version/ GSD revision	GSD as of Revision 5
• PROFINET from GSD version/ GSD revision	GSDML V2.34
Supply voltage	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Encoder supply	
Number of outputs	8
Output current	
• Rated value	1 A; 4 A total current per module
24 V encoder supply	
• Short-circuit protection	Yes; per channel, electronic
IO-Link	
Number of ports	8
• of which simultaneously controllable	8
IO-Link protocol 1.0	Yes
IO-Link protocol 1.1	Yes
Cycle time, min.	2 ms
Size of process data, input per port	33 byte; max.
Size of process data, input per module	240 byte; max.
Size of process data, output per port	32 byte; max.
Size of process data, output per module	240 byte; max.
Memory size for device parameter Master backup	2 kbyte; for each port
Configuration without S7-PCT	Yes
Cable length unshielded, max.	20 m
Operating modes	
• IO-Link	Yes
• DI	Yes
• DQ	No
Time Based IO	
- TIO IO-Link IN	No
- TIO IO-Link OUT	No
- TIO IO-Link IN/OUT	No
Connection of IO-Link devices	
• Port type A	Yes
• Port type B	Yes; 24 V DC via external terminal

Technical specifications

Article number	6ES7547-1JF00-0AB0 S7-1500, CM 8xIO-Link
Interrupts/diagnostics/ status information	
Alarms	
• Diagnostic alarm	Yes; The port diagnosis is available in the IO-Link mode only.
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• Group error	Yes
Diagnostics indication LED	
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; red LED
Potential separation	
Potential separation channels	
• between the channels and backplane bus	Yes

Article number	6ES7547-1JF00-0AB0 S7-1500, CM 8xIO-Link
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C; From FS05
• horizontal installation, max.	60 °C; Observe derating
• vertical installation, min.	-30 °C; From FS05
• vertical installation, max.	40 °C; Observe derating
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CM 1542-5

Overview



DP-M	DP-S	FMS	PG/OP	S7	
●	●		●	●	

The CM 1542-5 communications module expands the SIMATIC S7-1500 PLC to include a PROFIBUS connection for communication with lower-level PROFIBUS devices in bandwidths from 9.6 kbps to 12 Mbps. The module can also be used to implement separate PROFIBUS lines, in other words, to control a number of different field devices via a number of PROFIBUS segments. The CM 1542-5 assumes all communication tasks, thus reducing the CPU workload.

The CM 1542-5 is suitable for S7 communication as well as for conventional PROFIBUS communication. This makes it possible to establish communication between the S7-1500 PLC and other devices, for example those from the SIMATIC S7-300/400 range.

- PROFIBUS DP master or DP slave with electrical interface for connecting the SIMATIC S7-1500 to PROFIBUS at up to 12 Mbps (including 45.45 kbps)
- Communication services:
 - PROFIBUS DP
 - PG/OP communication
 - S7 communication
 - Open user communication (SEND/RECEIVE) via FDL
- Time synchronization
- Simple programming and configuration over PROFIBUS
- Cross-network PG communication using S7 routing
- Module replacement without a PG
- Data record routing (PROFIBUS DP)
- Adding or modifying distributed I/O during operation

Ordering data

Article No.

CM 1542-5 communications module

Communications module for electrical connection of SIMATIC S7-1500 to PROFIBUS as DP master or DP slave; S7 and PG/OP communication, data record routing, time synchronization, diagnostics

6GK7542-5DX00-0XE0

Accessories

PROFIBUS FastConnect RS485 connection plug

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbps

- Without programming device interface
- With programming device interface

6ES7972-0BA52-0XA0

6ES7972-0BB52-0XA0

PROFIBUS FC standard cable

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1 000 m, minimum order quantity 20 m, sold by the meter

6XV1830-0EH10

PROFIBUS FastConnect stripping tool

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

6GK1905-6AA00

PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS nodes up to 12 Mbps with connecting cable

6GK1500-0AA10

Note:

You can find order data for software for communication with PC systems in the Industry Mall under System interfaces – Software overview

Technical specifications

Article number	6GK7542-5DX00-0XE0
product type designation	CM 1542-5
transfer rate	
transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 Kbps ... 12 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	0
number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS485)
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	15 V
relative symmetrical tolerance at DC	
• at 15 V	3 %
consumed current	
• from backplane bus at DC at 15 V typical	0.2 A
power loss [W]	3 W

