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SIMATIC S5

COM 552

Programming Package for the CP 552 Diagnostic Processor

Manual Volume 2/2

Order No. 6ES5998-3SE22
Release 05

Volume 1
User's Guides

C79000-H8576-C672-05

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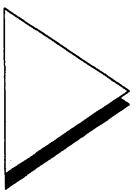
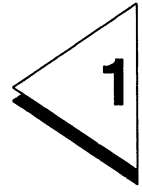
Notes on the Operating System

User's Guide

C79000-B8576-C672-05



Contents



COM 552 S5-DOS

6ES5895-3SE22

Contents

1.1 Software Requirements

PCP/M-86 V2.0/5c or higher

S5-DOS V3.0 or higher

1.2 Scope of Delivery

The complete software package consists of 4 diskettes.

To enable you to install the software on all types of programmers, the software is supplied on 5 1/4 " and 3 1/2 " diskettes. Select the correct diskette format for your programmer. The contents of the diskettes is absolutely identical.

COM 552 Programming Package	Function:	File name:
	Error display	S5PXD02X.CMD
	Status display	S5OXD02X.CMD
	Supplementary functions	S5OXD03X.CMD
	Message text editor	S5OXD04X.CMD
	Generating and transferring setpoint data	S5OXS0GX.CMD
Text files		S5OES0GX.DAT
		S5PED02X.DAT
		S5OED02X.DAT
		S5OED03X.DAT
		S5OED04X.DAT

1.3 Processing Files under S5-DOS (on the basis of PCP/M-86)

The following section describes the PCP/M-86 functions information, delete and copy. To be able to use these functions effectively, you should already have some experience with PCP/M-86. You can find further information in the PCP/M-86 manual.

1.3.1 Information (DIR)

The DIR function allows you to list all files or groups of files in the selected USER area which have the attribute DIR. An unknown character in the file name can be represented by **?** and a group of unknown characters by * (? and * are known as wildcards).

Syntax: **DIR d:filename[options]** d: drive

Example:	**DIR B:**	All files in the selected USER area on drive B:
	DIR *.CMD	All files with the file extension .CMD on the selected drive.

Files with the SYS attribute can be listed using the function DIRSYS. Wildcards can also be used with this function.

Example:	**DIRSYS**	All system files (with the attribute SYS)

For further options, refer to the PCP/M-86 manual.

1.3.2 Delete (ERA)

The ERA function allows you to erase individual files or groups of files in the selected USER area. As with the functions DIR and DIRSYS, wildcards can also be used here.

Syntax: **ERA d:filename[options]** d: drive

Example : **ERA *.***
erases all files on the selected drive

ERA *.*[CONFIRM]
with this option, each individual erase job must be confirmed.

For further options, refer to the PCP/M-86 manual.

1.3.3 Copy (PIP)

Using the PIP function, you can copy individual files or groups of files. When copying, the individual files can be renamed. The following variants are possible:

a) Single file without renaming

PIP t: = s:sourcefilename t: target drive
s: source drive

b) Single file with renaming

PIP t:targetfilename = s:sourcefilename

c) Single file with renaming and specification of the USER areas

PIP t:targetfilename[Gn] = s:sourcefilename[Gn]

n: number of the USER area of the target or source

d) Single system file with renaming

PIP t:targetfile = s:sourcefile[R]

e) File group (the group is selected with a wildcard)

PIP t: = s:filegroup

Example: PIP B: = A:*.CMD

All files of the file type CMD in the current USER area will be copied from drive A: to drive B:.

f) File group with system files, specifying the USER areas

PIP t:[Gn] = s:filegroup[Gn R]

n: number of the USER area of the target or source

1.4 Making Back-up Copies

We strongly suggest you make back-up copies of the diskettes supplied. To do this, you must first format empty diskettes.

Call the program DISK. To format the diskettes, press **F7** and select the drive in which the diskette to be formatted is located with **F1** or **F3**. You will then be prompted to confirm your intention. To copy the diskettes, use function key **F3**. You can once again select the source and destination with **F1** or **F3**. Make sure that you are copying in the correct direction and then confirm your intention.

1.5 Loading the Software Package DIAGNOSIS

Before you load the software package DIAGNOSIS, you should already have the operating systems PCP/M-86 and S5-DOS, Version 3.x or higher on the hard disk in USER area 0. If this is the case, ignore the prompt to insert the operating system diskette in drive A: after switching on the PG, and wait approximately 10 seconds. The PG switches to the hard disk and loads the operating system. The files of the operating systems must be given the attribute SYS (system). Check this with the following command:

DIR d:[FULL] d: drive
(e.g. **c:** for the hard disk)

Using the software package DIAGNOSIS on different USER areas

We recommend you make use of this option if several users are to work with the software package. Copy the diskettes into USER area 0 using the command:

PIP d:[G0] = A:*.*[G0 R V] d: drive
(e.g. **c:** for the hard disk)

and set the files as system files with the attribute SYS

SET d:filename[SYS RO] d: drive
(e.g. **c:** for the hard disk)

Now you can work with the DIAGNOSIS package in every USER area. USER area 0 should be reserved exclusively for system files.

Note:

You can only generate setpoint data in the LAD, CSF, STL package if the DIAGNOSIS software package is installed on the same drive and the same USER area as the LAD, CSF, STL package.

Establish a working area

We recommend you set up a working area. Select a free USER area. In the future, generate your STEP® 5 user programs and the corresponding setpoint data in the LAD, CSF, STL package or COM 552 only in this USER area. This means that all your STEP® 5 user programs and the setpoint data are in this USER area. Think of this USER area as your own personal diskette.

Calling the COM 552 programming package

Select the required hard disk drive as follows

d:	d: drive (e.g. **c:** for the hard disk)

and the USER area with

USER n	n: number of the USER area

Load the operating system S5-DOS by typing in the following:

S5

The S5-DOS command interpreter (S5-Komi) is now loaded and allows you to select the packages available in this USER area.

You select the COM 552 programming package by positioning the cursor at the beginning of the line containing this programming package and pressing function key **F1 PACKAGE** or the enter key.

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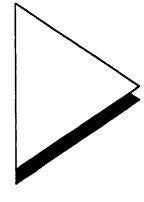
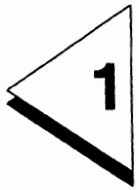
LAD, CSF, STL Package with Process Error Diagnosis

User's Guide

C79000-B8576-C673-05



Contents



Overview

Contents

With the **LAD, CSF, STL package** (and the programming package COM 552) you can **generate, display and correct setpoint data**.

When you generate your STEP® 5 user program with setpoint data in the LAD, CSF, STL package, you automatically assign the appropriate setpoint data to each segment. We recommend that you use this procedure when you **create your STEP® 5 user program and the setpoint data for the first time or when you add setpoint data to an existing program**. This procedure ensures the correct allocation of the setpoint data to your STEP® 5 user program. The generated setpoint data are stored in the program file containing the STEP® 5 user program.

We recommend that you use the **programming package COM 552** if you only wish to change the setpoint data (i.e. not the STEP® 5 user program) at a later date (e.g. to optimize the monitoring times). The following functions can only be performed using the programming package COM 552:

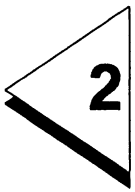
- transfer setpoint data from the program file to the CP 552 (and vice versa)
- change setpoint data in the CP 552 online
- print setpoint data online
- delete setpoint data online.

The setpoint data editor for generating, outputting and correcting setpoint data is described in detail in the instructions "COM 552 Programming Package." The next pages contain information about the following aspects:

- selecting diagnosis in the LAD, CSF, STL package
- calling the setpoint data editor
- transferring the setpoint data to the CP 552 and
- deleting segments.

In these instructions, only those functions of the LAD, CSF, STL package are described which affect process error diagnosis. Detailed information about the LAD, CSF, STL package can be found in the STEP® 5 Basic Package manual.

Selecting DIAGNOSIS



Contents

When you call the LAD, CSF, STL package (in the S5 screen form SELECT PACKAGE), the PRESETS screen form is displayed. Enter the name of the PROGRAM FILE.

