SIEMENS

SIMATIC NET

Product Information	**Dated**
S79200-A0747-B-04-7637	**8/97**

NCM COM 1430 TF / CP 1430 TF

Hinweis / Note / Avertissement / Avvertenza / Indicatiòn

Achtung

Vor der Inbetriebnahme Hinweise in der entsprechenden aktuellen Dokumentation beachten. Die Bestelldaten hierfür entnehmen Sie bitte den Katalogen oder wenden Sie sich an Ihre örtliche SIE-MENS-Niederlassung.

Die Inbetriebnahme ist solange untersagt, bis festgestellt wurde, daß die Maschine, in die diese Komponente eingebaut werden soll, den Bestimmungen der Richtlinie 89/392/EWG entspricht.

Attention

Prior to startup you must observe the notes in the relevant documentation. For ordering data of the documentation plrese refer to catologs or contact your local SIEMENS representative.

Startup must not take place until it is established that the machine, which is to accommodate this component, is in conformity the guideline 89/392/EWG.

Attention

Avant la mise en service, respecter les instructions de la documentation actuelle correspondante. Pour les références de commande de la documentation, veuillez-vous reporter aux catalogues ou consulter votre agence locale SIEMENS.

La mise en service est interdite tant que la machine dans laquelle est incorporé ce composant n'est pas conforme aux prescriptions de la directive 89/392/CEE.

Attenzione

Prima della messa in funzione, osservare attentamente le avvertenze riportate nella documenta-zione corrente. Per i dati di ordinazione consultare i cataloghi oppure rivolgersi alla locale fidale SIE-MENS.

La messa in funzione è vietata fino a quando non è stato acctertato che macchina, in cui il compo-nente deve essere installato, non rispetta le disposizioni della direttiva 89/392/CCE.

Atenciòn

Antes de la puesta en marcha observar las indicaciones contenidas en la documentatción actual correspondiente. La referencia de la misma puede consultarse en los catáloges o solicitarse a su agencia SIEMENS local.

Está prohibida la puesta en marcha hast comprobar que la máquina en donde ca a incorporarse este componente cumpie lo especificado en la directiva 89/392/CCE.

Contents

1   Overview

This product information contains additional information about the following product:

Summary

This document contains information about

➢ The NCM COM 1430 TF configuration tool. This is required to install, start up and test a SINEC CP1430 TF.

➢ The following communications processors

order number: 6GK1143-0TA00 and 0TB00
                 6GK1143-0TA01 and 0TB01
                 6GK1143-0TA02

This product information supplements the manual. It therefore provides you with information about characteristics of the product that could not be taken into account when the product manual went to print.

The product information deals with the following aspects:

➢ The scope of the product

➢ The environment required to operate the COM (devices and operating system)

➢ Conditions required for installation

➢ Compatibility with existing SINEC COMs

➢ Installation of the NCM COM 1430 TF

2   Scope of the Product NCM COM 1430 TF

✔One 3 1/2" diskette with the files listed in Section 3 in MS-DOS format. .

✔Documentation CP 1430 TF with NCM COM 1430 TF Volume 1 and Volume 2,
order number 6GK 1970-1TA43-0AA0.

✔This product information.

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3   Content of the Diskette

The diskette contains NCM COM 1430 TF in compressed format, the installation batch file and the "read1430.me" file with up-to-date information. The diskette also contains function block FB103 for the program invocation services and several example programs.

Files on the Diskette:

a) Files belonging to the configuration tool

* SINEC
* READ1430.ME
* INSTALL.EXE
* INSTALL.STR
* INSTALL.HLP
* 1430001.DAT

b) Function blocks

*FB103   \ S5CI50ST.S5D
                for the S5-115U with CPU942A/B to 944A/B (not CPU945)
                Order No.: P71200-S 5103-C-2

                \ S5CI29ST.S5D
                for the S5-135U with CPU922 and CPU928A/B
                Order No.: P71200-S 9103-C-1

                \ S5CI69ST.S5D
                for the S5-155U with CPU946,947 and CPU948
                (not with CPU 946/947R and CPU 948R)
                Order No.: P71200-S 6103-C-1

4

c) Sample files

– Introductory example for the transport interface
* ABU1AG1.CP1 (database file of the CP 1430 TF in the S5-135U)
* ABU1AG2.CP2 (database file of the CP 1430 TF in the S5-155U)
* AG1@@@ST.S5D (program file in the S5-135U)
* AG2@@@ST.S5D (Program file in the S5-155U)

