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SIMATIC NET

S7–CPs for Industrial Ethernet

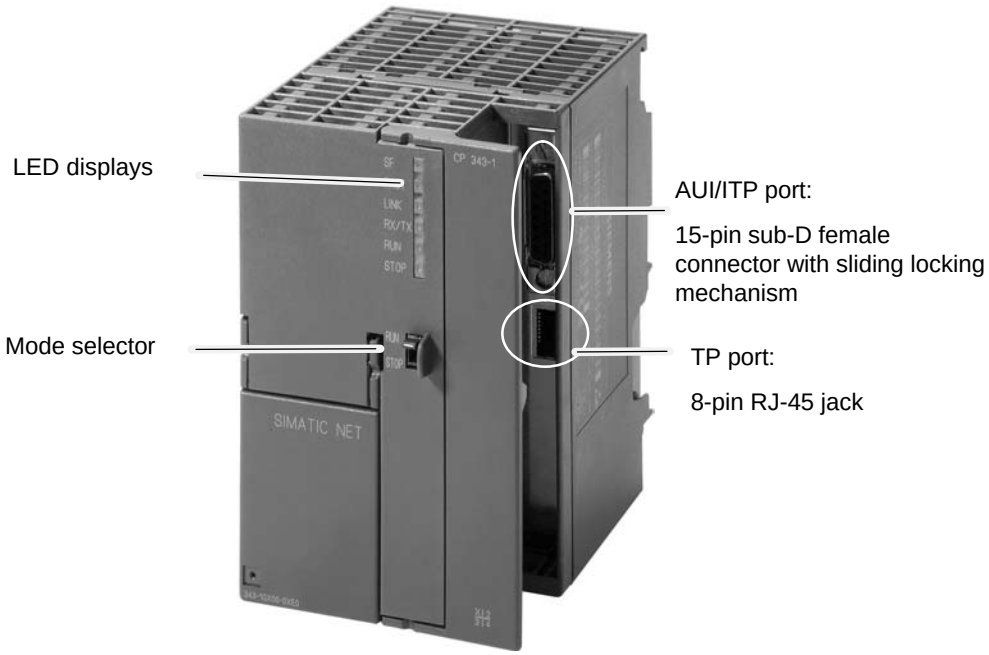
Manual Part B1

CP 343-1 / CP 343-1EX20

6GK7 343–1EX11–0XE0 Version 1 and higher (Firmware Version V2.0)

6GK7 343–1EX20–0XE0 Version 1 and higher (Firmware Version V1.0)

for SIMATIC S7–300 / C7–300



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Notes on the Product

Product Names

This description contains information on the two following products

- CP 343-1

and

- CP 343-1EX20

Printed Product Information Supplied with the Product

Note

All the notices in the **Product Information Bulletin** shipped with this device are valid and must be adhered to.

Compatibility with the Previous Version

Note

Due to the **increased functionality and restrictions,** pay particular attention to the notes in Chapter 6 of this manual.

Address Label: Unique MAC address preset for the CP

- CP 343-1

  The CP 343-1 ships with a factory-set MAC address. During configuration, you can assign a different MAC address.

  To ensure a unique address assignment, we recommend that you use this factory set MAC address when configuring the module!

- CP 343-1EX20

  The CP 343-1EX20 ships with a fixed MAC address. The MAC address is not changed during configuration.

❑

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Contents

Contents – Part A

Ethernet CPs – General Information . . . . . Refer to the General part

Note

Please remember that Part A of the manual also belongs to the description of the CP. Among other things, it contains explanations of the safety notices and general information that applies to all S7 CPs for Industrial Ethernet.

You can also download this general part from the Internet:

http://www4.ad.siemens.de/view/cs/de/8777865

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1 Properties / Services

Application

The CP 343-1 / CP 343-1EX20 communications processor is designed for operation in an S7-300 programmable logic controller. It allows the S7-300 to be attached to Industrial Ethernet.