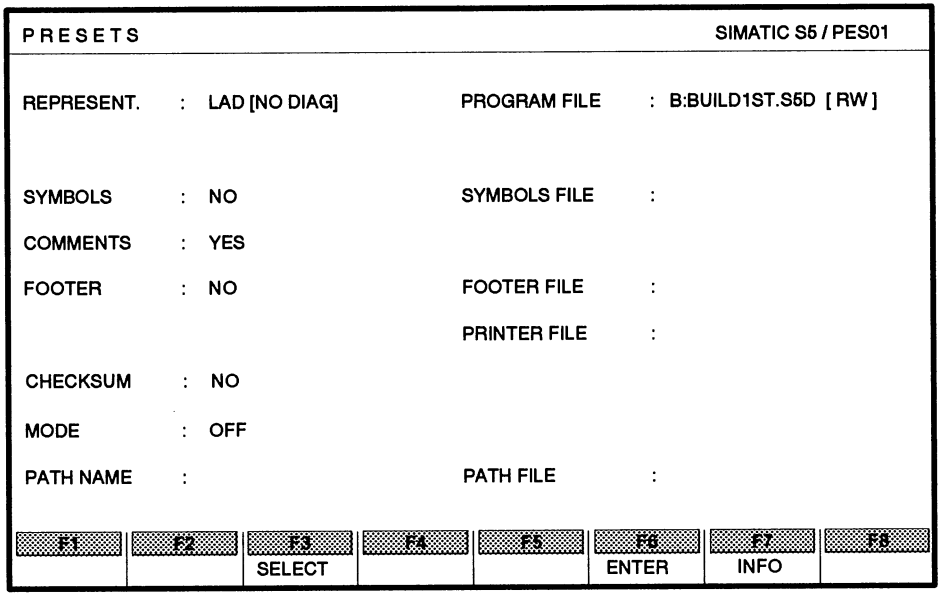


Fig. 2-1

When you have installed the software package **DIAGNOSIS** on the hard disk of your PG, either "**WITH DIAG**" or "**NO DIAG**" will be displayed after the type of representation (LAD, CSF, STL).

NO DIAG means "setpoint data mode is not active."

This presetting is displayed when you have loaded the software package DIAGNOSIS, however, you have not yet generated any setpoint data. If you position the cursor in front of this field, you can switch over to the setpoint data mode with **F3** SELECT.

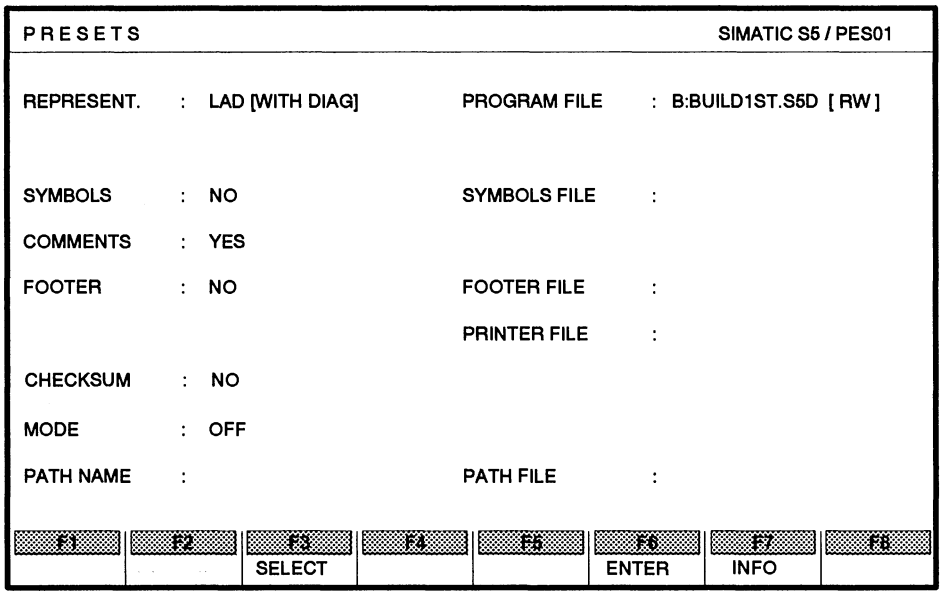


Fig. 2-2

WITH DIAG means "setpoint data mode is active," i.e. you can generate, display and correct setpoint data.

This presetting is displayed when you have loaded the software package DIAGNOSIS and have already generated setpoint data.

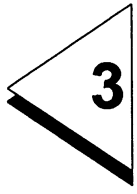
If you place the cursor in front of this field, you can switch off the setpoint data mode with **F3** SELECT.

 **Note:**

with this setting you cannot generate or correct setpoint data. If you output a block for which you have already generated setpoint data, the following prompt is displayed: **"SP data will not be updated! Continue?"**

If you have not loaded the software package DIAGNOSIS, neither "NO DIAG" nor "WITH DIAG" will be displayed in the PRESETS screen form. If, however, setpoint data exist for your blocks, the prompt **"SP data will not be updated! Continue?"** will be displayed as soon as you call a block.

If you have entered your input in the PRESETS screen form, you can enter or display segments as usual. Calling the setpoint data editor when entering or displaying segments is described in the following sections.



Calling the Setpoint Data Editor when Entering Segments

Contents

When you enter segments, the setpoint data editor is called **automatically** (provided you have entered "WITH DIAG" in the presets). The setpoint data editor is called in two ways:

- by pressing the *** key to complete a segment
- by pressing the enter key, to complete the last segment of a block.

Following this, you can generate the setpoint data for process error diagnosis immediately after entering a segment. In the setpoint data editor, the PROCESS ELEMENT MONITORING screen form is displayed. Press **F5** CORR. You can now carry out your inputs. Further information about the setpoint data editor can be found in the User's Guide "Programming Package COM 552".

The setpoint data input is entered by pressing **F7** ENTER. You can now enter the next segment. If you abandon your input in the setpoint data editor with **F8** BREAK, the setpoint data for this segment are not entered, however, the segment itself is retained. Once you have generated the segments and setpoint data, store them on the target device by pressing the enter key.

When a block and setpoint data are stored or abandoned can be seen in Fig. 3-1.

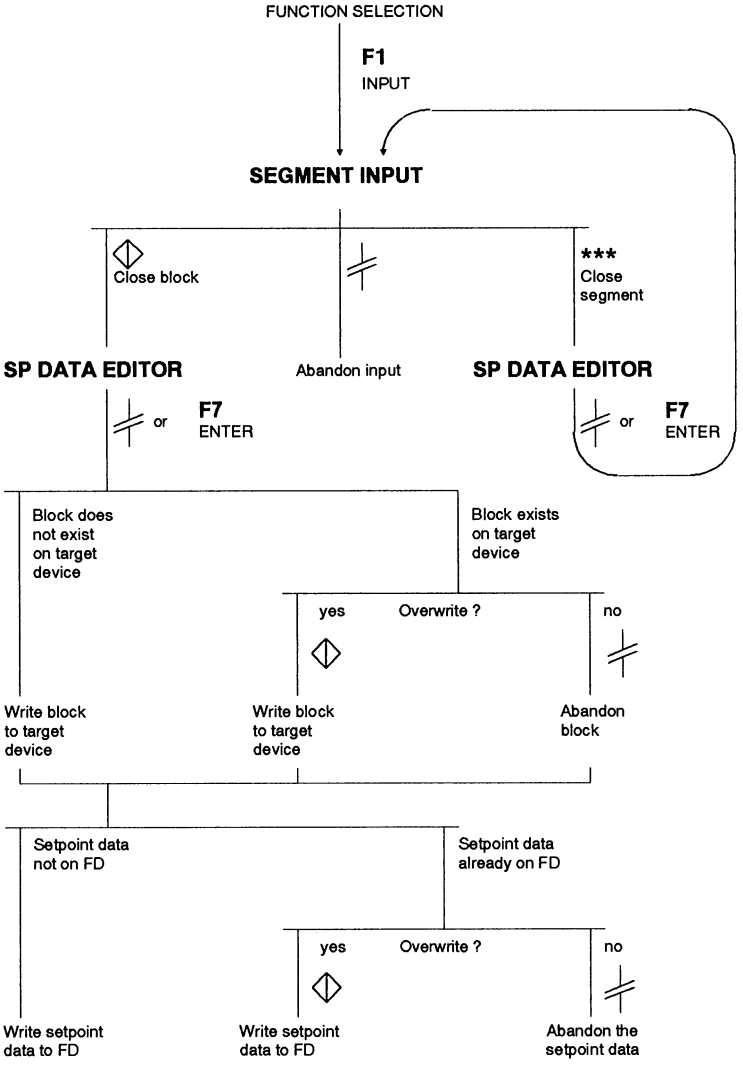
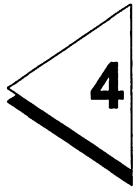


Fig. 3-1 Calling the setpoint data editor during segment input



Calling the Setpoint Data Editor when Displaying Segments

Contents

When you output segments in the LAD, CSF, STL package, you can call the setpoint data editor by pressing **F4** DIAGNOSIS.

