

Catalog

**SIEMENS**

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CB 1241 RS485 communication board

Overview

- For fast, high-performance serial data exchange via point-to-point connection
- Implemented protocols: ASCII, USS drive protocol, Modbus RTU
- Additional protocols can be loaded later
- Simple parameterization with STEP 7 Basic
- Can be plugged directly into the CPU

Application

The CB 1241 communication board RS 485 is used for fast, high-performance serial data exchange via point-to-point connections.

Point-to-point coupling is possible, for example, to:

- SIMATIC S7 automation systems and systems of many other manufacturers
- Printers
- Robot controls
- Modems
- Scanners
- Bar code readers, etc.

The CB 1241 communication board RS 485 can be plugged directly into all SIMATIC S7-1200 CPUs.

This provides users with the following advantages:

- Optimal adaptation:
With communication boards, users can optimally adapt their controllers even to more complex tasks.
- Flexibility:
If the task is expanded subsequently, the controller can be upgraded. Updating of the user program is extremely simple.
- Use where space is limited:
The communication boards are directly plugged into the CPU, enabling the controller to be expanded without taking up any additional space.

Design

The communication boards are plugged straight into the holder on the front of the S7-1200 CPU.

- Installation:
Communication boards are plugged directly into the SIMATIC S7-1200 CPU and are thus connected electrically and mechanically with the CPU.
- The installation dimensions of the CPU remain unchanged.
- Replacement of all communication boards is facilitated by removable terminals ("permanent wiring").

Function

On the Communication Board CB 1241 RS 485, the following standard protocols are available:

- ASCII:
 - For interfacing to third-party systems with simple transmission protocols, e.g. protocols with start and end characters or with block check characters. The interface handshake signals can be queried and controlled via the user program.
- Modbus:
 - For communication according to the Modbus protocol with RTU format:
 - Modbus Master:
 - Master-slave interfacing with SIMATIC S7 as master.
 - Modbus slave:
 - Master-slave interfacing with SIMATIC S7 as slave; message frame traffic from slave to slave not possible.
- USS drive protocol:
 - Instructions for connection of USS protocol drives are specifically supported. In this case, drives exchange data over RS485. It is then possible to control these drives, and to read and write parameters.

Additional drivers can also be downloaded.

Parameterization

The parameterization of the Communication Board CB 1241 is particularly user-friendly and simple with STEP 7 Basic:

The user specifies the properties of the module by means of a parameterization environment integrated into STEP 7 Basic.

Technical specifications

Article number	6ES7241-1CH30-1XB0 Communication Board CB 1241, RS485
General information	
Product type designation	CB 1241 RS 485
Input current	
from backplane bus 5 V DC, typ.	50 mA
Power loss	
Power loss, typ.	1.5 W
Interfaces	
Point-to-point connection	
• Cable length, max.	1 000 m
Integrated protocol driver	
— Freeport	Yes
— ASCII	Yes; Available as library function
— Modbus RTU master	Yes
— MODBUS RTU slave	Yes
— USS	Yes; Available as library function
Protocols	
Integrated protocols	
Freeport	
— Telegram length, max.	1 kbyte
— Bits per character	7 or 8
— Number of stop bits	1 (Standard), 2
— Parity	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)
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— Telegram length, max.	1 kbyte
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— Number of stop bits	1 (Standard), 2

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— Parity	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)
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Modbus RTU master	
— Address area	1 through 49 999 (Standard Modbus addressing)
— Number of slaves, max.	247; slave numbers 1 through 247, per MODBUS network segment maximum 32 devices, additional repeaters needed to expand the network to maximum configuration
MODBUS RTU slave	
— Address area	1 through 49 999 (Standard Modbus addressing)
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C
• horizontal installation, min.	-20 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C
• permissible temperature change	5°C to 55°C, 3°C / minute
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
Relative humidity	
• Operation at 25 °C without condensation, max.	95 %
Dimensions	
Width	38 mm
Height	62 mm
Depth	21 mm
Weights	

Weight, approx.

40 g

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