Difference between the CP 343-1 and CP 343-1EX20

The CP 343-1 and CP 343-1EX20 provide identical basic functions.

The CP 343-1 has several additional features that were deliberately omitted in the CP 343-1EX20.

Sections of text that relate only to the properties of the CP 343-1 are highlighted by a shaded background as shown here.

Services

The CP 343-1/CP 343-1EX20 supports the following communication services:

- S7 communication and PG/OP communication
  - PG functions (including routing)
  - Operator control and monitoring functions (HMI) multiplexing TD/OP connections
  - Client and server for data exchange using communication blocks [1]) on S7 connections configured at both ends
  - Server for data exchange on S7 connections configured at one end only without communication blocks on the S7-300 / C7-300 station

1)
Blocks for S7 communication (see also STEP 7 online help or manual "System Software for S7-300/400 System and Standard Functions"):

BSEND	FB12
BRCV	FB13
PUT	FB14
GET	FB15
USEND	FB8
URCV	FB9
C_CNTRL	FC62

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- S5 compatible communication with
  - SEND/RECEIVE interface over ISO-on-TCP, TCP and UDP connections
  - Multicast over UDP connection

    The multicast mode is made possible by selecting a suitable IP address when configuring connections.
  - FETCH/WRITE services (server; corresponding to S5 protocol) over ISO-on-TCP connections and TCP connections;

    (with the CP 343–1 also over ISO transport connections)

    The addressing mode can be configured for FETCH/WRITE access as the S7 or S5 addressing mode.
  - LOCK/UNLOCK with FETCH/WRITE services;
- S5-compatible communication over ISO transport connections with
  - SEND/RECEIVE interface
  - FETCH/WRITE services (server; complying with S5-protocol)
- Internal time of day

  If a time master exists (using the NTP or SIMATIC mode), the time for the CP-internal diagnostic buffer is synchronized over the LAN.
- Can be addressed using a factory-set MAC address

  The CP can be reached using the factory-set MAC address to allow IP address assignment; the CP supports the PST function (Primary Setup Tool).
- SNMP Agent (only CP 343–1EX20 firmware version V 1.1 or higher)

  The CP supports data queries over SNMP in version V1 (**S**imple **N**etwork **M**anagement **P**rotocol) according to the MIB II standard.

Configuration

You can configure the CP 343-1/CP 343-1EX20 over MPI or LAN/Industrial Ethernet. You require STEP 7 with NCM S7 for Industrial Ethernet (abbreviated to “NCM IE” below) with the following version:

Table 1-1

Version STEP 7 / NCM IE	Function of the CP 343-1 / CP 343-1EX20
V2.x to V5.1 + SP1	The same functionality is available as with the previous versions of the CP. • Configuration data created with these STEP 7 or NCM versions can be downloaded to the CP 343-1/CP 343-1EX20.
V5.1 + SP2 or higher	The full functionality including the extended functions as listed in Section 1.1 can be used.
V5.2 or higher	Required to configure the CP 343-1EX20

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Table 1-1 , Fortsetzung

Version STEP 7 / NCM IE	Function of the CP 343-1 / CP 343-1EX20

Programming – Using Blocks

For some communications services, there are pre-programmed blocks (FCs/FBs) available as the interface in your STEP 7 user program.

You will find a detailed description of these blocks in the NCM S7 for Ethernet manuals.

Notice

We recommend that you always use the latest block versions for all module types.

You will find information on the latest block version and links to download the current blocks in our Customer Support on the Internet:

http://www4.ad.siemens.de/view/cs/de/8797900

If you are using older block types, this recommendation only applies if you also have the latest firmware version.

You will find further information and Internet addresses in the Preface of the General Part of this manual.