F1	F2	F3	F4	F5	F6	F7	F8
DISP.SYM	REFERENCE	SEARCH	DIAGNOSIS	ADDRESSES	LIB NO.	—> CSF	

Fig. 4-1

If no setpoint data element exists for the segment, a blank element is displayed. If setpoint data elements already exist, the first setpoint data element is output for editing. Press **F5** CORR. You can now make entries. If you press **F8** BREAK, your current input in the setpoint data editor will be abandoned. If you press **F7** ENTER, your input will be entered. You return once again to segment display.

The setpoint data editor is called automatically if you have added segments during segment display and then pressed the enter key.

When the blocks and setpoint data elements are stored or abandoned can be seen in Fig. 4-2.

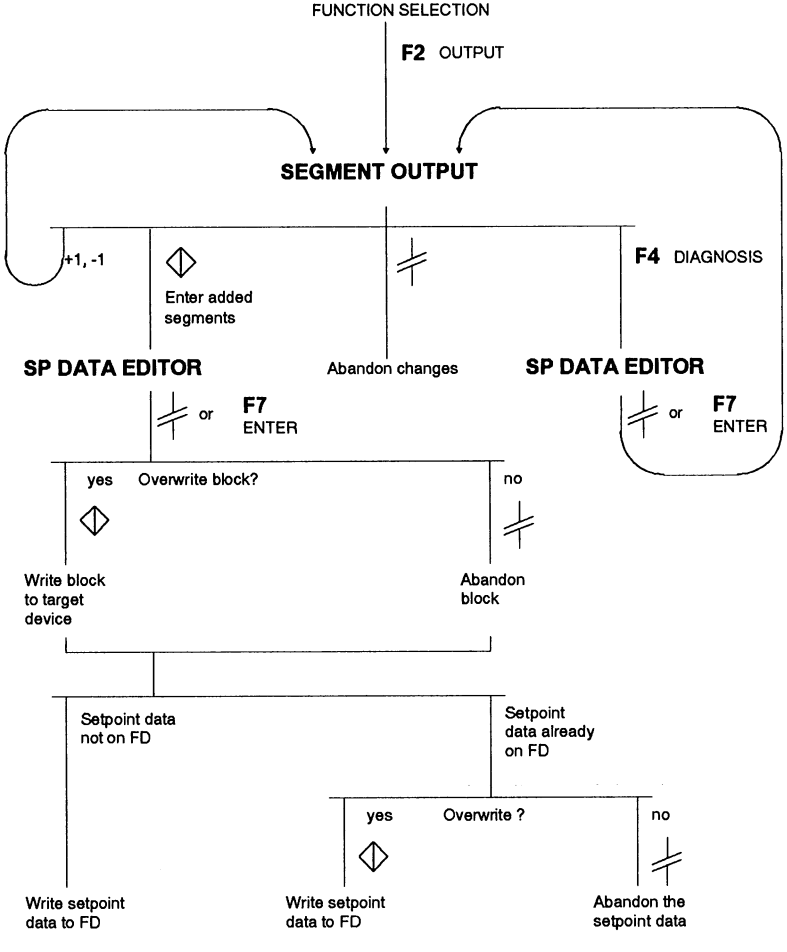
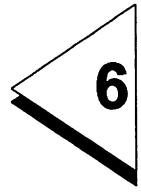


Fig. 4-2 Calling the setpoint data editor during segment display

Transferring Setpoint Data Elements to the CP 552

Once the setpoint data elements have been saved on diskette or hard disk (FD), they must be transferred to the CP 552. Exit the LAD, CSF, STL package and call the programming package COM 552. The TRANSFER function (**F3**) is available in the SCREEN FORM EDITOR screen form.



Deleting Segments

If you delete a segment in the LAD, CSF, STL package, the corresponding setpoint data are automatically deleted along with it. The data therefore remain consistent.

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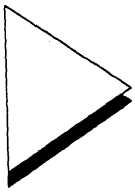
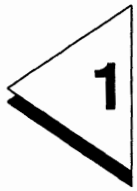
Error Display on the Local Monitor

User's Guide

C79000-B8576-C674-04



Contents



Application and Mode of Operation

Contents

You can connect a **black and white monitor** to the video interface of the diagnostic processor CP 552. On this monitor you can display the following:

- process error messages
- system messages
- process control messages

Parallel to the local monitor you can display messages on one or more programmers, i.e.

- **Single diagnosis** via the AS 511 interface of the CP 552
- **Group diagnosis** via the SINEC H1 bus

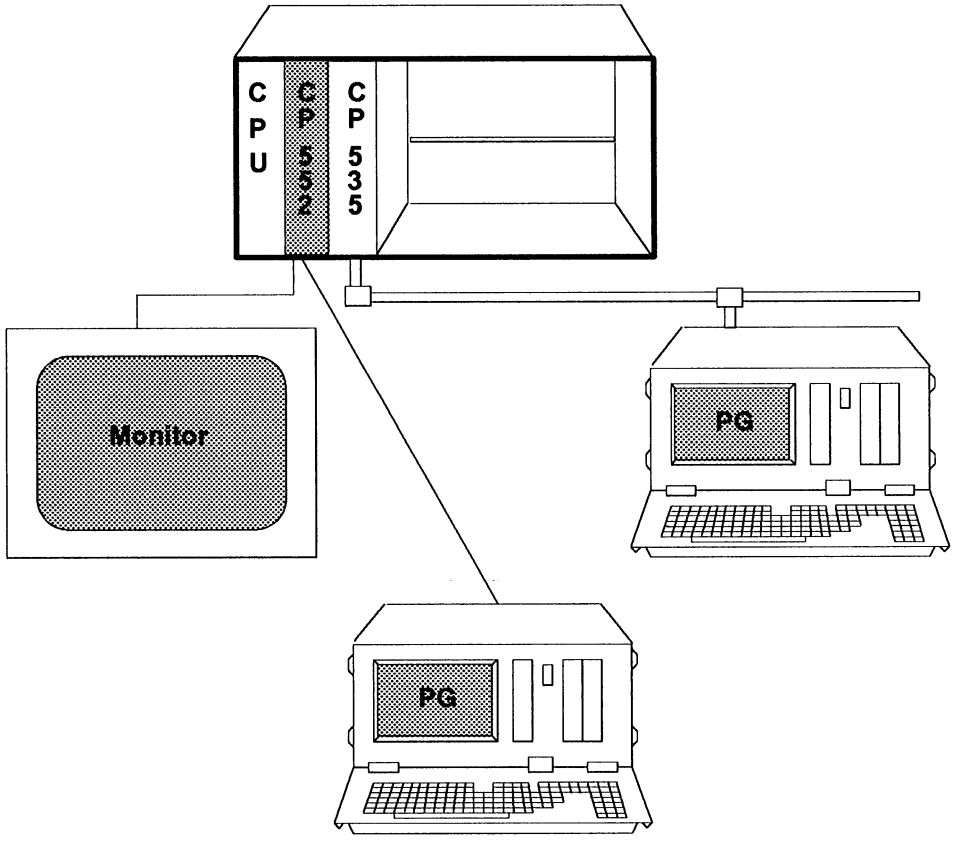


Fig. 1-1 Error display on the local monitor and on programmers

Note:

The image construction times on the local monitor can be somewhat longer if you perform single and group diagnosis simultaneously with display on the programmer(s).