Technical specifications

Article number	6GK7542-5DX00-0XE0
product type designation	CM 1542-5
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-1500 single width
width	35 mm
height	142 mm
depth	129 mm
net weight	0.4 kg
fastening method	
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	8
• note	depending on CPU type
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum data volume	30
• as user data per connection for open communication by means of SEND/RECEIVE blocks maximum	240 byte
performance data PROFIBUS DP	
service as DP master	
• DPV1	Yes
number of DP slaves	
• on DP master operable	125
data volume	
• of the address range of the inputs as DP master total	8 192 byte
• of the address range of the outputs as DP master total	8 192 byte
• of the address range of the inputs per DP slave	244 byte
• of the address range of the outputs per DP slave	244 byte
service as DP slave	
• DPV0	Yes
• DPV1	Yes
data volume	
• of the address range of the inputs as DP slave total	240 byte
• of the address range of the outputs as DP slave total	240 byte

Article number	6GK7542-5DX00-0XE0
product type designation	CM 1542-5
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	48; depending on the system upper limit
performance data multi-protocol mode	
number of active connections with multi-protocol mode	48
performance data telecontrol	
protocol is supported	
• TCP/IP	No
product functions management, configuration, engineering	
configuration software	
• required	STEP 7 Professional V12 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/location designation	Yes
product functions diagnostics	
product function web-based diagnostics	Yes; via S7-1500 CPU
product functions time	
product function pass on time synchronization	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

SIMATIC S7-1500 Advanced ControllersI/O modules
Communication**CP 1542-5**

4

Overview

DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●		

The CP 1542-5 communications processor expands the SIMATIC S7-1500 PLC to include a PROFIBUS connection for communication with lower-level PROFIBUS devices in bandwidths from 9.6 kbps to 12 Mbps. This CPU allows the implementation of separate PROFIBUS lines, in other words the control of multiple field devices over multiple PROFIBUS segments. The CP 1542-5 handles all communication tasks, thus reducing the CPU load.

- PROFIBUS DP master or DP slave with electrical interface for connecting the SIMATIC S7-1500 to PROFIBUS at up to 12 Mbps (including 45.45 kbps)

Communication services:

- PROFIBUS DP
- PG/OP communication
- Time synchronization
- Simple programming and configuration over PROFIBUS
- Cross-network PG communication using S7 routing
- Module replacement without a PG

Ordering data**Article No.****CP 1542-5 communications processor**

Communications module for electrical connection of SIMATIC S7-1500 to PROFIBUS as DP master or DP slave; PG/OP communication, time synchronization, diagnostics; smaller quantity structure

6GK7542-5FX00-0XE0**Accessories****PROFIBUS FastConnect RS 485 connection plug**

With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbps

- Without programming device interface
- With programming device interface

6ES7972-0BA52-0XA0**6ES7972-0BB52-0XA0****PROFIBUS FC Standard Cable**

2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order quantity 20 m, sold by the meter

6XV1830-0EH10**PROFIBUS FastConnect Stripping Tool**

Stripping tool for fast stripping of the PROFIBUS FastConnect bus cable

6GK1905-6AA00**PROFIBUS bus terminal 12M**

Bus terminal for connection of PROFIBUS stations for up to 12 Mbps with connecting cable

6GK1500-0AA10**Note:**

You can find order information for software for communication with PC systems in the Industry Mall under System interfaces – Software overview.

Technical specifications

Article number	6GK7542-5FX00-0XE0
product type designation	CP 1542-5
transfer rate	
transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 Kbps ... 12 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	0
number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS485)
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	15 V
relative symmetrical tolerance at DC	
• at 15 V	3 %
consumed current	
• from backplane bus at DC at 15 V typical	0.1 A
power loss [W]	1.5 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-1500 single width
width	35 mm
height	142 mm
depth	129 mm
net weight	0.27 kg
fastening method	
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	8
• note	depending on CPU type

Article number	6GK7542-5FX00-0XE0
product type designation	CP 1542-5
performance data PROFIBUS DP	
service as DP master	
• DPV1	Yes
number of DP slaves	
• on DP master operable	32
data volume	
• of the address range of the inputs as DP master total	2 048 byte
• of the address range of the outputs as DP master total	2 048 byte
• of the address range of the inputs per DP slave	244 byte
• of the address range of the outputs per DP slave	244 byte
service as DP slave	
• DPV0	Yes
• DPV1	Yes
data volume	
• of the address range of the inputs as DP slave total	240 byte
• of the address range of the outputs as DP slave total	240 byte
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16; depending on the system upper limit
performance data multi-protocol mode	
number of active connections with multi-protocol mode	16
performance data telecontrol	
protocol is supported	
• TCP/IP	No
product functions management, configuration, engineering	
configuration software	
• required	STEP 7 Professional V12 SP1 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 - higher level designation/ location designation	Yes
product functions diagnostics	
product function web-based diagnostics	Yes; via S7-1500 CPU
product functions time	
product function pass on time synchronization	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

SIMATIC S7-1500 Advanced ControllersI/O modules
Communication**CM 1542-1**

4

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
	●	●	●	●	●	●	●

Communications module for connecting a SIMATIC S7-1500 to PROFINET networks as PROFINET IO controller or PROFINET IO device.