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2 Requirements for Use

General Operation

The following table shows the S7-300 CPUs with which the CP 343-1 can be operated with this range of functions:

Table 2-1

CPU	Order Number
CPU 312 IFM	6ES7 312-5AC02-0AB0
CPU 312 (T)	6ES7 312-5AC82-0AB0
CPU 313	6ES7 313-1AD03-0AB0
CPU 314	6ES7 314-1AE04-0AB0
CPU 314 (T)	6ES7 314-1AE84-0AB0
CPU 314 IFM	6ES7 314-5AE03-0AB0
CPU 314 IFM (T)	6ES7 314-5AE83-0AB0
CPU 315	6ES7 315-1AF03-0AB0
CPU 315-2 DP	6ES7 315-2AF03-0AB0
CPU 315-2 DP (T)	6ES7 315-2AF83-0AB0
CPU 316-2 DP	6ES7 316-2AG00-0AB0
CPU 318-2	6ES7 318-2AJ00-0AB0
CPU 614	6ES7 614-1AH03-0AB3
CPU 614-Z	6ES7 614-1AH03-0AB3-Z
CPU 312C	6ES7 312-5BD00-0AB0
CPU 313C	6ES7 313-5BE00-0AB0
CPU 313C-2 DP	6ES7 313-6CE00-0AB0
CPU 313C-2 PtP	6ES7 313-6BE00-0AB0
CPU 314C-2 DP	6ES7 314-6CF00-0AB0
CPU 314C-2 PtP	6ES7 314-6BF00-0AB0

The table lists the CPUs approved at the time of printing this product information bulletin. S7-300 CPUs approved later and not listed in the table also support the range of functions described here.

All versions of the SINUMERIK CPUs 840D and 810D are supported.

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3 Installation and Commissioning

Procedure / Steps

Table 3-1

Step	Explanation / Meaning
1. Install the CP on the S7 standard rail. 2. Establish the connection via the supplied bus connector to the backplane bus.	Slots 4 to 11 are permitted for the CP in racks 0 to 3 (connected by IM 360/361). Proceed as in the sections dealing with setup and wiring, described in detail in /1/.
Note The CP cannot be used in an extension rack that is connected via the IM 365! Reason: The required communication bus is not connected to the extension rack via the IM 365.	
3. Connect the CP to the power supply.	Follow the steps as described in detail in /1/ when wiring between the power supply and the CPU.
Notes • The CPU, CP and IM (if one exists) must be connected to the same power supply. • Only wire up the S7-300 / C7-300 with the power switched off! • The CP is delivered with a jumper inserted between the M terminals and the function ground. If you want to earth the reference potential, you must not remove the jumper between the M terminals and the function ground (see also /1/ under the topic “Setting Up an S7-300 with Earthed Reference Potential” and “Setting Up an S7-300 with Unearthed Reference Potential”).	
4. Attach the CP to Industrial Ethernet.	
5. The remaining steps in commissioning involve downloading the configuration data.	You can connect the PG when configuring the CP as follows: • via MPI • via Industrial Ethernet For more detailed information, refer to the manual NCM S7 for Ind. Ethernet /3/ : – addressing the first time (IP address assignment / node initialization); – downloading the defined configuration The PG/PC requires a LAN attachment, for example via a CP 1613 or CP 1411 and must have the necessary software (for example the S7 1613 package or SOFTNET IE). The TCP/IP protocol or the ISO protocol (CP 343-1 only) must be installed. The protocol used must then be applied to the S7ONLINE access point.

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Note

The two front panels (CP 343-1) and the single front panel (CP 343-1EX20) must be closed during operation.

The module must be installed so that its upper and lower ventilation slits are not covered, allowing adequate ventilation.

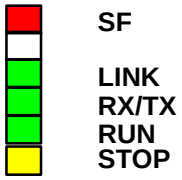
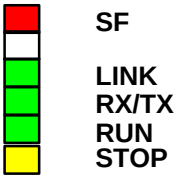
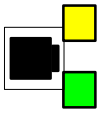
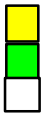
Configuration

To initialize the CP for communication services, use the configuration tool NCM S7 for Industrial Ethernet. Refer to Chapter 1 of this manual.