1.1 Displaying Process Error Messages

```
CAR WASH                    No. of messages :  2          SIMATIC S5 DIAGNOSIS

WASH  5          PB 054 / SE 002  CARRIAGE MOVES FORWARD                09 : 15 : 07
 I   104.4      =0 A I  108.6 -TV70_AF = 0 A I  108.1 -TV8_AF =1 A
 I   109.0      =0 A I  109.1          = 1                  REACTION NOT REACHED

WASH 1           PB 050 / SE 002  CARRIAGE MOVES FORWARD                09 : 18 : 20
 F   210.4  SENS4          = 0
                                                  REACTION NOT REACHED
```

Fig. 1-2 Example of error display on the local monitor

The first line always shows the following:

- the plant designation from the SYSID
- the number of error messages stored in the message buffer of the CP 552

A maximum of **6** error messages can be displayed on the monitor. An error message always comprises three lines:

Line 1 :	Station name	(12 characters)
	Block type and number and segment number	(9 characters)
	User comment	(40 characters)
	Time	(8 characters format hh:mm:ss)
Line 2 :	Terms 1 to 3	(20 characters per term)
Line 3 :	Terms 4 and 5	(20 characters per term)
	Error type	(31 characters)

The terms are also represented **symbolically** if you have previously transferred the symbols to the CP 552 (see Section 2.2 "Transferring Symbols to the CP 552"). In the symbolic representation, the first 8 characters are displayed.

The error messages displayed are continuously updated, i.e. fulfilled terms are cleared from the screen and non-fulfilled terms displayed. The updated message is identified by a "U" at the beginning of the first line. A maximum of **5 terms** can be displayed in an error message. If there are more than 5 terms belonging to an error message, "+" is displayed following the 5th term. If a term is fulfilled and is therefore cleared from the screen, the next non-fulfilled term is automatically displayed.

If an error has been "cleared" (all terms are fulfilled), the corresponding error message is cleared from the monitor and the next message in the message buffer is displayed. A maximum of **19** messages can be stored in the message buffer of the CP 552 for display on the local monitor. If more than 19 messages occur at any one time, the latest messages are lost.

When the CP 552 is cold restarted the process error messages on the monitor are cleared. Static errors which have not yet been fixed are displayed again with the current time.

To be able to clear longstanding messages from the screen, you can stipulate the following in the COM 552 programming package:

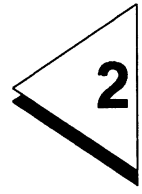
- Error messages which are present for longer than a selected period of time (1 to 23 hours) are deleted.
- Messages are only deleted when you cold restart the CP 552.

For further information, return to Section 2.1 "Connecting the Monitor."

1.2 Displaying Process Control and System Messages

A **process control message** is only displayed on the local monitor when you have created a message text in the programming package COM 552 and transferred it to the CP 552 (see User's Guide "COM 552 Programming Package"). For further information, refer to Section 2.3 "Transferring Texts for Process Control Messages to the CP 552."

System messages are displayed both on the local monitor and on the programmer (see User's Guide "COM 552 Programming Package").



Installation and Operation

Contents

Connect the monitor to the VIDEO interface of the CP 552. The technical data for the monitor can be found in Chapter 3. The following sections describe how to assign parameters in the programming package COM 552 for display on the local monitor.

2.1 Connecting the Monitor

You can connect the monitor by positioning the cursor in the line

CONNECT LOCAL MONITOR

in the SYSTEM IDENTIFICATION screen form in the COM 552 programming package. Enter "YES" with **F3 SELECT**.

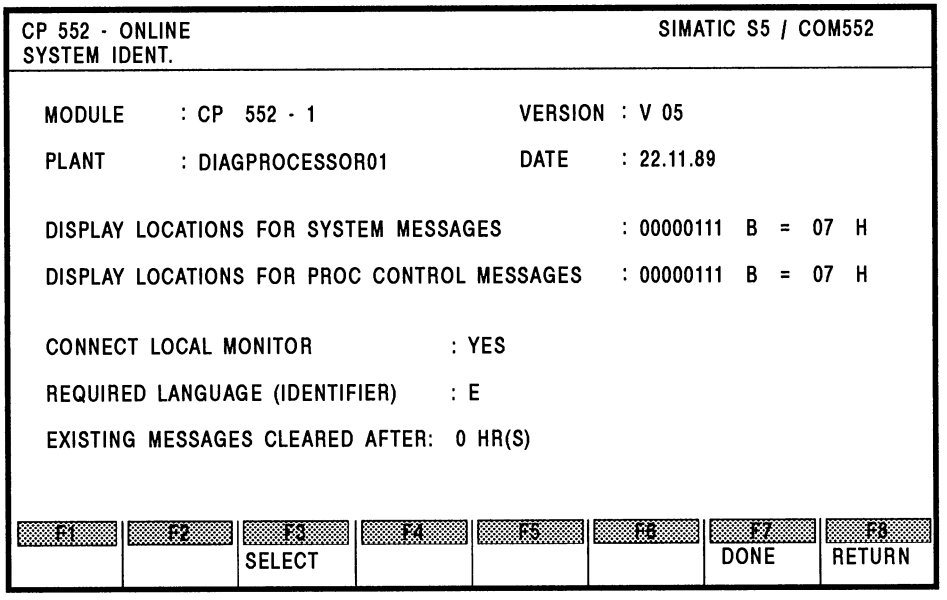


Fig. 2-1

If you wish to switch off the error display on the local monitor you must change the SYSID parameter assignment again (CONNECT LOCAL MONITOR: **NO**).

Note:

The connection or disconnection of the local monitor is only recognized following a **CP 552 cold restart**.

You can decide on the language in which you require the texts of the messages on the local monitor in the language line (the standard setting is German):

REQUIRED LANGUAGE (IDENTIFIER)

D	German
E	English
F	French
S	Spanish

To be able to clear longstanding messages from the screen you can stipulate the following:

EXISTING MESSAGES CLEARED AFTER: X HR(S)

1 to 23 hours	messages present for longer than the time set are deleted.
0 hours	messages are only cleared when the CP 552 is cold restarted

 **Note:**

Displaying errors on the local monitor requires additional memory space on the CP 552. If there are already so many setpoint data elements stored on the CP 552 that the monitor can no longer be connected, you will be prompted to reduce the number of setpoint data elements. If you do not wish to do this, you should use the CP 552-2, which has more memory.

2.2 Transferring Symbols to the CP 552

If the terms of the process error messages are to be displayed in symbolic form on the local monitor, you must transfer the symbols to the CP 552 in the programming package COM 552. The first 8 characters of the symbolic representation are then displayed on the monitor.

If you press **F5** SYMB->CP, you can transfer the symbols. Only the symbols required for the process error diagnosis are transferred, i.e. the symbols of the inputs, outputs and flag bits.

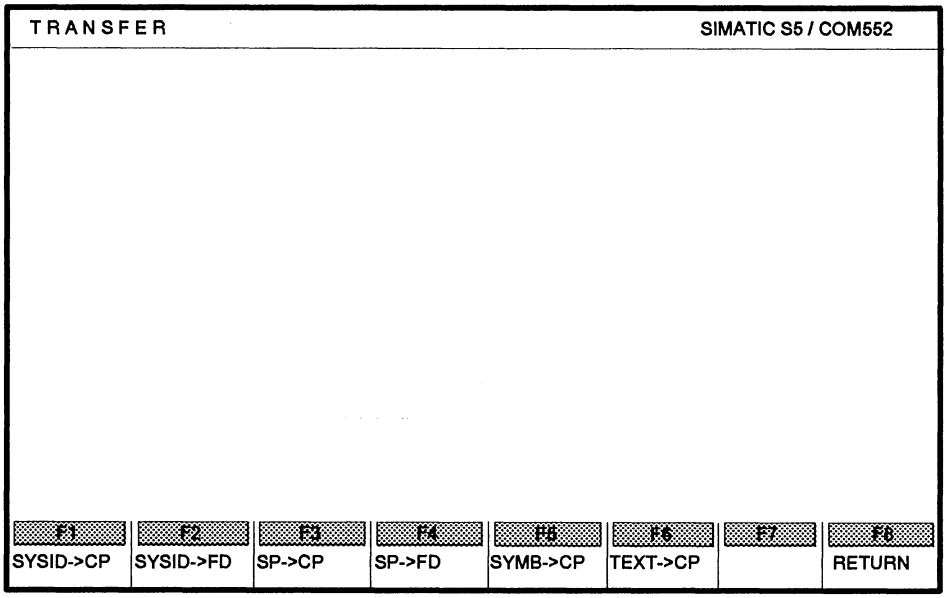


Fig. 2-2

2.3 Transferring Texts for Process Control Messages to the CP 552

The process control messages are only displayed on the local monitor if you have previously transferred the message texts created in COM 552 to the CP 552. If you press function key **F6** TEXT->CP in Fig. 2-2, you can transfer message texts.