The CM 1542-1 supports the following communication services:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication;
 - Web diagnostics by means of access to the web server of the S7-1500 system
 - Static IP routing with up to 1 Mbps via IPv4 to other CM 1543-1 / CM 1542-1 units in an S7-1500 station, e.g., for web server accesses without real-time capability.

Ordering data**Article No.****CM 1542-1 communications module**

For connecting SIMATIC S7-1500 to PROFINET IO, TCP/IP, ISO-on-TCP, UDP, S7 communication, IP broadcast/multicast, SNMPV1, time synchronization via NTP; 2 x RJ45 interface with 10/100 Mbps

6GK7542-1AX00-0XE0**Accessories****IE FC RJ45 plug 4 x 2**

RJ45 plug-in connector for Industrial Ethernet (10/100/1 000 Mbps) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB11-2AA0
6GK1901-1BB11-2AB0
6GK1901-1BB11-2AE0

IE FC TP standard cable GP 4 x 2

8-wire, shielded TP installation cable for connection to IE FC RJ45 modular outlet for universal applications; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m

- AWG22, for connection to IE FC RJ45 modular outlet
- AWG24, for connection to IE FC RJ45 plug 4 x 2

6XV1870-2E**6XV1878-2A****SCALANCE XC206-2SFP Industrial Ethernet switch**

Manageable Layer 2 IE switch; IEC 62443-4-2 certified; 6x 10/100 Mbps RJ45 ports; 2x 100/1 000 Mbps SFP; 1x console port

6GK5206-2BS00-2AC2

Technical specifications

Article number	6GK7542-1AX00-0XE0
product type designation	CM 1542-1
transfer rate	
transfer rate	
• at the 1st interface	10 ... 100 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	2
type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	15 V
relative symmetrical tolerance at DC	
• at 15 V	3 %
consumed current	
• from backplane bus at DC at 15 V typical	0.22 A
power loss [W]	3.3 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-1500 single width
width	35 mm
height	142 mm
depth	129 mm
net weight	0.4 kg
fastening method	
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	8
• note	depending on CPU type

Article number	6GK7542-1AX00-0XE0
product type designation	CM 1542-1
performance data open communication	
number of possible connections for open communication	
• by means of T blocks maximum	64; depending on the system upper limit
data volume	
• as user data per ISO on TCP connection for open communication by means of T blocks maximum	65 536 byte
number of Multicast stations	6
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	64; depending on the system upper limit
performance data multi-protocol mode	
number of active connections with multi-protocol mode	64
performance data PROFINET communication as PN IO controller	
product function PROFINET IO controller	Yes
number of PN IO devices on PROFINET IO controller operable total	128
number of PN IO IRT devices on PROFINET IO controller operable	64
number of external PN IO lines with PROFINET per rack	10
data volume	
• as user data for input variables as PROFINET IO controller maximum	8 Kibyte
• as user data for output variables as PROFINET IO controller maximum	8 Kibyte
• as user data for input variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for output variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for input variables per PN IO device for each sub-module as PROFINET IO controller maximum	256 byte
• as user data for output variables per PN IO device for each sub-module as PROFINET IO controller maximum	256 byte

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CM 1542-1

Technical specifications

Article number	6GK7542-1AX00-0XE0
product type designation	CM 1542-1
performance data PROFINET communication as PN IO device	
product function PROFINET IO device	Yes
data volume	
• as user data for input variables as PROFINET IO device maximum	8 192 byte
• as user data for output variables as PROFINET IO device maximum	8 192 byte
• as user data for input variables for each sub-module as PROFINET IO device	256 byte
• as user data for output variables for each sub-module as PROFINET IO device	256 byte
• as user data for the consistency area for each sub-module	256 byte
number of submodules per PROFINET IO-Device	32
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP 7 Professional V14 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/location designation	Yes
product functions diagnostics	
product function web-based diagnostics	Yes; via S7-1500 CPU
product functions switch	
product feature switch	Yes
product function	
• switch-managed	No
• with IRT PROFINET IO switch	Yes
• configuration with STEP 7	Yes