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4 Displays and Mode Selector

Along with the five LEDs on the front panel that are used to indicate the mode, there is an additional display with two LEDs (on the CP 343-1 located beside the RJ-45 jack hidden by the front panel) to indicate the communication status.

CP 343-1	CP 343-1 – 1EX20
Front panel:  **SF** **LINK** **RX/TX** **RUN** **STOP**	Front panel:  **SF** **LINK** **RX/TX** **RUN** **STOP**
RJ-45 jack  **FAST** **FD**	behind the front panel:  **FAST** **FD**

LEDs Displaying the Status

The different combinations of the LEDs on the front panel indicate the status:

Table 4-1

SF(red)	RUN(green)	STOP(yellow)	CP Operating Mode
○	☀	●	Starting up (STOP->RUN)
○	●	○	Running (RUN)
○	●	☀	Stopping (RUN->STOP)
○	○	☀	Ready for firmware loading (this mode is active for ten seconds following power up when the mode selector is set to STOP)
●	○	☀	Waiting for firmware update (CP currently has an incomplete or incorrect firmware version)
○	○	●	Stopped (STOP) In the STOP mode configuring and performing diagnostics on the CP remain possible.
●	○	●	Stopped (STOP) with errors In this state, the CPU or intelligent modules in the rack remain accessible using PG functions.

Key: ● on ○ off ☀ flashing (0.5 Hz)

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CP Communication Status

In addition to the LEDs that signal the CP status, the front panel also includes LEDs that provide information about the status of the CP interface to Industrial Ethernet.

Table 4-2

LED	Meaning (LED on)
LINK LED (green)	Signals an existing connection to ITP/TP
RX/TX LED (green)	Flashing: CP sending/receiving via TP/ITP/AUI
FAST LED (green)	Signals an existing connection to ITP/TP at 100 Mbps (Fast Ethernet)
FD LED (green)	Signals an existing full duplex connection

Note

Read the explanations of the operating modes in the NCM S7 for Industrial Ethernet manual /2/.

Controlling the Operating Mode

There are different ways in which you can control the mode of the CP, as follows:

- Mode selector
- SIMATIC Manager in STEP 7

To control the mode from STEP 7 / NCM S7, the mode selector must be set to RUN.

Mode Selector

With the mode selector, you can set the following modes:

- Switch from STOP to RUN:

  The CP reads the configured and/or modified data into the work memory and then changes to the RUN mode.

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Note

The modes can only be controlled using NCM S7 or the SIMATIC Manager when the selector is set to RUN.

- Switch from RUN to STOP:

  The CP changes to STOP with the following results:

  – Established connections are terminated:

  – In the STOP mode configuring and performing diagnostics on the CP remain possible.

Note

Read the sections about downloading configuration data to the CP in the NCM S7 for Industrial Ethernet manual /2/.

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5 Performance Data

5.1 General Characteristics

Table 5-1

Characteristic	Explanation / Values
Number of simultaneous connections in total over Industrial Ethernet	Maximum 32 (CP 343–1) Maximum 48 (CP 343–1EX20)

Example of Maximum Load

You can operate (CP 343–1EX20):

32 S7 connections
2 ISO-on-TCP connections
8 TCP connections
6 UDP connections

5.2 Characteristics of S7 Communication

Table 5-2

Characteristic	Explanation / Values
Number of connections for S7 communication on Industrial Ethernet	in each case, up to • 16 Operator control and monitoring functions (HMI) • 16 S7 connections configured at one end • 16 S7 connections configured at both ends The number depends on the CPU type being used. Please refer to /1/ for the values for your CPU.
LAN interface – data record length per PDU • Sending • Receiving	 240 bytes / PDU 240 bytes / PDU

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5.3 Characteristics of the SEND/RECEIVE Interface