2.4 Storing Setpoint Data Elements, Symbols and Message Texts on the CP 552

On the **CP 552-1** you can store a minimum of the following:

- 150 setpoint data elements and
- symbols for 500 inputs, outputs and flags

Memory space for 1 setpoint data element is lost with

- 3 process control message texts or
- 12 symbols

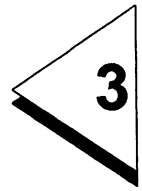
On the **CP 552-2** you can store a minimum of the following:

- 1500 setpoint data elements and
- symbols for 4096 inputs, outputs and flags

2.5 Deleting Symbols and Message Texts on the CP 552

In the SCREEN FORM EDITOR of the programming package COM 552, you can delete symbols and process control message texts on the CP 552 with the HANDLING function:

- **F5** DEL/SYM deletes symbols
- **F6** DEL/TEXT deletes message texts.



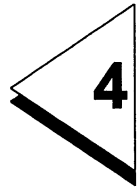
Technical Data of the Monitor

Contents

Black and white CRT controller

Principle	ASCII characters
Image refresh frequency	50 Hz
Line frequency	15 kHz
Image format	25 lines x 80 characters
Raster field per character	7 x 11
Video signal	composite signal

Installation Guidelines



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Triaxial cables are available for connecting the CP 552 to the monitor. These cables must not exceed a maximum length of 100 m.

Note:

Monitor cables must not be laid parallel to power cables. Make sure that the module rack and monitor have the same ground potential. Differing potentials can disturb the monitor picture (with triaxial cables, from approximately 1 V). You should also make sure that the outer shield makes perfect contact both on the grounding bar of the PLC rack and at the cable clamp of the monitor.

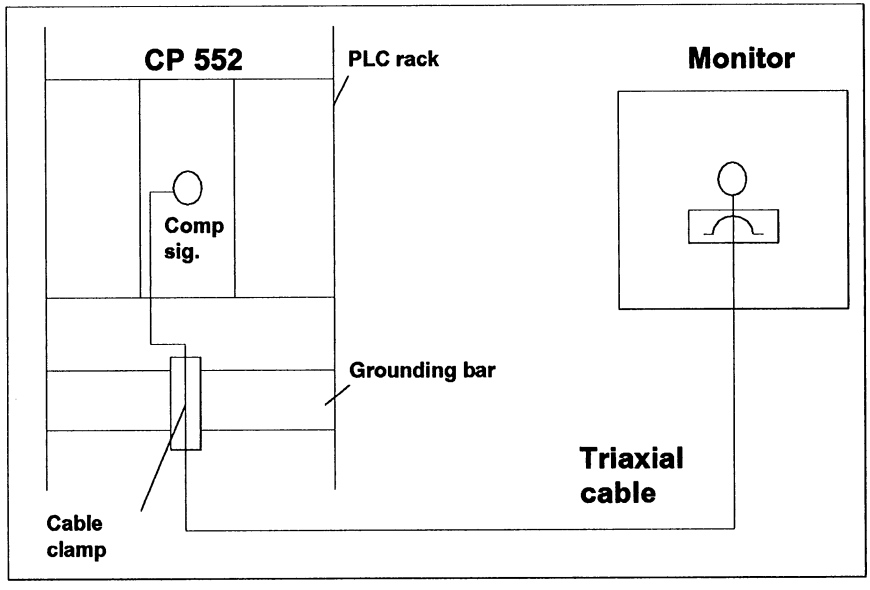

Fig. 4-1 Connecting the monitor

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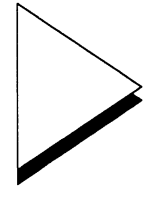
SIMATIC S5

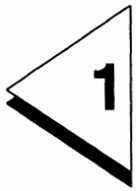
COM 552 Programming Package

User's Guide

C79000-B8576-C675-05



Contents



Overview

Contents

In the programming package **COM 552** process error messages and system and process control messages are displayed on the programmer. You can also generate, display and correct setpoint data in COM 552.

You can also generate, display and correct setpoint data in the **LAD, CSF, STL package** when you write your STEP® 5 user program. The setpoint data are then correctly assigned to the blocks and segments. We recommend this procedure when you create your STEP® 5 user program and setpoint data for the first time or when you add setpoint data to your STEP® 5 user program at a later time.

If you generate the setpoint data in the programming package COM 552, the setpoint data are not automatically assigned to the corresponding blocks and segments. We recommend that you work with this programming package when you need to change your setpoint data (i.e. not the STEP® 5 user program) at a later date, e.g. to optimize monitoring times. Otherwise, the programming package COM 552 provides the same functions as the LAD, CSF, STL package in terms of setpoint data processing. You can perform the following only in the COM 552 programming package:

- transfer setpoint data from the program file to the CP 552 (and vice versa)
- change setpoint data in the CP 552 online
- print setpoint data online
- delete setpoint data online

The following sections describe the functions of the programming package COM 552.

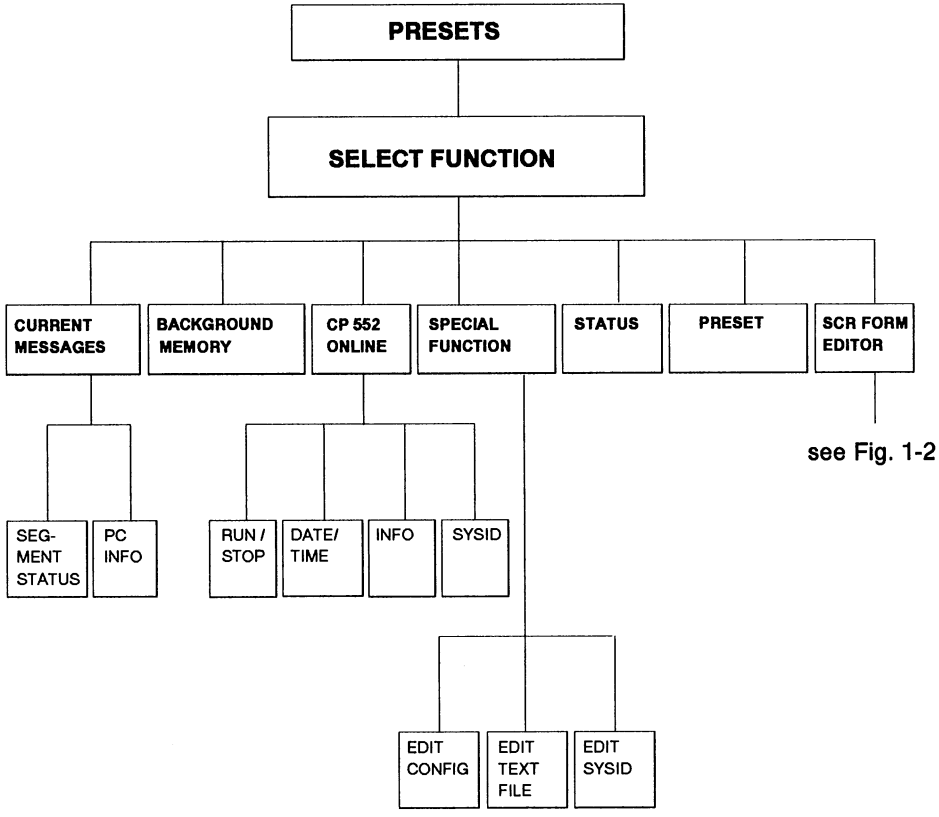


Fig. 1-1 The functions of the programming package COM 552

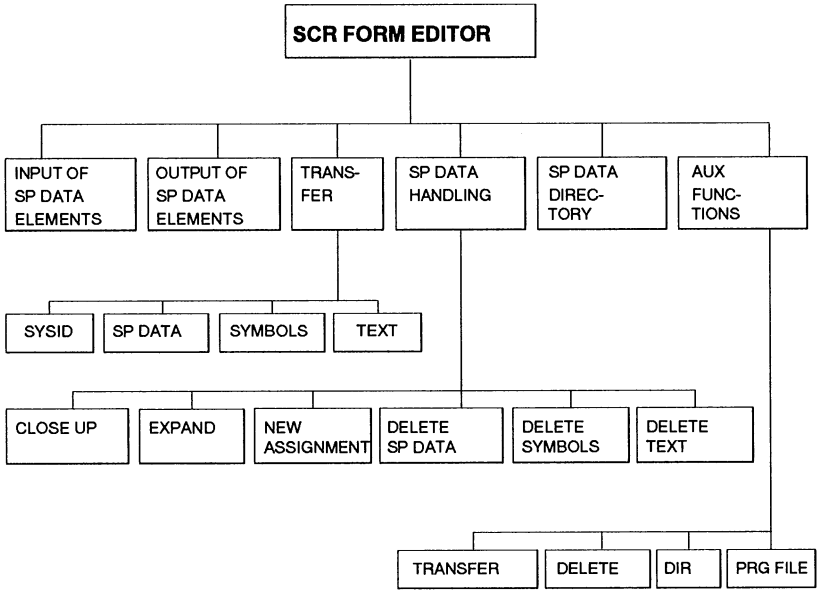


Fig. 1-2 The functions of the SCREEN FORM EDITOR

Note that a distinction is made in process error diagnosis between the following:

- **Single diagnosis:**
  locally or on the SINEC H1 bus, a display unit is connected to each CP 552

- **Group diagnosis:**
  on the SINEC H1 bus, several CP 552s and several display units are available.