Article number	6GK7542-1AX00-0XE0
product type designation	CM 1542-1
product functions routing	
service routing note	IP routing up to 1 Mbps
product function	
• static IP routing	Yes
• static IP routing IPv6	No
• dynamic IP routing	No
• dynamic IP routing IPv6	No
protocol is supported	
• RIP v1	No
• RIPv2	No
• RIPnG for IPv6	No
• OSPFv2	No
• OSPFv3 for IPv6	No
• VRRP	No
• VRRP for IPv6	No
• BGP	No
• PPP	No
• PPoE via DSL	No
product functions redundancy	
product function	
• ring redundancy	Yes
• redundancy manager	Yes
protocol is supported Media Redundancy Protocol (MRP)	Yes
product functions security	
product function	
• switch-off of non-required services	Yes
• blocking of communication via physical ports	No
• log file for unauthorized access	No
product functions time	
product function SICLOCK support	Yes
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●			●	●	●	●

The SIMATIC CP 1543-1 communications processor securely connects the SIMATIC S7-1500 PLC to Industrial Ethernet networks. By combining a variety of security features such as stateful packet inspection firewalls and VPNs, and data encryption protocols such as FTPS and SNMPv3, the communications processor protects individual S7-1500 stations or even entire automation cells against unauthorized access.

The CP can also be used for integrating the S7-1500 station into an IPv6-based network. All functions are configured by means of STEP 7 Professional V12 (TIA Portal) or higher.

The CP 1543-1 supports the following communications services:

- PG/OP communication
- S7 communication
- Open user communication (SEND/RECEIVE, FETCH/WRITE)
- IT communication
 - FTP functions (File Transfer Protocol FTP/FTPS) for file management and access to data blocks in the CPU (client and server function)
 - Access (read and write modes) to csv files stored on the memory card of the CPU via FTP(S)
 - Sending emails via SMTP or ESMTP with "SMTP-Auth" for authentication on an email server (also with IPv6)
 - Static IP routing with up to 1 Mbps via IPv4 to other CP 1543-1 / CM 1542-1 units in an S7-1500 system, e.g. for web server access without real-time capability
- Security Integrated
 - Stateful Packet Inspection Firewall
 - Secure communication via VPN (IPsec)
 - Network authentication according to IEEE 802.1X using the EAP methods MD5, TLS, PEAP, TTLS, MSCHAPv2 or PWD
- Protocols for secure communication
 - Secure access to the web server of the CPU via the HTTPS protocol
 - Secure file transfer using FTPS
 - Secure time of day transfer (NTP)
 - SNMPv3 for tap-proof transfer of network analysis information
 - Encrypted email communication via SMTPS (Port 587)
 - Secure open communication over TCP/IP
 - Connection to SINEMA Remote Connect via OpenVPN
- Integration of the S7-1500 into IPv6-based networks; An IPv6-compliant IP address can be used for the following communications services:
 - FETCH/WRITE access (CP as server)
 - FTP server mode
 - FTP client mode with addressing via program block
 - Email transfer with addressing via program block

Ordering data

Article No.

CP 1543-1 communications processor

For connecting SIMATIC S7-1500 to Industrial Ethernet; TCP/IP, ISO, UDP, S7 communication, IP broadcast/multicast, security (VPN, firewall) diagnostics SNMPv1/v3, DHCP, FTP client/server, email, IPv4/IPv6, IEEE 802.1X (radius), time synchronization via NTP, 1x RJ45 (10/100/1 000 Mbps)

Accessories**IE FC RJ45 plug 180 2 x 2**

RJ45 plug-in connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPU's with Industrial Ethernet interface

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK7543-1AX00-0XE0

6GK1901-1BB10-2AA0
6GK1901-1BB10-2AB0
6GK1901-1BB10-2AE0

Article No.

IE FC RJ45 plug 4 x 2

RJ45 plug-in connector for Industrial Ethernet (10/100/1 000 Mbps) with a rugged metal enclosure 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

- 1 pack = 1 unit
- 1 pack = 10 units
- 1 pack = 50 units

6GK1901-1BB11-2AA0
6GK1901-1BB11-2AB0
6GK1901-1BB11-2AE0

IE FC TP standard cable GP 2 x 2 (type A)

4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m

6XV1840-2AH10

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CP 1543-1

4

Ordering data

Article No.

Article No.

IE FC TP standard cable GP 4 x 2

8-wire, shielded
TP installation cable for
connection to IE FC RJ45 modular
outlet for universal applications;
with UL approval;
sold by the meter;
max. delivery unit 1 000 m,
minimum order quantity 20 m

- AWG22, for connection to
IE FC RJ45 modular outlet
- AWG24, for connection to
IE FC RJ45 plug 4 x 2

6XV1870-2E

6XV1878-2A

IE FC stripping tool

Pre-adjusted stripping tool
for fast stripping of
Industrial Ethernet FC cables

6GK1901-1GA00

SCALANCE XC206-2SFP Industrial Ethernet switch

Manageable Layer 2 IE switch;
IEC 62443-4-2 certified;
6x 10/100 Mbps RJ45 ports;
2x 100/1 000 Mbps SFP;
1x console port

6GK5206-2BS00-2AC2

Note:

You can find order data for software for communication with
PC systems in the Industry Mall under System interfaces -
Software overview.