Table 5-3

Characteristic	Explanation / Values
Total number of ISO transport connections (CP 343-1 only) **+** ISO-on- TCP connections **+** TCP connections **+** UDP connections **in total**	Maximum 16 Notes: • All UDP connections are also possible in the multicast mode • ISO transport connections are possible only with the CP 343-1 .
Max. data length for blocks AG_SEND (V4.0 and higher) and AG_RECV (V4.0 and higher)	AG_SEND and AG_RECV allow the transfer of data fields of between 1 and 240 bytes. • 1 to 8192 bytes for ISO transport, ISO-on-TCP, TCP; • 1 to 2048 bytes for UDP
Restrictions for UDP • Transfer is not confirmed	The transmission of UDP frames is unconfirmed, in other words the loss of messages is not detected or displayed by the send blocks (AG_SEND).
• Data field length	The maximum length of the data fields is 2048 bytes.
• No reception of UDP broadcast	To avoid overload resulting from a high broadcast load, the CP does not permit reception of UDP broadcast.

Reaction Times on ISO Transport, ISO-on-TCP or TCP Connections

The calculation of the reaction times with ISO transport connections, ISO-on-TCP or TCP connections is determined by the run time of the function blocks required on the S7-300 CPU (AG_SEND, AG_RECV).

Table 5-4

Component	Explanation / Values
Run time in the CPU 314-1	per block AG_SEND, AG_RECV: 2.5 ms to 5 ms

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6 Compatibility with the Previous Product

6.1 Extended Functionality

What's New? Extended functionality compared with 6GK7 343-1EX10-0XE0

The following services and functions are new:

- Multicast over UDP connection

  The multicast mode is made possible by selecting a suitable IP address when configuring connections.

- S7 communication: Additional client function for data exchange using communication blocks on S7 connections configured at both ends.
- Internal clock that can be synchronized over the LAN if a time master is present.
- Addressing using default MAC address

  The CP can be reached using the factory-set MAC address to allow IP address assignment; the CP supports the PST function (Primary Setup Tool) or PSU (Primary Setup Unit).

- Accessibility after memory reset using the IP address (see also Section. 7.1)

  The CP has a two-level function available for resetting memory:

  – Memory reset

    Following this memory reset, the CP retains the preset MAC address and the retentive parameters. The CP is therefore immediately ready for downloads using the IP address.

  – Resetting to factory settings

    After this memory reset, the CP retains only the factory-set MAC address (as shipped).

Extended functionality with 6GK7 343-1EX20-0XE0 Firmware version V1.1

- SNMP Agent
- The addressing mode can be configured for FETCH/WRITE access as the S7 or S5 addressing mode.

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6.2 Replacing Older Modules / Replacing Defective Modules

Replacing a defective module: Difference between the CP 343-1 and CP 343-1EX20

The CP 343-1 (6GK7 343-1EX11-0XE0) and CP 343-1EX20 (6GK7 343-1EX20-0XE0) provide identical basic functionality.

Compared with the CP 343-1 Ext, the CP 343-1 has the following additional features:

- AUI port:
- Supports the ISO transport protocol

The CP 343-1EX20 is therefore **not** intended as a replacement for a defective CP 343-1. If you need to replace such module, you can still order the CP 343-1.

Replacing a CP 343-1

The CP 343-1 (6GK7 343-1EX11-0XE0) described here can be used as a replacement for the previous product CP 343-1 (6GK7 343-1EX10-0XE0).

Interface in the User Program



Danger

Please remember that if you use this module as a replacement, you should only use the blocks permitted for the configured CP type on SEND/RECEIVE interface!

If you configure the module described here in STEP 7 as module type 6GK7 343-1EX11-0XE0, you must use the block version intended for this module type:

AG_SEND (V4.0 and higher)
AG_RECV (V4.0 and higher)
AG_LOCK (V1.1 and higher)
AG_UNLOCK (V1.2 and higher)

You can only continue to use blocks of the older types if you configure the module as module type 6GK7 343-1EX10-0XE0 in STEP 7 (as a replacement module).