– Introductory example for the variable services
* ABSPL.CLT(Database file of the CP 1430 TF in the S5-135U)
* ABSPL.SRV (Database file of the CP 1430 TF in the S5-155U)
* BSPC@@ST.S5D (Program file in the S5-135U)
* BSP1S@ST.S5D (Program file in the S5-155U)

– Introductory example for the PI/domain services
* ABSPL.CLT (Database file of the CP 1430 TF in the S5-135U)
* ABSPL.SRV (Database file of the CP 1430 TF in the S5-155U)
* BSPC@@ST.S5D (Program file in the S5-135U)
* BSP2S@ST.S5D (Program file in the S5-155U)
* SIMUL1S5.S5D (PG Load program/domain file)
* SIMUL2S5.S5D (PG Load program/domain file)

– Introductory example for transparent data exchange with acknowledgment
* ATDQ.CP1 (Database file of the CP 1430 TF in the S5-135U)
* ATDQ.CP2 (Database file of the CP 1430 TF in the S5-155U)
* TDQCP1ST.S5D (Program file in the S5-135U)
* TDQCP2ST.S5D (Program file in the S5-155U)

4 Environment and Conditions for Operation

4.1 Operating system

The required operating system environment is S5-DOS/ST, Version 6.x

4.2 Devices on Which the Software Can Be Operated

The following devices are possible:

➢ PG 720, PG 720 C, PG 740, PG760

➢ PC IBM AT-compatible with the S5-DOS/ST2 PC package

Note on PCs with the V.24 interface:

➢ for CP with order number: 6GK1143-0TA00 and 0TB00
ONLINE functions of COM 1430 TF using the V.24 interface and the adapter cable 6ES5 734-1BD20 to the CP 1430 TF are not possible. Instead, use the Köster box with the connecting cables as described in the manual for the S5-DOS/ST-PC package.

➢ for CP with order number: 6GK1143-0TA01, -0TA02 and 0TB01
You can use the adapter cable 6ES5 734-1BD20

4.3 Memory Requirements, Device Configuration

Standard setting:

The standard settings (autoexec.bat and config.sys) created after installing S5-DOS/ST V6.x allow NCM COM 1430 TF to be operated.

Excerpt from the config.sys file: DEVICE = C:\DOS\EMM386.EXE NOEMS I=B000-B7FF I=C800-DFFF x=E000-E0FF I=E100-F5FF

Using the MS-DOS command **"mem /c "**, you can obtain information about the available memory.

The available working memory in a device with the standard configuration is as follows:

➢ Conventional working memory: 593 Kbytes

➢ Upper memory: 157 Kbytes

Reasons for less free working memory:

Changes to the config.sys file as shown below can reduce the free working memory:

➢ SINEC H1 CPs (CP 1413 or CP 5412) each require 64 Kbytes in upper memory. The segments D and E in the upper memory are used and drivers are loaded.

➢ Installation for example of network applications

Minimum memory requirements for NCM COM 1430 TF

At the MS-DOS 5.0 operating system level, there must be at least 560 Kbytes of free working memory available to be able to load the required drivers, STEP5/ST and NCMCOM1430TF in the working memory.

5   Installing NCM COM1430 TF

5.1   Notes on Installation:

☞   **Prior to installation, please read the "read1430.me" file on the diskette.**

Notes on directory and file organization

Under S5-DOS/ST Version 6.x, COM 1430 TF uses the directory structure of the operating system.

COM 1430 TF accesses the following directories and the files they contain:

➢ SIMATIC system directory

   – Printer file
   – Path file

➢ Working directory (product-related file storage)
   – Footer file
   – S5 program files
   – CP database files

 etc.

When you install COM 1430 TF, the following are also created:

➢ NCM directory (for example SIN_COM, see following page)
   – System files of COM 1430 TF

8

5.2 Compatibility with Previous Products:

The SINEC COMs use the same common user interface, the Network Communication Manager (NCM) also known as the SINEC Shell.

When you install any SINEC COM with a newer NCM version, any existing older NCM version is overwritten. COMs that have already been installed then run under the new NCM.

☞ **The installation programs of the following products do not recognize the new NCM version:**

- COM 5412 V1.x (with NCMV1.1)
- COM 5430 TF V2.x (with NCMV1.1)
- COM 5431 FMS V1.x (with NCMV1.1)
- COM 1473 V1.x (with NCM V1.1)

If you install one of these NCM V1.x products, you must make sure that it is not installed in a directory that already contains NCM V5.x. **Otherwise, NCM V5.01 would be overwritten by NCM V1.1. NCM COM1430TF cannot, however, run under NCM V1.1!**

5.3   Installing COM 1430 TF

↝ Insert the COM diskette into the diskette drive and change to this drive and start the installation by typing in INSTALL.