Technical specifications

Article number	6GK7543-1AX00-0XE0
product type designation	CP 1543-1
transfer rate	
transfer rate	
• at the 1st interface	10 ... 1 000 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	1
type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	15 V
relative symmetrical tolerance at DC	
• at 15 V	3 %
consumed current	
• from backplane bus at DC at 15 V typical	0.35 A
power loss [W]	5.3 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	6GK7543-1AX00-0XE0
product type designation	CP 1543-1
design, dimensions and weights	
module format	Compact module S7-1500 single width
width	35 mm
height	142 mm
depth	129 mm
net weight	0.35 kg
fastening method	
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	8
• note	depending on CPU type
performance data open communication	
number of possible connections for open communication	
• by means of T blocks maximum	118; depending on the system upper limit
data volume	
• as user data per ISO on TCP connection for open communication by means of T blocks maximum	65 536 byte
number of Multicast stations	118
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	118; depending on the system upper limit
performance data multi-protocol mode	
number of active connections with multi-protocol mode	118

Technical specifications

Article number	6GK7543-1AX00-0XE0
product type designation	CP 1543-1
performance data IT functions	
number of possible connections	
• as client by means of FTP maximum	32
• as server by means of FTP maximum	16
number of possible connections	
• as server by means of HTTP maximum	4
• as email client maximum	1
data volume as user data for email maximum	64 Kibyte
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• DCP	Yes
• LLDP	No
configuration software	
• required	STEP 7 Professional V14 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/location designation	Yes
product functions diagnostics	
product function web-based diagnostics	Yes; via S7-1500 CPU
product functions routing	
service routing note	IP routing up to 1 Mbps
product function	
• static IP routing	Yes
• static IP routing IPv6	No
• dynamic IP routing	No
• dynamic IP routing IPv6	No
protocol is supported	
• RIP v1	No
• RIPv2	No
• RiPhG for IPv6	No
• OSPFv2	No
• OSPFv3 for IPv6	No
• VRRP	No
• VRRP for IPv6	No
• BGP	No
• PPP	No
• PPoE via DSL	No

Article number	6GK7543-1AX00-0XE0
product type designation	CP 1543-1
product functions security	
firewall version	stateful inspection
product function with VPN connection	IPSec
type of encryption algorithms with VPN connection	AES-256, AES-192, AES-128, 3DES-168, DES-56
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 with VPN connection	16
product function	
• IEEE 802.1x (radius)	Yes
• password protection for Web applications	No
• ACL - IP-based	No
• ACL - IP-based for PLC/routing	No
• switch-off of non-required services	Yes
• blocking of communication via physical ports	No
• log file for unauthorized access	Yes
product functions time	
product function SICLOCK support	Yes
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

CP 1545-1

Overview



ISO	TCP/UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●			●	●	●	●

The SIMATIC CP 1545-1 communications processor securely connects the SIMATIC S7-1500 PLC to Industrial Ethernet networks. The new CloudConnect functionality enables easy and reliable transfer of all selected data from the SIMATIC S7-1500 to MindSphere, or a cloud solution that supports the standardized MQTT protocol, e.g. Microsoft Azure or IBM Cloud. The CP protects the SIMATIC S7-1500 station from unauthorized access with the integrated SPI (Stateful Packet Inspection) firewall. Data from cloud systems or MQTT brokers can also be received using the MQTT protocol.

The CloudConnect function of the CP 1545-1 is easy to configure with a few input screens in TIA Portal. First, all the parameters required for the different cloud platforms are specified. The data intended for the cloud is then selected from the tag management of the SIMATIC S7-1500 and saved as topics to be transferred with the corresponding trigger conditions.

All functions are configured using STEP 7 Professional V15.1 update 3 (TIA Portal) or higher.
The CP 1545-1 supports the following communications services:

- PG/OP communication
- S7 communication
- Open user communication (SEND/RECEIVE, FETCH/WRITE)
- IT communication
 - MQTT Publish for transferring selected data to a cloud system or MQTT broker
 - MQTT Subscribe for receiving data from a cloud system or MQTT broker
 - FTP functions (File Transfer Protocol FTP/FTPS) for file management and access to data blocks in the CPU (client and server function)
 - Access (read and write modes) to csv files stored on the memory card of the CPU via FTP(S)
 - Sending emails via SMTP or ESMTP with "SMTP-Auth" for authentication on an email server (also with IPv6)
 - Static IP routing with up to 1 Mbps via IPv4 to other CP 1545-1 / CP 1543-1 / CM 1542-1 units in the S7-1500 system, e.g. for web server accesses without real-time capability
- Security Integrated
 - Stateful Packet Inspection Firewall
- Protocols for secure communication
 - Secure access to the web server of the CPU via the HTTPS protocol
 - Secure file transfer using FTPS
 - Secure time of day transfer (NTP)
 - SNMPv3 for tap-proof transfer of network analysis information
 - Encrypted email communication via SMTPS (Port 587)
 - Secure open communication over TCP/IP
- Integration of the S7-1500 into IPv6-based networks
An IPv6-compliant IP address can be used for the following communications services:
 - MQTT
 - FETCH/WRITE access (CP as server)
 - FTP server mode
 - FTP client mode with addressing via program block
 - Email transfer with addressing via program block

Ordering data

Article No.

CP 1545-1 communications processor

CP 1545-1 communications processor for connecting the SIMATIC S7-1500 to Industrial Ethernet; TCP/IP, UDP, S7 communication, security (firewall), SNMPv1/v3, DHCP, FTP client/server, email, IPv4/IPv6, time synchronization via NTP, connection to cloud systems via MQTT, 1x RJ45 (10/100/1 000 Mbps)

6GK7545-1GX00-0XE0

Note:

You can find order information for software for communication with PC systems in the Industry Mall under System interfaces – Software overview

Technical specifications

Article number	6GK7545-1GX00-0XE0
product type designation	CP 1545-1
transfer rate	
transfer rate	
• at the 1st interface	10 ... 1 000 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	1
type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port

Technical specifications

Article number	6GK7545-1GX00-0XE0
product type designation	CP 1545-1
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	15 V
relative symmetrical tolerance at DC	
• at 15 V	3 %
consumed current	
• from backplane bus at DC at 15 V typical	0.3 A
power loss [W]	4.5 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-1500 single width
width	35 mm
height	142 mm
depth	129 mm
net weight	0.32 kg
fastening method	
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	8
• note	depending on CPU type
product functions cloud connectivity	
protocol is supported	
• Message Queuing Telemetry Transport (MQTT)	Yes
• Advanced Message Queuing Protocol (AMQP)	No
product function for cloud connectivity	
• trigger management	Yes
• time stamping	Yes
product feature for cloud connectivity buffered message frame memory	No
number of data points per device maximum	500

Article number	6GK7545-1GX00-0XE0
product type designation	CP 1545-1
performance data open communication	
number of possible connections for open communication	
• by means of T blocks maximum	118; depending on the system upper limit
data volume	
• as user data per ISO on TCP connection for open communication by means of T blocks maximum	65 536 byte
number of Multicast stations	118
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	118; depending on the system upper limit
performance data multi-protocol mode	
number of active connections with multi-protocol mode	118
performance data IT functions	
number of possible connections	
• as client by means of FTP maximum	32
• as server by means of FTP maximum	16
number of possible connections	
• as server by means of HTTP maximum	4
• as email client maximum	1
data volume as user data for email maximum	64 Kibyte
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• SNMP v3	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP 7 Professional V15.1 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/location designation	Yes

SIMATIC S7-1500 Advanced Controllers

I/O modules

Communication

CP 1545-1**Technical specifications**

Article number	6GK7545-1GX00-0XE0
product type designation	CP 1545-1
product functions diagnostics	
product function web-based diagnostics	Yes; via S7-1500 CPU
product functions routing	
service routing note	IP routing up to 1 Mbps
product function	
• static IP routing	Yes
• static IP routing IPv6	No
• dynamic IP routing	No
• dynamic IP routing IPv6	No
protocol is supported	
• RIP v1	No
• RIPv2	No
• RIPng for IPv6	No
• OSPFv2	No
• OSPFv3 for IPv6	No
• VRRP	No
• VRRP for IPv6	No
• BGP	No
• PPP	No
• PPoE via DSL	No
product functions security	
firewall version	stateful inspection
product function	
• password protection for Web applications	No
• ACL - IP-based	No
• ACL - IP-based for PLC/routing	No
• switch-off of non-required services	Yes
• blocking of communication via physical ports	No
• log file for unauthorized access	Yes

Article number	6GK7545-1GX00-0XE0
product type designation	CP 1545-1
product functions time	
product function SICLOCK support	No
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

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Overview



- TIM 1531 IRC communications module for telecontrol applications with four interfaces as a stand-alone device for SIMATIC S7-1500 for use in wide area networks (WANs)
- For universal use in a station, node station and control center
- Communication either via the SINAUT ST7, IEC 60870-5-101/104 or DNP3 telecontrol protocols
- Operation via VPN (IPsec/OpenVPN) with additional SIMATIC NET components
- Wireless communication via mobile wireless routers, modems or radio devices
- Wired communication via Ethernet, Internet, 2/4 wire cables (SHDSL), dialup modems or dedicated line modem
- Frame buffer for seamless recording of data
- Support of redundant communication paths
- Simple configuration with STEP 7 Professional V15.1 (TIA Portal)

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Ordering data

Article No.