Notice

For new user programs, please make sure that you always use the latest block versions. You will find information on the latest block version and links to download the current blocks on the Internet:

http://www4.ad.siemens.de/view/cs/de/8797900

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7 Further Information on Operation

7.1 Memory Reset

Available Functions

The CP has a two-level function available for resetting memory:

- Clear / reset

  Following this memory reset, the CP retains the preset MAC address and the retentive parameters. The CP is therefore immediately ready for downloads using the IP address.

  The retentive parameters include:

  – IP address and IP parameters

  – A newly set MAC address

  – LAN settings

- Resetting to factory settings

  After this memory reset, the CP retains only the factory-set MAC address (as shipped).

Note

If you store the configuration data on the CPU, please read the note below.

Using the functions described here to reset the memory, you do not modify the configuration data on the CPU!

If you subsequently upload the configuration data from the CPU to a PG you will always obtain the configuration data that were previously on the CP (with parameters, connections, IP address).

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How to Use the Function

You can start the memory reset functions in STEP 7.

- Clear / reset

  In STEP 7 / /HW Config with **PLC ▸ Clear/Reset**

  or

  In STEP 7 / NCM Diagnostics with **Operating Mode ▸ Clear/Reset Module**

- Factory defaults reset

  In STEP 7 / NCM Diagnostics with **Operating Mode ▸ Reset to Factory Defaults**

Behavior after Memory Reset

The CPU in the S7 station does not recognize that the CP memory was reset. The CP therefore changes to the “stopped with error” state (see Chapter 4).

The configuration data must then be reloaded.

If the configuration data are stored on the CPU, you can start a download with power down/up.

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7.2 Working with Fast Ethernet – automatic switchover

How Automatic Switchover Works

The CP has a 10/100 Mbps full duplex interface with autosensing and autonegotiation of the network settings. After turning on the CP, these functions work as explained below:

- Step 1: Checking the AUI interface

  Here, the CP uses the settings “10 Mbps half duplex”.

  If frames are received on AUI during this time, the CP remains in this mode. Otherwise, the CP changes to step 2.

  Duration of step 1: 3 seconds

- Step 2: Autosensing and Autonegotiation on TP / ITP

  The CP attempts to detect the transmission rate used by the partner.

  If detection is not possible, the CP changes to the AUI mode (back to step 1).

  If detection is possible, the CP attempts to negotiate an optimum duplex mode with the partner.

  If no negotiation is possible, the CP uses the previously detected transmission rate and half duplex.

  Duration of step 2: 2 seconds

Displayed by FAST-LED

The CP indicates the phase of the automatic switchover with a flashing FAST LED.

Automatic Setting or Individual Network Settings

As default, the CP is configured for automatic detection. As soon as you define a configuration manually when configuring the CP with STEP 7/HW Config (in the properties dialog of the CP – ”Options” tab), the automatic switchover is no longer effective.

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Further Notes:

- If you use 10/100 Mbps network components that do not support “Autonegotiation”, you may have to set the mode manually during CP configuration using STEP 7 / HW Config (in the properties dialog of the CP). As default, the CP is configured for automatic detection.
- If your application requires a fixed mode instead of “Autonegotiation”, you will need to match up the partner devices.
- Remember that if you configure the CP manually, it will not react to an autonegotiation query! As a result, a connected partner will not be able to set the required mode and communication will not be ideal.

  Example:
  If, for example, the CP is set to “100 Mbps – full duplex”, a CP connected as partner will set “100 Mbps – half duplex”. Reason: Due to the fixed setting, no autonegotiation response is possible; the connected partner recognizes the 100 Mbps with autosensing but nevertheless remains in half duplex.
- Recommendation: Change “Individual network settings” only over MPI

  If you modify the LAN settings using the “Individual network settings” option of the CP, these changes will be adopted by the CP and activated when the configuration data is downloaded to the CP.

  We therefore recommend that you download configuration data to the S7 station over an MPI connection if you change this setting.

  If you download the configuration data over the LAN interface, depending on the selected setting, it is possible that the current download will not be completed due to the changes to the configuration taking immediate effect.

