

Overview



- For fast, high-performance serial data exchange via point-to-point connection
- 2 versions:
 - CP 441-1 with 1 variable interface for easy point-to-point coupling.
 - CP 441-2 with 2 variable interfaces for high-performance point-to-point connection.
- Plug-in interface modules for different physical transmission properties:
 - RS 232C (V.24), 20 mA (TTY) or RS 422/RS 485 (X.27)
- Implemented protocols: ASCII, 3964 (R), printer driver; for CP 441-2 additional RK 512 and Modbus RTU (reloadable)
- Simple parameter assignment using tool integrated in STEP 7

Technical specifications

Article number	6ES7441-1AA05-0AE0 CP 441-1, PTP-CONN., 1 CHANNEL	6ES7441-2AA05-0AE0 CP 441-2, PTP-CONN., 2 CHANNELS
Product type designation		
Supply voltage		
Rated value (DC)		
• 5 V DC	Yes	Yes
• 24 V DC	Yes	Yes
Input current		
from backplane bus 5 V DC, max.	300 mA	300 mA
Power losses		
Power loss, typ.	2.1 W; incl. 1x20 mA TTY module	2.7 W; incl. 2x20mA TTY module
Memory		
Memory requirements per interface in memory card of S7-CPU	1 to 5 KB for parameters; 0 to 55 KB for message texts	1 to 5 KB for parameters; 0 to 55 KB for message texts; 0 to 64 KB for loadable drivers
Interfaces		
Number of interfaces	1; variable	2; variable
Interface physics, 20 mA (TTY)	Yes	Yes
Interface physics, RS 232C (V.24)	Yes	Yes
Interface physics, RS 422/RS 485 (X.27)	Yes	Yes
20 mA (TTY), cable length, shielded, max.	1 000 m; At 9600 bps	1 000 m; At 9600 bps
RS 232, cable length, shielded, max.	15 m; At 115200 bps	15 m; At 115200 bps
RS 422/485, cable length, shielded, max.	1 200 m; At 19200 bps	1 200 m; At 19200 bps
Point-to-point		
• Transmission rate, max.	115.2 kbit/s; Min. 300 bps	115.2 kbit/s; Min. 300 bps
• supported printers	HP-Deskjet, HP-Laserjet, IBM-Proprinter, user-defined	HP-Deskjet, HP-Laserjet, IBM-Proprinter, user-defined
Integrated protocol driver		
- 3964 (R)	Yes	Yes
- ASCII	Yes	Yes
- RK512	No	Yes
- Printer	Yes	Yes
- customer-specific drivers reloadable	No	No
Transmission speed, 20 mA (TTY)		
- with 3964 (R) protocol, max.	19.2 kbit/s	19.2 kbit/s
- with ASCII protocol, max.	19.2 kbit/s	19.2 kbit/s
- with printer driver, max.,	19.2 kbit/s	19.2 kbit/s
- with RK 512 protocol, max.	19.2 kbit/s	19.2 kbit/s

SIMATIC S7-400 advanced controller

Communication

CP 441-1, CP 441-2

Technical specifications (continued)

Article number	6ES7441-1AA05-0AE0 CP 441-1, PTP-CONN., 1 CHANNEL	6ES7441-2AA05-0AE0 CP 441-2, PTP-CONN., 2 CHANNELS
Transmission speed, RS 422/485		
- with 3964 (R) protocol, max.	115.2 kbit/s	115.2 kbit/s
- with ASCII protocol, max.	115.2 kbit/s	115.2 kbit/s
- with printer driver, max.,	115.2 kbit/s	115.2 kbit/s
- with RK 512 protocol, max.		115.2 kbit/s
Transmission speed, RS232		
- with 3964 (R) protocol, max.	115.2 kbit/s	115.2 kbit/s
- with ASCII protocol, max.	115.2 kbit/s	115.2 kbit/s
- with printer driver, max.,	115.2 kbit/s	115.2 kbit/s
- with RK 512 protocol, max.		115.2 kbit/s
Ambient conditions		
Ambient temperature in operation		
• Min.	0 °C	0 °C
• max.	60 °C	60 °C
Relative humidity		
• Operation, max.	95 %	95 %
Dimensions		
Width	25 mm	25 mm
Height	290 mm	290 mm
Depth	210 mm	210 mm
Weights		
Weight, approx.	580 g; Interface modules: 80 g	580 g; Interface modules: 80 g

Ordering data

Article No.

Article No.