For further information about error display on the PG, refer to the User's Guide "Process Error Diagnosis with the CP 552".

 **Note:**

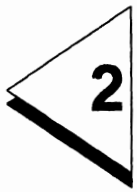
Do not forget to select the correct interface using **F5 INTERFACE** before you call COM 552 in the SELECT PACKAGE screen form. If the display unit is connected directly to the CP 552 (local error display) you must select the AS 511 interface. If you are working with the SINEC H1 bus, you must select the CP 536 interface.

Note on the screen forms of the COM 552 programming package:

If "LINK ESTABLISHED" or "LINK CLEARED" is displayed in the top right corner, it has the following significance:

- the link PG / CP 552 is established or

- the link PG / CP 552 is cleared (i.e. not established).



The PRESETS Screen Form

Contents

When you select the programming package COM 552, the PRESETS screen form is displayed first (see Fig. 2-1 and Fig. 2-2).

When you exit the programming package COM 552 and then return to the package, the data you entered and confirmed previously will be automatically displayed again in the PRESETS screen form.

Note:

The function CP 552 ONLINE is only possible with the "SINGLE" CONFIGURATION and with the "Group" configuration, if a path and the path file are specified in the Presets.

2.1 The PRESETS Screen Form with Single Diagnosis

When you call the programming package COM 552 the first time, the screen form has the following presets:

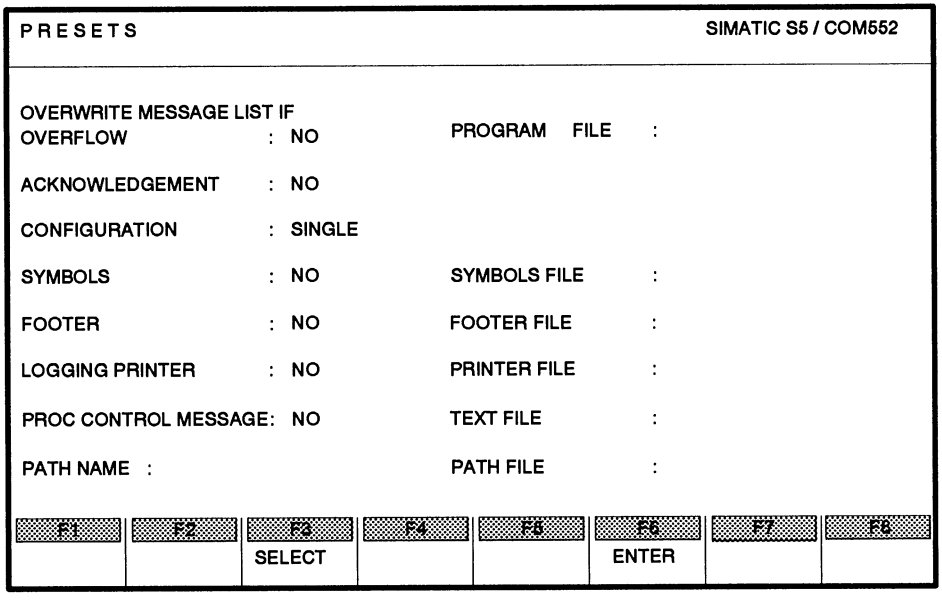


Fig. 2-1

The **function keys** have the following significance:

F3 SELECT	You must press this key before you can complete a field. With some of the fields, you can select alternative entries using this function key.

F6 ENTER	You enter the data input and move on to SELECT FUNCTION.

Break key on the PG

This brings you to the SELECT FUNCTION screen form **without** entering the data input.

The **fields** of the PRESETS screen form:

OVERWRITE MESSAGE LIST IF OVERFLOW

The display unit has a **message buffer** in which the **received messages** are entered. This can hold a maximum of 40 messages. If the error messages include user comments or the operand list of an error message has more than eight operands, the message buffer will hold less than 40 messages.

You stipulate what will happen to received error messages when the message buffer is full. If you enter "YES" in the OVERWRITE MESSAGE LIST IF OVERFLOW field, the oldest message will be overwritten by the latest message to be received. If you enter "NO" the new message will not be entered. This message is then lost. Application: suppression of secondary error messages resulting from one initial error.

PROGRAM FILE

Press **F3** SELECT. You can now enter the name of the file containing your STEP® 5 user program and the setpoint data.

ACKNOWLEDGEMENT

A newly received error message is entered in the message buffer of the PG and displayed on the screen. If the CP 552 recognizes that an error no longer exists, it signals this and the time to the PG.

If you have entered "NO" in the ACKNOWLEDGEMENT field, the error message will automatically be cleared from the message buffer and transferred to the background memory when the error ceases to exist. (The background memory is an additional buffer, in which the last 40 messages cleared from the message buffer are stored.)

ACKNOWLEDGEMENT "YES" means that an error which no longer exists remains in the message buffer until you acknowledge the error with **F1** ACK MESSAGE. Only then is the error message transferred to the background memory.

CONFIGURATION

When you call the programming package COM 552, the CONFIGURATION field is preset with "SINGLE."

SYMBOLS / SYMBOLS FILE

If you select SYMBOLS "YES," the symbolic name of the operand will be displayed when the error messages are displayed on the PG.

When you exit the SYMBOLS FILE field, the program checks whether the selected file name exists. If the file does not exist, the entry in the symbols field is automatically changed to "NO."

FOOTER / FOOTER FILE

Here, you decide whether a footer is output on a printout. If you wish to redirect the output from a printer to a file, this must be specified when generating the printer file. For further information, refer to your STEP® 5 manual.

PROC CONTROL MESSAGE / TEXT FILE

Process control messages are messages transferred by the CPU or other modules in the PLC (e.g. an IP 252) via the CPU and via the CP 552 to the display unit. If you enter PROC CONTROL MESSAGE "YES" you must also specify the name of a text file. Creating such a text file is described in Section 8.2.

If the file you specified does not exist, the entry in the PROC CONTROL MESSAGE field is automatically changed to "NO."

LOGGING PRINTER

If you require a log of the process error diagnosis to be printed out, enter "YES" here. The format of the log corresponds to the representation on the screen. The log contains the following:

- received error messages with the corresponding times
- cleared error messages with the times
- acknowledged error messages with the times
- deleted error messages with the times.

PRINTER FILE

You can redirect the output to a file instead of to the printer. For further information refer to the STEP® 5 manual.

PATH NAME / PATH FILE

Here, you specify the connection from the display unit to a diagnostic processor. The generation of a path and a path file is explained in the STEP® 5 manual.

In single diagnosis, a path name and a path file are only required when the display unit is connected to the CP 552 via the multiplexer (or KOR C coordinator for the S5-135U and S5-155U).

☞ **Note:**

When you enter a path name, the file names are entered in the fields PROGRAM, SYMBOLS, PRINTER and FOOTER FILE, which you stipulated when editing this path in the BUS SELECTION utility. If you require a different file name in any one of the fields, you must specify this when entering.