  Example:
  The download is started initially with the setting TP/ITP at 10 Mbps half duplex. If the “Individual network setting” changes this to AUI, the download cannot be completed.

NCM Diagnostics displays the operating mode

You will find more information about the currently used network settings in NCM diagnostics in the diagnostic object “Industrial Ethernet” in the Section “Network Attachment”.

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7.3 FC Call Interface

Status of the FC call interface; special situation with FC versions *)

With the FCs AG_SEND (FC5) and AG_RECV (FC6), the following situations

- the CP is in the STOP mode,
- the connection is not configured,
- the connection is not established,
- the connection was aborted

are indicated by the following codes:

- AG_SEND:
  DONE=0; ERROR=0; Status=8181_H
  or
  DONE=0; ERROR=1; Status=8183_H
- AG_RECV:
  DONE=0; ERROR=0; Status=8180_H
  or
  DONE=0; ERROR=1; Status=8183_H

*) valid for FCs with version 4.0 and higher

Calling Communications Blocks for S7-300

Notice

Calling communications blocks for S7-300 (SIMATIC NET block libraries for S7-300 in STEP 7) in several priority classes is not permitted! If, for example, you call a communications block in OB1 and in OB35, the block execution could be interrupted by the higher-priority OB.

If you call the blocks in several OBs, you must write your program so that an executing communication block cannot be interrupted by another communication block (for example, by disabling/enabling SFC alarms).

Modify the call parameters of the FC after the FC has confirmed job execution

Notice

Once the job has been triggered, you can only modify the call parameters of the FC call interface of FC AG_SEND or AG_RECV again after the FC has confirmed job execution with DONE=1 or with ERROR=1.

If you ignore this, it is possible that execution of the job will be aborted with an error.

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7.4 SNMP Agent (only CP 343–1EX20 firmware version V 1.1 or higher)

SNMP (**S**imple **N**etwork **M**anagement **P**rotocol)

The CP 343–1EX20 firmware version V 1.1 or higher supports data queries over SNMP in version 1.

SNMP is a protocol language for managing networks and is easy to handle. To transmit data, SNMP uses the connectionless UDP protocol.

The information on the properties of SNMP–compliant devices is entered in MIB files (MIB = Managed Information Base). For more detailed information on working with MIB files, refer to the documentation of the SNMP client you are using (example of an SNMP client: SNMP OPC Server from SIMATIC NET).

Supported MIB Objects

The CP supports all MIB objects of the standard MIB according to MIB II (RFC 1213).

Exceptions / restrictions:

- Write access is permitted only for the following MIB objects:

  sysContact, sysLocation and sysName;

  For security reasons, only read access is permitted for all other MIB objects.
- Traps are not supported by the CP.

Access Permissions using Community Name

The CP uses the following community names for assigning permissions:

- For read access: “public”
- for read and write access: “private”

(note the use of lower–case letters!)

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7.5 Possible Security Gaps on Standard IT Interfaces / Preventing Illegal Access

With various SIMATIC NET components, such as OSMs/ESMs, a wide range of parameter assignment and diagnostic functions (for example, Web servers, network management) are available over open protocols and interfaces. The possibility of unauthorized misuse of these open protocols and interfaces by third parties, for example to manipulate data, cannot be entirely excluded.

When using the functions listed above and these open interfaces and protocols (for example, **SNMP**, HTTP, Telnet), you should take suitable security measures to prevent unauthorized access to the components and the network particularly from within the WAN/Internet.

Notice

We expressly point out that automation networks must be isolated from the rest of the company network by suitable gateways (for example using tried and tested firewall systems). We do not accept any liability whatsoever, whatever the legal justification, for damage resulting from non–adherence to this notice.

