

Which differences can be stated regarding the Ethernet communication services between SIMATIC, SINUMERIK 840D pl and SINUMERIK 840D sl ?

Order no.:

6ES7317-2EJ10-0AB0	CPU317-2 PN/DP, 512KB
6ES7318-3EL00-0AB0	CPU319-3 PN/DP, 1.4MB
6GK7343-1..	SIMATIC NET, CP 343-1 COMMUNICATION PROCESSOR IE
6FC537..	SINUMERIK 840D sl, NCU 710.2, 720.2, 730.2
6FC537..	SINUMERIK 840D sl, NCU 720.2 PN, 730.2 PN

Description:

For a convenient comparison of the characteristics of Ethernet communication services, we have listed in the following table the characteristics of the CP 343-1, the Ethernet interface of the CPU 317-2 PN/DP, the CPU 319-3 PN/DP and the SINUMERIK 840D sl NCU 7x0.2 X120/X130, and the PROFINET ports of the SINUMERIK 840D sl NCU 7x0.2 PN.

Scope of communication of the Ethernet interface	SIMATIC CPU 317-2 PN/DP	SIMATIC CPU 319-3 PN/DP	SINUMERIK powerline 840D with CP 343-1 ¹⁾	SINUMERIK solution line NCU 7x0.2 NCU 7x0.2 PN on X130 of the NCU	SINUMERIK solution line NCU 7x0.2 PN at the PROFINET port of the CPU319
PG/OP communication	x	x	x	x	x
S7 routing	x	x	x	x	x
ISO transport protocol	-	-	x ¹⁰⁾¹²⁾	-	-
ISO-on-TCP protocol					
Send/Receive	x ⁸⁾⁹⁾	x ⁸⁾	X ¹⁰⁾	x ¹¹⁾	x ⁸⁾
Put/Get	x ⁸⁾⁹⁾	x ⁸⁾	x	-	x ⁸⁾
Fetch/Write	x ⁸⁾⁹⁾	x ⁸⁾	x	-	x ⁸⁾
TCP protocol	x ⁸⁾	x ⁸⁾	x ¹⁰⁾	-	x ⁸⁾
UDP protocol	x ⁸⁾⁹⁾	x ⁸⁾	x ¹⁰⁾	-	x ⁸⁾
S7 communication and loadable S7 communication	x	x	x ⁷⁾	x	x
PROFINET IO Controller	x ⁴⁾	x	x ⁵⁾	-	X ¹⁶⁾

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PROFINET IO Device	-	-	x ⁶⁾	-	-
PROFINET Acyclic CBA communication	x ²⁾	x	x ³⁾	-	x
HMI acyclic CBA communication	x ²⁾	x	x ³⁾	-	x
PROFINET cyclic CBA communication	x ²⁾	x	x ³⁾	-	x
FTP Client / Server communication	-	-	x ¹⁾	-	-
E-Mail Client	-	-	x ¹⁾	-	-
HTTP communication	-	-	x ¹⁾	-	-
Supports several sub-networks	-	-	x ¹³⁾	- 14)	-
TIA conformity	x	x	x	- 15)	x

1) CP 343-1EX30 / CX10, V2.0.15 on Sinumerik 840D (powerline) as of NCU572.3, NCU573.4, NCU573.5.

IT communication services are supported by the following Ethernet CPs:

- 6GK7 343-1GX11-0XE0 (CP343-1 IT) / not released for SINUMERIK
- 6GK7 343-1GX20-0XE0 (CP343-1 IT) / not released for SINUMERIK
- 6GK7 343-1GX21-0XE0 (CP343-1 Advanced) / not released for SINUMERIK

2) The Firmware Version 2.2 of the CPU 317-2 PN/DP supports PROFINET CBA communications services up to and including the CBA Standard V2.0. The Firmware Version 2.3 of the CPU 317-2 PN/DP and the CPU 315-2 PN/DP support PROFINET CBA communication services up to and including CBA Standard V2.1.

3) The function PROFINET CBA supports the following modules:

- 6GK7 343- 1EX21- 0XE0 as of V1.1 (CP343-1)
- 6GK7 343- 1GX21- 0XE0 (CP343-1 Advanced)

4) Only supported with Firmware V2.3 (or later).

5) The function PROFINET IO Controller supports the following modules:

- 6GK7 343- 1EX21- 0XE0 (CP343-1)
- 6GK7 343- 1EX30- 0XE0 (CP343-1)
- 6GK7 343- 1GX21- 0XE0 (CP343-1 Advanced)

6) The function PROFINET IO Device supports the following modules:

- 6GK7 343- 1EX30- 0XE0 (CP343-1)
- 6GK7 343- 1CX10- 0XE0 (CP343-1 Lean)

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- 7) The CP 343-1 Lean (6GK7 343-1CX00-0XE0 / 6GK7 343-1CX10-0XE0) supports the S7 communication as server only.
- 8) Via the integrated PROFINET interface and loadable FBs (only open communication via Industrial Ethernet). The article: [22146612](https://www.siemens.com/press/en/2009/02/22146612) provides more detailed information regarding open communication via Industrial Ethernet and the corresponding loadable FBs.
- 9) Only supported as of CPU 6ES7 315-2EH13-0AB0 V2.5 and CPU 6ES7 317-2EK13-0AB0 V2.5.
- 10) Via the SEND/RECEIVE interface enabling communication via configured connections and communication blocks FC5/6 "AG_SEND/AG_RECV".
- 11) Via the MC-specific SEND/RECEIVE interface enabling communication via configured connections and communication blocks FC1005/1006 "AG_SEND/AG_RECV".

Support for FETCH/WRITE (S5 compatible communication) as of Software Version 2.6 SP1.

PUT/GET resp. FTP services are NOT scheduled at present.

12) The ISO transport protocol is **not** supported by the following CP343-1:

- 6GK7 343-1EX20-0XE0 (CP343-1)
- 6GK7 343-1GX20-0XE0 (CP343-1 IT)
- 6GK7 343-1CX00-0XE0 (CP343-1 Lean)
- 6GK7 343-1CX10-0XE0 (CP343-1 Lean)
- 6GK7 343-1HX00-0XE0 (CP343-1 PN)

13) Yes, e.g. with the following CPs

- 6GK7 343-1GX30-0XE0 (CP343-1 Advanced: 2 Ethernet interfaces with three RJ 45 ports in total)

14) Supports three different subnetworks (X120, X130, X127), is, however, only modeled as single CP with one Ethernet connection

15) SINUMERIK: Differences to the SIMATIC implementation:

- No diagnosis resp. display of connection data as with other S7-343-1 CPs,
- No routing between the different Ethernet interfaces,
- No takeover of the IP address configured in STEP 7 (predefined by the configuration),
- No change of the IP address / station name by STEP 7 (DCP/LLDP),
- No plug designation stating the port number.

16) PROFINET IO Controller support scheduled for NCU SW 2.6 (or later)