2.2 The PRESETS Screen Form with Group Diagnosis

If you select "GROUP" as the CONFIGURATION, the PRESETS screen form is as follows:

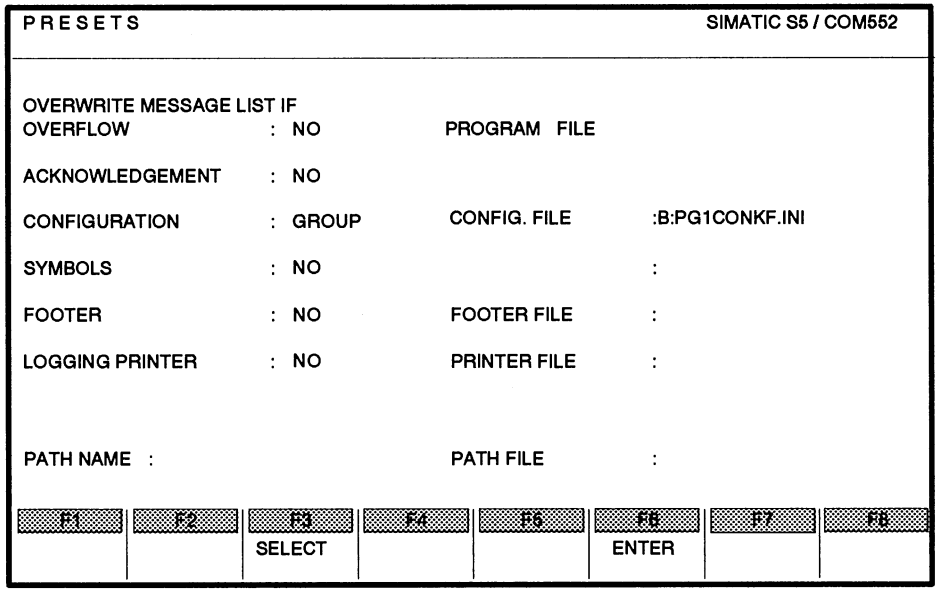


Fig. 2-2

Note:

You can only enter "GROUP" for the CONFIGURATION when you have installed a CP 536 in the PG and have selected the CP 536 interface in the SELECT PACKAGE screen form.

A description of the **function keys** can be found in Section 2.1.

The **fields** of the PRESETS screen form:

For group diagnosis, certain entries are different from those required for single diagnosis. The following fields differ from those of single diagnosis:

CONFIGURATION / CONFIG FILE

When you call the programming package COM 552 for the first time, the CONFIGURATION field has the default "SINGLE." If you enter "GROUP," the screen form changes automatically, since different specifications must be made.

Once you have selected CONFIGURATION "GROUP," the cursor is automatically positioned on the CONFIG FILE field. With group diagnosis, you must specify the name of a configuration file. This file contains the links between the display units and the diagnostic processors. The generation of such a file is described in Section 7.1.

When you exit the field, the program checks whether the file name exists. If the file does not exist, the entry in the CONFIGURATION field is automatically changed back to "SINGLE."

SYMBOLS

In group diagnosis, if you enter "YES" in the SYMBOLS field, you do not require a symbols file, since you can assign an individual symbols file to each CP 552 in the configuration file (see Section 7.1).

PATH NAME / PATH FILE

Group diagnosis is only possible via the SINEC H1 bus. Here, specify a PATH FILE, so that you can call the "SEGMENT STATUS" and "PC INFORMATION" functions.

If you also specify the PATH NAME for a CP 552, this CP 552 is accessed in the "CP 552 ONLINE" and "SCREEN FORM EDITOR" functions. In this way, you can, for example, correct the setpoint data of this CP 552.

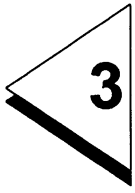
 **Note:**

In group diagnosis, you allocate the TEXT FILE for process control messages when you create the configuration file. You must specify a TEXT FILE for each path to each CP 552 which is to send process control messages.

2.3 File Attributes

In the COM 552 programming package, the files are assigned the following S5-DOS file attributes:

- The symbols file is **PROT** (PROTECTED) and **RO** (READ ONLY), as long as you are in the programming package COM 552.
- The configuration and text file have the attribute **RW** (READ / WRITE), as long as you have called the appropriate editor.
- The program file is **RW** (READ / WRITE) or **PROT** (PROTECTED). In the PRESETS screen form, you can specify this with **F3 SELECT**.
- All other files are **RO** (READ ONLY).



The SELECT FUNCTION Screen Form

Contents

When you exit the PRESETS screen form, you automatically change over to the **SELECT FUNCTION** screen form. From here, you can call all the other functions of the COM 552 programming package.

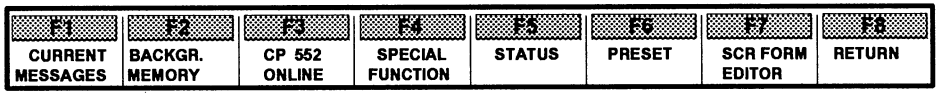


Fig. 3-1

F1 CURRENT MESSAGES

You can display the **current** messages; the link to the diagnostic processor or processors is established automatically. Further information about this function can be found in Chapter 4.

F2 BACKGR. MEMORY

You can display the last 40 messages cleared from the message buffer and entered in the background memory. Further information about this function can be found in Chapter 5.

F3 CP 552 ONLINE

You can select various online functions of the CP 552. Further information about this function can be found in Chapter 6.

☞ **Note:**

In group diagnosis, the function CP 552 ONLINE can only be executed if you specify a corresponding path and the path file in the Presets (reason: this function is only available using the PG interface of the CP 552).

F4 SPECIAL FUNCTION

You can call the editors for generating the **configuration file** (contains the links between display units and diagnostic processors) and the **text file** (contains message texts for the process control messages). You can also edit the data in the **SYSID**. Further information about this function can be found in Chapter 7.

F5 STATUS

You can branch directly to status processing. Further information about this function can be found in Chapter 8.

F6 PRESET

You can call the PRESETS screen form described in Chapter 2.

Note:

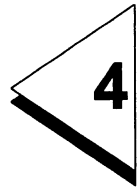
When you select the PRESETS screen form, the link from the PG to the CP 552 is cleared. If you then return to function selection with **F1** and select the function CURRENT MESSAGES, the entries in the message buffer and background memory in the PG will be deleted. All the error messages which have occurred up to this point are then no longer available for analysis of the plant or system performance.

F7 SCR FORM EDITOR

You can transfer and process setpoint data in the SCREEN FORM EDITOR. Further information about this function can be found in Chapter 9.

F8 RETURN

You exit the programming package COM 552 and return to the SELECT PACKAGE screen form. The link to the CP 552 is cleared.



The Function
CURRENT MESSAGES

Contents

4.1 In Single Diagnosis

When you call the function CURRENT MESSAGES, after entering the presets, the link from the PG to the CP 552 is established. Before the PG requests all the currently active error messages from the CP 552, the message buffer and background memory in the PG are cleared. When the error messages are transferred to the PG, they are stored in chronological sequence. Beginning with the oldest error message, the first error messages are displayed on the screen (up to six messages).

If there are no error messages, the screen is cleared and an asterisk ("*") moves across the screen to indicate that the function is active. The "*" is displayed until an error message is received or until you press any key to return to function selection.

 **Note:**

The asterisk is also displayed when an error is no longer valid and has been acknowledged (if required).

4.2 In Group Diagnosis

When you call the function CURRENT MESSAGES, the links from the PG to the diagnostic processors, specified in the configuration file, are established. All the path names are listed on the screen (see Fig. 4-1). The PG requests the error messages from the diagnostic processors. Each diagnostic processor answers with an asterisk "*." If a diagnostic processor does not reply within 60 s, the message "no link" is displayed (see Fig. 4-1).

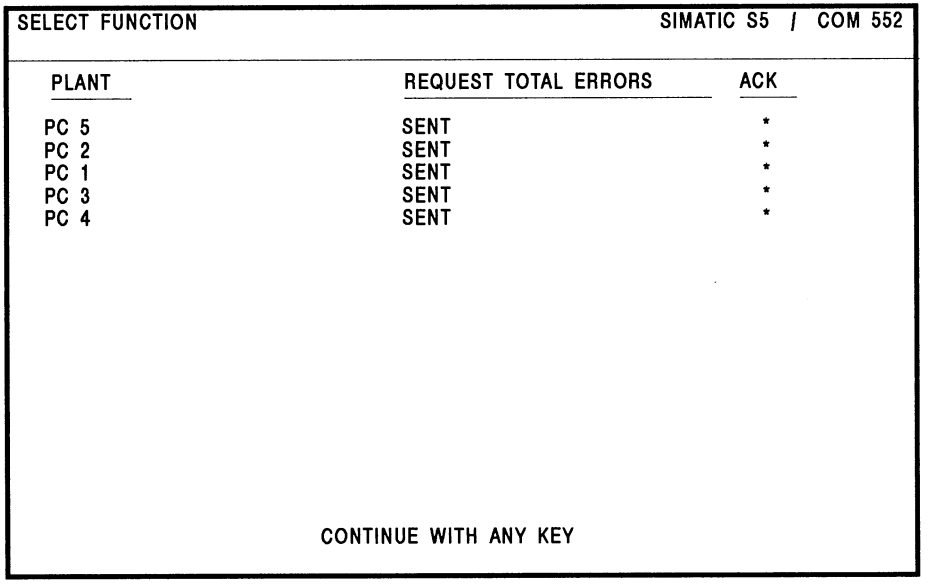


Fig. 4-1

During link establishment there are three possibilities:

- If all the selected diagnostic processors reply, then either the error messages are listed or, if no messages exist, the "*" will be displayed.