If you have questions on the use of firewall systems and IT security, please contact your local Siemens office or representative. You will find the address in the SIMATIC NET Catalog IK PI or on the Internet at
http://www.siemens.de/simatic–net

7.6 Influence of MPI on Connections via Industrial Ethernet

If a station on **MPI** is added or removed, for example because a service PG has been connected or disconnected, it is possible that all the connections on the communications bus are aborted. This has the following effects on the communication connections on Industrial Ethernet:

- All S7 connections are temporarily aborted.
- The connections on which a job on the communication bus with a data length > 240 bytes is being processed are aborted temporarily.
- FETCH/WRITE connections are temporarily aborted.

The return values must be handled accordingly on the FC interface in the user program.

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7.7 Other Information Available about the CP

You will find detailed information (FAQs) on using the CP described here on the Internet under the following entry number:

http://www4.ad.siemens.de/view/cs/de/10806025

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8 Downloading New Firmware

Requirements

You download new firmware to a SIMATIC NET CP using the firmware loader shipped with the STEP 7 option NCM S7 for Industrial Ethernet.

Requirements for Downloading

- To download firmware, you require an Industrial Ethernet CP module in the PG/PC (for example, CP 1613) or a normal Ethernet module with the “Softnet” software package.
- The S7-ONLINE interface must be set to the “ISO – Industrial Ethernet” protocol. It is not possible to download using TCP/IP (internetwork download) (this also applies to the CP 343-1 Ext).

How to Download New Firmware

You must always start the download using the **current** MAC address of the CP 343-1 or the fixed MAC address of the CP 343-1EX20!

For the CP 343-1, the following applies depending on how you configured the CP:

- If you use the **MAC address printed on the module** in your configuration unchanged, you must also use this MAC address when you download the firmware.
- If you use a **different MAC address** from the factory-set address in your configuration, you must also use this other MAC address when you download the firmware.

When the firmware is downloading, the RUN-LED is lit; depending on the status of the download, the LED may also flicker.

What to do if a Download is Interrupted

Disturbances or collisions on the network can lead to packets being lost. In such cases, this can lead to an interruption of the firmware download. The firmware loader then signals a timeout or negative response from the module being loaded.

Repeat the download as explained below:

- **Response when using the default or fixed MAC address**

  The download can **always** be started using this fixed MAC address.

- **Response when using a new MAC address**

  If the configured and default MAC address are different, the download can always be restarted using the configured MAC address.

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Notice

The emergency address 00.AF.FE.AF.FE.00 is no longer used with the module described here.

If you can no longer start the download either with the configured or the default MAC address, you should turn the entire rack off and on again. With the mode selector set to STOP you then have ten seconds to start the firmware download again. In this case, you must always use the default MAC address.

During this time, the CP indicates “Ready to start firmware download”.

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9 Technical Specifications

Table 9-1 Technical Specifications

	CP 343-1	CP 343-1EX20
Transmission rate	10 Mbps and 100 Mbps	
Interfaces		
Attachment to Industrial Ethernet (10/100 Mbps)	15-pin sub-D female connector (automatic switchover between AUI and Industrial Twisted Pair)	not applicable
Attachment to Twisted Pair	RJ-45 jack	
Power supply	+5 V DC (+/–5%) and +24 V DC (+/–5%)	
Current consumption • from backplane bus • from external 24 V DC	70 mA AUI: approx. 0.73 A maximum TP/ITP: approx. 0.4 A maximum	200 mA TP/ITP: approx. 0.2 A maximal
Power loss	10 W	5,8 W
Permitted ambient conditions • Operating temperature • Transportation/storage temperature • Relative humidity max. • Altitude	0 °C to +60 °C –40 °C to +70 °C 95% at +25 °C up to 2000 m above sea level	
Design • Module format • Dimensions (W x H x D) in mm • Weight approx.	Compact module S7-300; double width 80 x 125 x 120 600 g	

All the information in /1/ in the Section “General Technical Specifications“ regarding the following topics also applies to the CP 343-1:

- Electromagnetic compatibility
- Transportation and storage conditions
- Mechanical and climatic ambient conditions
- Insulation tests, class of protection and degree of protection

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