Once the installation program has been called, a dialog allows you to control the installation. In the dialog, you can decide on the destination drive and can select an existing directory in a pull-down menu. You can also create a new directory. Install COM 1430 TF in an NCM directory. You can select the directory name to suit your purposes, for example SIN_COM.

☞   **COM 1430 TF must not be installed in the SIMATIC system directory.**

↝ Once you have set the required path (displayed in the dialog), you can start the COM software installation with the F7 key.

↝ Confirm "start installation" by pressing the enter key.

The installation program checks the available space on the hard disk. If there is not enough space on the disk, a message is displayed. You can then stop the installation.

Before the package is installed, the installation program checks whether you have already installed COM software in the selected directory on the hard disk. If the same software has already been installed, the version is checked. If the version on the hard disk is lower (in other words older) than that on the installation diskette, a new installation is performed. Otherwise, you are prompted to confirm that you want to continue with the installation.

➢ **The following files are installed in the COM directory:**

- COM1430.LOG
- COM1430.VER
- CP1430.CFG
- CP1430.MSK
- READ1430.ME
- S5PXCSHX.CMD SINEC Shell
- S5PDCSHX.DAT
- S5PECSHX.DAT
- S5PDCSHX.HLP
- S5PECSHX.HLP
- S5PXCSHX.HLP
- and a series of files beginning with NCM that form COM subsystems.

➢ **The following files are not installed and if required must be copied to the PG using the normal copying functions:**
- **Files for TF-PI services:**

*FB103   \ S5CI50ST.S5D
                 \ S5CI29ST.S5D
                 \ S5CI69ST.S5D

- **Files with example programs:**
- Introductory example for the transport interface
- Introductory example for the variable services
- Introductory example for the PI/domain services
- Introductory example for transparent data exchange with acknowledgment

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5.4   Further Settings and Starting NCM COM 1430 TF

Starting COM 1430 TF

✔Start the S5 DOS command interpreter KOMI by typing in S5.

✔Select your working directory in the S5-KOMI.

✔Select the required interface in the S5-KOMI (AS511 or SINEC H1).

✔Start NCM by selecting Change –> Others...

✔Select the CP type "CP 1430 TF"

You can obtain further help using the help system.

6   Using the Sample Programs

The sample programs supplied were created for the S5-135U and S5-155U (see the file list of sample programs in Section 2). Before you can use the examples, you must copy the standard handling blocks (HDB FB 120 to FB 127) to the program files.

Note: These HDBs are not included on the COM 1430 TF diskette. Please copy these function blocks from the package in which they are contained (refer to the chapter "Further Reading" in the CP 1430 TF manual).

When using the example programs on the S5-115U, the example programs must also be adapted. The S5-115U uses HDBs with the numbers FB 244 to FB 249. The HDB block calls in the program must therefore be adapted to match these numbers.

7   Released CP Functions

From software version V2.00B for the basic version and V3.00E for the extended version, the CP 1430 TF includes all the functions of Variable, Domain and PI services (identical to CP 143).

8   Further Information:

➢ **PG bus selection**

1. When using a path such as the following :

PG/AS511–>CP1430–>H1–>CP1430–>AS511–>CP5430/31–>L2–>CP5430
/31–>END there may be a timeout on the PG when loading or saving large
blocks, although the special interface AS511 has already been used on the PG.

Remedy: Use the PG with the H1 interface and adapt the path.

2. When using two paths that use backplane bus communication and whose
end point is a CPU (user error) it is possible that the CPU 948 indicates "AS
function disabled" on all interfaces.

Remedy: Switch the PLC off and on again.

➢ **Configuring transport connections in a database converted from CP
   143 to CP1430**

A configuration with several jobs per TSAP is converted correctly from the CP
143 database to the CP 1430 database.

In the converted database, however, COM 1430 does not permit a change in
the priority of an expedited full duplex transmission if the two connection blocks
in the original CP 143 database had different priorities (for example SEND PRIO
0 and RECEIVE PRIO 1 or vice versa).

Remedy: Delete this configured connection and enter it again.

➢ **Dual-port transceiver 6 GK1901-0AA00-0AC0 with version < 4**

This transceiver with a version number less than 4 requires a high starting
current that can result in the CP1430 not starting up.

Remedy:

With the modification package SIM 220, the transceiver can be upgraded to
Version 4.

SIM 220 can be ordered from:

AUT EWK PLZ61 in Karlsruhe

➢ **Temporary overload**

With a large number of connections, a high bus load on the SINEC H1 cable and during connection establishment phases on the CP, a temporary overload can occur indicated by the CP with PAFE and the corresponding ANZW.