Article No.

TIM 1531 IRC communications module

TIM 1531 IRC communications module for SIMATIC S7-1500, S7-400, S7-300 with SINAUT ST7, DNP3 and IEC 60870-5-101/104 with three RJ45 interfaces for communication via IP-based networks (WAN/LAN) and an RS 232/RS 485 interface for communication via conventional WANs

6GK7543-1MX00-0XE0

Engineering Software STEP 7 Professional V16

- SIMATIC STEP 7 Professional V17 floating license
- Upgrade SIMATIC STEP 7 Basic V11 ... V16 → V17 floating license

6ES7822-1AA07-0YA5

6ES7822-0AA07-0YE5

Accessories**DIN rail**

SIMATIC S7-1500, 160 mm DIN rail; incl. grounding screw, integrated DIN rail for mounting small items, such as terminals, relays

6ES7590-1AB60-0AA0

SIMATIC Memory Card

SIMATIC S7, Memory Card for S7-1x 00 CPU/SINAMICS, 3.3 V flash, 24 MB

6ES7954-8LF03-0AA0

SCALANCE M876-4 (EU)

4G router; for wireless IP communication of Ethernet-based programmable controllers via LTE (4G) mobile wireless optimized for use in Europe, VPN, firewall, NAT; 4-port switch; 2 x SMA antenna, MIMO technology; 1 x digital input, 1 x digital output; note country approvals.

6GK5876-4AA00-2BA2

SCALANCE M876-4 (NAM)

4G router (NAM); for wireless IP communication of Ethernet-based programmable controllers via LTE (4G) mobile wireless optimized for use in North America, VPN, firewall, NAT; 4-port switch; 2 x SMA antenna, MIMO technology; 1 x digital input, 1 x digital output; note country approvals.

6GK5876-4AA00-2DA2

SCALANCE M826-2 SHDSL router

For IP communication via the 2-wire and 4-wire cables of Ethernet-based automation devices; SHDSL topology: point-to-point, bonding, line bridge mode, routing mode with VPN, firewall, NAT; 4-port switch, 1x digital input, 1x digital output

6GK5826-2AB00-2AB2

SIMATIC S7-1500 Advanced Controllers

I/O modules

Communication

TIM 1531 IRC (for S7-1500)

4

Ordering data

MD720 modem

GSM/GPRS, 2G mobile wireless modem with RS232 interface; for GSM services CSD, GPRS, SMS; Quadband GSM; AT command interface; note country-specific approvals! Autom. GPRS connection setup; including gender changer for RS 232/PPI adapter

Article No.

6NH9720-3AA01-0XX0

Connecting cable

With one end open for connecting a TIM (RS232) to a third-party modem or radio unit (RS232); cable length 2.5 m

6NH7701-4BN

Connecting cable

For connecting two TIMs via their RS232 interfaces without modems (null modem); cable length 6 m

6NH7701-0AR

Article No.

SITOP compact 24 V/0.6 A

1-phase power supply with wide-range input 85 ... 264 V AC/110 ... 300 V DC, 24 V stabilized output voltage, 0.6 A nominal value of output current, slim design

6EP1331-5BA00

SIMATIC PM 1507 24 V/3 A

Stabilized power supply for SIMATIC S7-1500 input: 120/230 V AC output: 24 V DC/3 A

6EP1332-4BA00

SIMATIC PM 1507 24 V/8 A

Stabilized power supply for SIMATIC S7-1500 input: 120/230 V AC output: 24 V DC/8 A

6EP1333-4BA00

- Output current 3 A
- Output current 8 A

6EP1333-4BA00

Note:

You will find ordering data for software for communicating with PC systems in the Industry Mall under System interfaces – Software overview

Technical specifications

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
transfer rate	
transfer rate	
• at the 1st interface	10 ... 1 000 Mbit/s
• at the 2nd interface	10 ... 100 Mbit/s
• at interface 3	10 ... 100 Mbit/s
• acc. to RS 232	300 ... 115 200 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	3
number of electrical connections	
• for external data transmission acc. to RS 232	1
• for power supply	1
number of slots	
• for memory cards	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector, RS232 switchable to RS485
• for power supply	2-pole plugable terminal block
slot version	
• of the memory card	SD 1.0, SD 1.1, SDHC, Siemens SMC
storage capacity of the memory card maximum	32 Gbyte

