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CM 1241 communications module

Overview

- For quick, high-performance serial data exchange via point-to-point connection

- Implemented protocols: ASCII, USS drive protocol, Modbus RTU, 3964(R)

- Additional protocols can also be loaded

- Simple parameterization with STEP 7 Basic

Application

The CM 1241 communications modules are used for quick, high-performance serial data exchange via point-to-point connection.
Point-to-point connection is possible to, e.g.:

- SIMATIC S7 automation systems and the systems of many other manufacturers

- Printers

- Robot controls

- Modems

- Scanners

- Bar code readers, etc.

Design

The CM 1241 communications modules have the same design features as the basic devices.

- Installation on DIN rails:
  The modules are snapped onto the rail next to the CPU on the right and are electrically and mechanically connected to each
  other and to the CPU by the integral slide mechanism.

- Direct installation:
  Horizontal or vertical mounting on DIN rail or direct mounting in the cabinet using integral lugs.

The communications modules are equipped with the following:

- Status LEDs for indicating "Send", "Receive" and "Error"

- Communication interface:
  available for the RS232 or RS422/485 physical transmission properties

Function

The following standard protocols are available on the CM 1241 communications modules:

- 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 called 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 especially supported. In this case, drives exchange data over RS485.

  It is then possible to control these drives, and to read and write parameters.

Further drivers for downloading are also available.

Parameterization

Parameterization of the CM 1241 communications module is particularly user-friendly and simple with STEP 7 Basic:

- The user assigns the module characteristics via a parameterization environment integrated in STEP 7 Basic, e.g.:

  - The implemented protocol drivers that are used.

  - The driver-specific characteristics that are used.

Technical specifications

Article number	6ES7241-1CH32-0XB0	6ES7241-1AH32-0XB0
	Communication Module cm 1241, RS422/485	Communication Module cm 1241, RS232
General information		
Product type designation	CM 1241 RS 422 / 485	CM 1241 RS 232
Supply voltage		
Rated value (DC)	24 V	24 V
permissible range, lower limit (DC)	20.4 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V
Input current		
Current consumption, max.	220 mA; From backplane bus 5 V DC	200 mA; From backplane bus 5 V DC
Power loss		
Power loss, typ.	1.1 W	1.1 W
Interfaces		
Interfaces/bus type	RS 422 / 485 (X.27)	RS 232C (V.24)
Number of interfaces	1	1
Point-to-point connection		
● Cable length, max.	1 000 m	10 m
Integrated protocol driver		
— Freeport	Yes	Yes
— ASCII	Yes; Available as library function	Yes; Available as library function
— Modbus RTU master	Yes	Yes
— MODBUS RTU slave	Yes	Yes
— USS	Yes; Available as library function	
Protocols		
Integrated protocols		
Freeport		
— Telegram length, max.	1 kbyte	1 kbyte
— Bits per character	7 or 8	7 or 8
— Number of stop bits	1 (Standard), 2	1 (Standard), 2
— Parity	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)
3964 (R)		
— Telegram length, max.	1 kbyte	1 kbyte

— Bits per character	7 or 8	7 or 8
Article number	**6ES7241-1CH32-0XB0**	**6ES7241-1AH32-0XB0**
	Communication Module cm 1241, RS422/485	Communication Module cm 1241, RS232
— Number of stop bits	1 (Standard), 2	1 (Standard), 2
— Parity	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)	No parity (standard); even, uneven, mark (parity bit always 1); space (parity bit always 0)
Modbus RTU master		
— Address area	1 through 49 999 (Standard Modbus addressing)	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	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)	1 through 49 999 (Standard Modbus addressing)
Interrupts/diagnostics/status information		
Diagnostics function	Yes	Yes
Diagnostics indication LED		
● for status of the outputs	Yes	Yes
Degree and class of protection		
IP degree of protection	IP20	IP20
Standards, approvals, certificates		
CE mark	Yes	Yes
CSA approval	Yes	Yes
UL approval	Yes	Yes
cULus	Yes	Yes
FM approval	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
KC approval	Yes	Yes
Marine approval	Yes	Yes
Ambient conditions		
Free fall		
● Fall height, max.	0.3 m; five times, in product package	0.3 m; five times, in product package
Ambient temperature during operation		
● min.	-20 °C	-20 °C
● max.	60 °C	60 °C
● horizontal installation, min.	-20 °C	-20 °C
● horizontal installation, max.	60 °C	60 °C
● vertical installation, min.	-20 °C	-20 °C
● vertical installation, max.	50 °C	50 °C
● permissible temperature change	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute
Ambient temperature during storage/transportation		
● min.	-40 °C	-40 °C
● max.	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13		
● Operation, min.	795 hPa	795 hPa
● Operation, max.	1 080 hPa	1 080 hPa
● Storage/transport, min.	660 hPa	660 hPa

● Storage/transport, min.		
● Storage/transport, max.	1 080 hPa	1 080 hPa
Article number	**6ES7241-1CH32-0XB0**	**6ES7241-1AH32-0XB0**
	Communication Module cm 1241, RS422/485	Communication Module cm 1241, RS232
Relative humidity		
● Operation at 25 ℃ without condensation, max.	95 %	95 %
Dimensions		
Width	30 mm	30 mm
Height	100 mm	100 mm
Depth	75 mm	75 mm
Weights		
Weight, approx.	155 g	150 g

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