Communication module CP 441-1

With 1 variable interface for interface submodules; including configuration package on CD

6ES7441-1AA05-0AE0

Communication module CP 441-2

With 2 variable interfaces for interface submodules; including configuration package on CD

6ES7441-2AA05-0AE0

Interface submodules

RS 232C (V.24)

6ES7963-1AA10-0AA0

20 mA (TTY)

6ES7963-2AA10-0AA0

RS 422/485 (X.27)

6ES7963-3AA10-0AA0

RS 232 connecting cable

5 m

6ES7902-1AB00-0AA0

10 m

6ES7902-1AC00-0AA0

15 m

6ES7902-1AD00-0AA0

TTY connecting cable

5 m

6ES7902-2AB00-0AA0

10 m

6ES7902-2AC00-0AA0

50 m

6ES7902-2AG00-0AA0

RS 422/485 connecting cable

5 m

6ES7902-3AB00-0AA0

10 m

6ES7902-3AC00-0AA0

50 m

6ES7902-3AG00-0AA0

Loadable drivers for CP 441-2

Modbus master (RTU format)

- Single license
- Single license, without software or documentation

6ES7870-1AA01-0YA0

6ES7870-1AA01-0YA1

Modbus slave (RTU format)

- Single license
- Single license, without software or documentation

6ES7870-1AB01-0YA0

6ES7870-1AB01-0YA1

SIMATIC S7-400 advanced controller

Communication

Loadable drivers for CP 441-2 and CP 341

1

Overview

- Drivers for Modbus protocol with RTU message format; communication as master or slave
- Downloadable onto CP 341 and CP 441-2 (6ES7441-2AA05-0AE0)

Technical specifications

Parameterization software	Loadable drivers for CP 441-2 and CP 341
Type of license	Simple license, copy license
Target system	SIMATIC CP 341, SIMATIC CP 441-2
Technical specifications	Modbus Master • Modbus protocol with RTU format • Master/slave coupling: SIMATIC S7 is master • Function codes implemented: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 15, 16 • No V.24 control and signal lines • CRC polynomial: $x^{16} + x^{15} + x^2 + 1$ • Interfaces: TTY (20 mA); V.24 (RS 232 C); X.27 (RS 422/485) 2-wire or 4-wire • Receive mailbox specified on BRCV • Character delay time 3.5 characters or multiple thereof • Broadcast message possible • Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s) • Character frame • With/without RS 485 operation for 2-wire connections • With/without modem operation (ignore smudge characters) • Response monitoring time 100 ms to 25.5 s in steps of 100 ms • Factor for the character delay time 1-10 • Default setting of receive line when using the X.27 interface module Modbus slave • Modbus protocol with RTU format • Master/slave coupling: SIMATIC S7 is slave • Function codes implemented: 01, 02, 03, 04, 05, 06, 08, 15, 16 • No V.24 control and signal line • CRC polynomial: $x^{16} + x^{15} + x^2 + 1$ • Interfaces: TTY (20 mA), V.24 (RS 232C), X.27 (RS 422/485) 2-wire or 4-wire • Communications FB 180, instance DB 180 (use of a multi-instance) • Conversion of the Modbus data address to S7 data areas. Data areas which can be processed: DB, bit memories, outputs, inputs, timers, counters • Character delay time 3.5 characters or multiple thereof

Adjustable parameters

- Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s)
- Character frame
- Slave address of CP (1 to 255)
- With/without RS 485 operation for 2-wire connection
- With/without modem operation (ignore smudge characters)
- Factor for the character delay time 1-10
- Number of work DB (for FB processing)
- Enabling of memory areas for writing by the master
- Default setting of receive line when using the X.27 interface module
- Conversion of Modbus addresses to S7 data areas

Ordering data

Article No.

Modbus Master V3.1

Task:

Communication via Modbus protocol with RTU format, SIMATIC S7 as master

Requirement:

CP 341 or CP 441-2; STEP 7 V4.02 and higher

Delivery package:

Driver program/documentation, English, German, French

Single license

6ES7870-1AA01-0YA0

Single license, without software and documentation

6ES7870-1AA01-0YA1

Modbus Slave V3.1

Task:

Communication via Modbus protocol with RTU format, SIMATIC S7 as slave

Requirement:

CP 341 or CP 441-2; STEP 7 V4.02 and higher

Delivery package:

Driver program/documentation, English, German, French

Single license

6ES7870-1AB01-0YA0

Single license, without software and documentation

6ES7870-1AB01-0YA1

SIMATIC Manual Collection

6ES7998-8XC01-8YE0

Electronic manuals on DVD, multilingual: 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

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