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
consumed current	
• from external supply voltage at DC at 24 V typical	0.15 A
• from external supply voltage at DC at 24 V maximum	0.3 A
power loss [W] with external supply voltage at 24 V DC	
• in update mode typical	3.9 W
• in communication mode typical	3.9 W
product extension optional backup battery	No

Technical specifications

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
ambient conditions	
ambient temperature	
• during operation	0 ... 70 °C
• for vertical installation during operation	0 ... 50 °C
• for horizontally arranged busbars during operation	0 ... 70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-1500 double-wide
width	70 mm
height	147 mm
depth	129 mm
net weight	0.525 kg
fastening method	
• 35 mm top hat DIN rail mounting	No
• S7-300 rail mounting	No
• S7-1500 rail mounting	Yes
product features, product functions, product components general	
product function	
• DynDNS client	No
number of units	
• note	Number of TIM per S7-1500: 1
wire length	
• with RS 232 interface maximum	6 m
• with RS 485 interface maximum	30 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	132; only via LAN
• with PG connections maximum	4
• with PG/OP connections maximum	4
• with OP connections maximum	4
service	
• of SIMATIC communication as server	Yes
• SINAUT ST7 via S7 communication	Yes
• PG/OP communication	Yes

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
performance data IT functions	
number of possible connections	
• as server by means of HTTP maximum	2
• as server by means of HTTPS maximum	2; 2 per Ethernet interface
• as email client maximum	1
performance data telecontrol	
suitability for use	
• node station	Yes
• substation	Yes
• TIM control center	Yes
control center connection	Systems with ST7, DNP3 and IEC 60870-5-101/104 protocol
• by means of a permanent connection	Systems with ST7, DNP3 and IEC 60870-5-101/104 protocol
protocol is supported	
• DNP3	Yes
• IEC 60870-5	Yes
• SINAUT ST1 protocol	No
• SINAUT ST7 protocol	Yes
• Modbus RTU	No
product function data buffering if connection is aborted	Yes; 100000 data telegrams (ST7) or 250000 events (IEC 60870-5 / DNP3)
number of data points per station maximum	3 000
number of DNP3 masters	
• for Ethernet maximum	4
• with RS 232 interface maximum	4
product feature buffered message frame memory	Yes
transmission format	
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
operating mode for scanning of data transmission	
• with dedicated line/radio link with SINAUT ST7 protocol	Polling, polling with time slot procedure
• with dial-up network with SINAUT ST7 protocol	spontaneous
hamming distance	
• for SINAUT ST7 protocol	4
performance data teleservice	
diagnostics function online	Yes
diagnostics with SIMATIC STEP 7	
product function	
• program download with SIMATIC STEP 7	Yes
• remote firmware update	Yes
• remote configuration	Yes

SIMATIC S7-1500 Advanced Controllers

I/O modules
Communication

TIM 1531 IRC (for S7-1500)

Technical specifications

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
product functions management, configuration, engineering	
product function MIB support protocol is supported	Yes
• SNMP v1	Yes
• SNMP v3	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP 7 Professional V14 SP1 (TIA Portal) or higher
• for CPU configuring required SINAUT TD7 block library for CPU	No
• for PG configuring required SINAUT ST7 configuration software for PG	No
storage location of TIM configuration data	Flash or SD card of the TIM 1531 IRC
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 - higher level designation/location designation	Yes
• I&M2 - installation date	Yes
• I&M3 - comment	Yes
product functions diagnostics	
product function web-based diagnostics	Yes
product functions routing	
service routing note	IP routing up to 1 Mbps
product function	
• static IP routing	Yes
• static IP routing IPv6	Yes
• dynamic IP routing	No
• dynamic IP routing IPv6	No
protocol is supported	
• RIP v1	No
• RIPv2	No
• RIPnG for IPv6	No
• OSPFv2	No
• OSPFv3 for IPv6	No
• VRRP	No
• VRRP for IPv6	No
• BGP	No
• PPP	No
• PPOE via DSL	No

Article number	6GK7543-1MX00-0XE0
product type designation	TIM 1531 IRC
product functions security	
product function	
• MSC client via GPRS modem with MSC capability	Yes
protocol	
• is supported MSC protocol	Yes
• with Virtual Private Network MSC is supported	TCP/IP
key length for MSC with Virtual Private Network	128 bit
number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	127
product functions time	
product function SICLOCK support	No
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
• NTP (secure)	Yes
product component hardware real time clock	No
product feature hardware real time clock w. battery backup	No
time synchronization	
• from NTP-server	Yes
• from GPS-signal	No
• from control center	Yes
• from mobile network provider	No
• PC	No
• manual setting	No
product functions position detection	
product function	
• position detection with GPS	No
• pass on position data	No
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

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