ANZW 0bx8 or 0Bx9 can occur.

Remedy:

In this case the job must be repeated by the user program.

➢ **Connection aborts with the CP 1430 BASIC -0TA00 or -0TA01 with more than 25 transport connections and overload**

With the CP 1430 BASIC version V 3.06B, 62 transport connections can be assigned. With more than 25 transport connections and when large data frames are being transferred (> 1 Kbyte) sporadic connection aborts may occur that are indicated by the CP with the corresponding ANZW.

ANZW XAXA can occur.

In this case the job must be repeated by the user program.

Remedy: Use the CP 1430 TF Extended or Basic variant -0TA02

➢ **PG functions with the CP 1430 TF EXTENDED (6GK1143-0TB01) version 3 FWV3.04E**

The PG interface (AS 511) of the CP 1430 can be impaired sporadically when the ”Read Clock” job with ANR 218 is started simultaneously on the PLC.

Remedy:

Upgrade the CP 1430 to FW V 3.06E.

➢ **Programming 5V memory flash modules with COM 1430 TF**

When programming the new 5V memory modules, you require STEP 5 V6.6.

➢ **PAFE = 81 for "SYNCHRON" on fast CPUs 946/947 or 948**

With ”SYNCHRON”, the CP 1430 immediately runs through a warm restart. If the CPU triggers a job on the CP interface while the CP 1430 is starting up, the job is acknowledged with PAFE = 81.

Remedy:

Include a counter loop in the startup OBs (20/221/22).

16

➢ **TRACE test function**

If the test function "single status" or "TRACE" is started on a connection, job execution on this connection is delayed considerably to avoid losing messages for display by COM 1430.

– with functions via the bus, approximately 3 to 20 % of the throughput.

– with functions via the AS511 bus, approximately 2 % of the throughput

The other connections operate **without** a delay.

➢ **Behavior during connection establishment**

The CP 1430 acknowledges a connect request (CR) on the configured connection in the connect confirm (CC) directly using the parameter "Credit = 1", in other words, the CP is immediately ready to receive data.

➢ **Synchronizing SSNR 0 with CPU 945 version 1 does not work.**

 Remedy:

 Upgrade the CPU 945

➢ **Echo test response**

Complying with the standard, the CP 1430 responds to an echo test request with the parameter "Frame control = F3" in the echo test response. This response is not indicated by the protocol analyzer K1102 for the "standard echo test".

➢ **Domain services**

When using the STEP 5 packages (V6.4 to V 6.6), the "download domain" does not work with the "PG LOAD" program (shipped with COM 1430 TF).

9 Addendum / Corrections to Release 01 of the Manual

9.1 Volume 1

Chapter 3.3 TIME services

The conflict "reading out the time (RECEIVE with ANR 218) triggered while synchronizing with the time synchronization frame", is handled by the CP1430 as follows:

Situation 1. Read triggered (RECEIVE direct) at exactly the time when the internal clock is being synchronized. In this case, the ANZW is set to "not allowed 0C42".

Situation 2. Read triggered (RECEIVE direct) before synchronization. In this case, the read function is stopped by the CP and this indicated to the user in the PAFE.

Both situations mean that the time must be read again in the next PLC cycle.

Chapter 7.3.1, Page 7-27 (test layer 4)

The following job types can be displayed in the job type field:

– WRITE A (SEND with Read/Write= yes)

– WRITE P (RECEIVE with Read/Write=yes)

– SEND

– RECEIVE

– FETCH A (fetch active)

– FETCH P (fetch passive)

9.2   Volume 2

Chapter 5 PG Load

Please note the following restrictions:

1.

With host functions "LOAD" and "SAVE" and large programs, the STEP 5 package stops after a certain time. This time varies depending on the STEP 5 version as follows:

➢ STEP 5, V 6.5: after 4 seconds

➢ STEP 5, V6.3: after 65 seconds

➢ STEP 5, V6.6: no stop

2.

The host functions "LOAD" and "SAVE" and the transfer functions "SEND" and "FETCH" cause an error if the remote station is not ready. PG Load temporarily rejects user input. After a monitoring time has elapsed, the host function is terminated and PG Load accepts user input again.

If you press the ESC key before PG Load is ready to accept user input, a PG error occurs that can only be eliminated by exiting the COM package and changing the interface in the S5 settings from H1 to AS511 and back again.

3.

Chapter 7 TF Variable Services

In the description of the TF service "read and write variable with formatted address" on page 7-37, the type description should read: Type spec. length of the octet string in **bytes** instead of words.

Chapter 8 Domain and PI Services

1.

When the PLC is in the STOP mode, the CP1430 rejects a load or save domain function with the TF error number 51C1.

2.

The block list of the SIMATIC_S5 default domain is deleted by the CP1430 during a cold CP restart if no user domains were loaded at this time.

3.

The load and save domain functions are only possible:

➢ When no CP test functions are active on the CP.

➢ When no path is established to the CPU via the CP.

The test of the predefined application association (ANR 205/206) and file server associations is also not possible when load functions are active.

4.

After conversion, a CP143 domain file must be changed to a program file (....S5D file) with F6 in the Transfer Functions dialog. Enter the first 6 characters of the domain file and press F6.

The same procedure is necessary when no program file exists but variables or type definitions have been created.

Chapter 9 Supplementary Services

1.

Error in the VMD Status table on page 9-17 for "no AS 511 master connector and no PG functions via the dual-port RAM":

When the PLC and the CP are in the RUN mode, the physical status is described as "operational". this should read "partially operational".

Appendix C, TF Error numbers

The table should be extended as follows:

Error number	Service group	Meaning
0x24H	VAR	Error converting variable formats from S5 type to S5 type and vice versa.
30C0	VAR	Error on the CLIENT side: TF–PDU size too small.
82C0	VAR	Error on the server side: TF–PDU size too small.
08711H	DOM	The "swing cable" is not plugged in or test functions are active on another PG via H1 or the path PG/H1–>CP1430–>CPU to the CPU is already established
08712H	DOM	Identical blocks exist in other domains.
08713H	DOM	No domain variables.
08714H	DOM	Not enough memory to store the DOM variables in the buffered RAM of the CP.
08715H	DOM	The block header is incorrect.
08716H	DOM	The transfer of the block via AS511 was aborted.
08717H	DOM	Error initializing the DOM variables.
08718H	DOM	Error compressing the PLC.
08719H	DOM	Upload: The block marked in the block library does not exist on the PLC.
0871AH	DOM	Error writing block.

Error number	Service group	Meaning
08720H	DOM	Upload: Error checking the variables.
08721H	DOM	Upload: Error creating the variables.
08722H	DOM	Upload: Error linking the variables.
08723H	DOM	Upload: Error checking the variable types.
08724H	DOM	Upload: Error linking the variable types.

Appendix G Volume 1 and Volume 2

In contrast to the CP 143, the CP 1430 sends the parameter "credit=1" in the "connect confirm". Both responses comply with the standard.

Appendix G Volume 2

Multiplexing layer 7 connections on layer 4 is no longer supported by the CP 1430 TF.

Remedy: Reconfigure the application associations.

Notes on the CE Approval of SINEC Products

Product Name

CP 1430 TF   order number 6GK1143-0TA00 and 0TB00
                                6GK1143-0TA01 and   0TB01
                                6GK1143-0TA02

EU EMC Directive 89/336/EEC

The SINEC products listed above meet the requirements of the EU Directive 89/336/EEC "Electromagnetic Compatibility.
The EU conformity certificates are kept for the authorities responsible according to the EU directives listed above at the following address:

CE   Siemens Aktiengesellschaft

                Bereich Automatisierungstechnik

                Industrielle Kommunikation SINEC (AUT93)

                Postfach 4848D-90327 Nürnberg

                Federal Republic of Germany

Area of Application EMC

The products meet the following requirements:

Area of application	Requirements	
	Emission	Immunity
Industry	EN 50081-2 : 1993	EN 50082–2 : 1995

The products can also be used in a residential environment (residential, commercial and light industry).

Area of application	Requirements	
	Emission	Immunity
Residential	Individual approval	EN 50082–1 : 1992

An individual approval must be obtained from the appropriate national authority or testing body.

Installation Guidelines

This product meets the requirements providing you adhere to the installation guidelines

1. SINEC H1, Manual for Triaxial networks

2. SINEC, Manual Industrial Twisted Pair

3. System Manual AG S5-135U/155U; Manual for S5-115U/H/F

Installation of the Equipment

Programmable logic controllers of the SIMATIC S5-135U/155U/H series must be installed in metal cabinets according to these guidelines. Programmable logic controllers of the SIMATIC S5-115U/H/F series must be installed in grounded, closed, metal cabinets (for example, switchgear cubicles)

Working in Cabinets

To protect the module from electrostatic discharge, make sure that you neutralize any electrostatic charge on your body before opening the cabinet.

Notes for the Manufacturers of Machines

The product is not a machine in the sense of the EU directive. There is therefore no conformity certificate for the EU directive 89/392 for machines. If the product is part of the electrical equipment of a machine, the manufacturer of the machine must include the product in the conformity certificate procedure for the machine.

❏