- If none of the specified diagnostic processors replies, function selection will be displayed again.

- If only some of the diagnostic processors reply, you must confirm that not all the diagnostic processors are ready to receive by pressing a key (any key). Following this, the existing error messages will be listed or the asterisk will be displayed.

If after the 1st attempt, at least 1 CP 552 replies, no further attempts are made to set up links.
To start attempting to set up a further link, you must first branch to the Presets screen form.

4.3 The CURRENT MESSAGES Screen Form

Error messages are displayed on the PG as shown below (up to six messages):

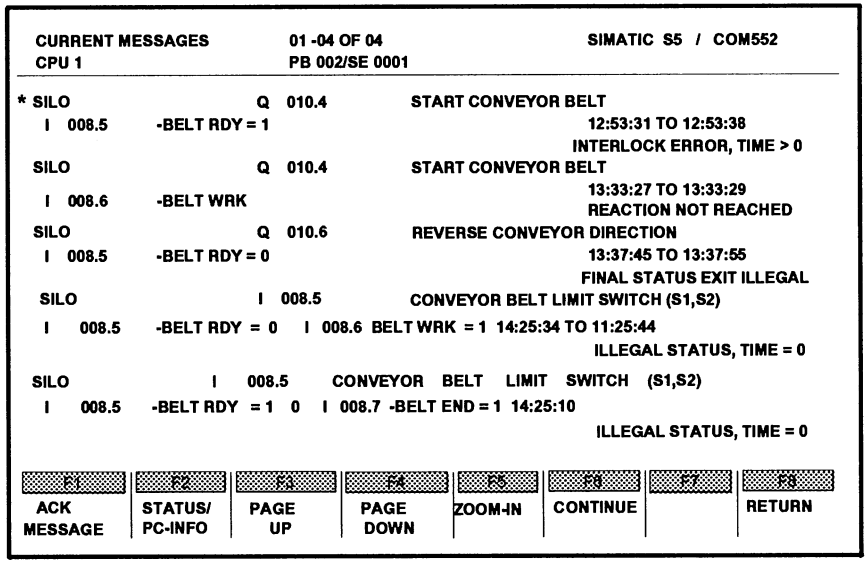


Fig. 4-2

The **function keys** have the following significance:

F1 ACK MESSAGE

With this key, you acknowledge an error message. You only press this function key when you have specified "YES" as the acknowledgement preset. In this case, the error message is only cleared from the screen when the corresponding error is no longer valid and you have pressed **F1** ACK MESSAGE. If you acknowledge while the error is still valid, "ACK" will be displayed with the error message. The message remains on the screen until it is forced to be cleared or until the error becomes invalid.

If you have specified "NO" as the ACKNOWLEDGEMENT preset, then when an error is cleared, the message is deleted on the screen. The message is transferred from the message buffer to the background memory.

F2 STATUS / PC-INFO

If you press this function key with **process error messages** you automatically call the function **SEGMENT STATUS** (see Section 4.5).

With **system messages** or **process control messages**, you call the function **PC-INFO** (see Section 4.6).

 **Note:**

You can only execute the functions STATUS/PC-INFO when you have specified a PATH FILE in the PRESETS screen form. This PATH FILE must contain the path to the CPU. This path must match the plant designation in the SYSID of the CP 552.

F3 PAGE UP

F4 PAGE DOWN

These functions allow you to move through the message buffer and display the previous or next six messages. Each time you page, the first message on the screen is marked with an "*." Using the keys "cursor up" and "cursor down" on the PG, you can select other messages.

F5 ZOOM-IN

The error message you have marked with the "*" can be seen in more detail using the zoom-in function (see Section 4.4).

F6 CONTINUE

The functions of the function keys are extended:

F1 DELETE MESSAGE

You can delete the selected error message (even if the error is still valid). The PG then sends a delete job to the CP 552. This deletes the error message from its list and sends the acknowledgement "forced error deletion" to the PG. Only after this reply has been received is the error message deleted in the message buffer and transferred to the background memory.

F8 RETURN

You exit the CURRENT MESSAGES screen form and return to the SELECT FUNCTION screen form.

An **updated error message** is preceded by "**U**" in the third message line. An error message is updated when the terms have changed. The updated error message always follows the original message. To acknowledge the message you can position the cursor either before the original or updated error message; both messages are then automatically acknowledged.

The **fields** of the CURRENT MESSAGES screen form:

The CURRENT MESSAGES screen form consists of the screen form header, the list of error messages and the function keys.

The screen form HEADER

Page number / no. messages

Beside "CURRENT MESSAGES" there is the number of the first and last error message displayed on the screen. The oldest error message has page number 01. Next to this, the current number of messages in the message buffer is displayed. The message buffer can contain a maximum of 40 messages.

Plant

The plant designation is below "CURRENT MESSAGES." You stored this in the SYSID of the CP 552 in the PLANT field. The plant designation of the error message marked by the "*" is always displayed. More information about "SYSID" can be found in Sections 6.1.3 and 7.3.

Block/segment

Beside the plant designation there is the type and number of the block, and the number of the segment to which the corresponding setpoint data element belongs. The block and segment numbers of the error message marked by the "*" are always displayed. With system and process control messages, this field remains empty.

The LIST of error messages:

Station name

You assigned this name to the corresponding setpoint data element in the setpoint data editor.

With process control messages, the message number or the corresponding text from the text file is displayed here, if PROC CONTROL MESSAGE "YES" was preset (for "text file", refer to Section 7.2). With system messages, the text of the system message is displayed here.

ACK

This field only appears when you have entered "YES" as the preset for ACKNOWLEDGEMENT and you acknowledge the message before the corresponding error has been cleared.

SP data name/symbolic name

This field contains the name of the setpoint data element. This name is the first term of the action which you entered in the setpoint data editor; if you preset "YES" for SYMBOLS, the symbolic name will be displayed.

Operand/symbolic name

The operands which are simultaneously (AND operation) or alternatively (OR operation) responsible for the process error are displayed. The symbolic name is displayed for each operand, providing you selected "YES" as the preset for SYMBOLS. For each error message, the maximum of four operands can be displayed. If there are more than four operands responsible for an error message, this is marked by "++" following the fourth operand. You can then see the other operands using the zoom-in function.

Begin/end

This field contains the time, at which the CP 552 recognized the error. If the error has been cleared, the end is also entered. You will only receive the message "Error cleared" if ACKNOWLEDGEMENT = YES was set in the PRESETS screen form. Otherwise, the message will be immediately erased from the screen once it has been sent. If you do not require the times to be displayed, you must set up a file on the PG with the name VORCP552.INI.

Error type

The type of error is displayed. The error texts are listed and explained in Fig. 4-3.

Displayed error text	Cause
Interlock error, time = 0	The trigger was activated, the action, however, was not started within the cycle.
Interlock error, time > 0	The trigger was activated, the action, however, was not started within the triggering time.
Reaction not reached	The reaction was not reached within the monitoring time.
Final status exited illegally	During the monitoring of a process element, the final status was exited longer than allowed by the tolerance time.
Illegal status, time = 0	Status monitoring has detected an illegal status.
Illegal status, time > 0	An illegal status has existed longer than the tolerance time allows.
Proc control message	Messages initiated by the STEP 5 user program.
System message	Messages from a diagnostic processor or from the display unit.

Fig. 4-3 Error texts

4.4 The Zoom-in Function

With **F5** ZOOM-IN in the CURRENT MESSAGES screen form, you can obtain a more detailed display of the message currently selected. If you press F5 LEVEL/COMMENT, then instead of the comment, the signal status at the time the error occurred will be displayed:

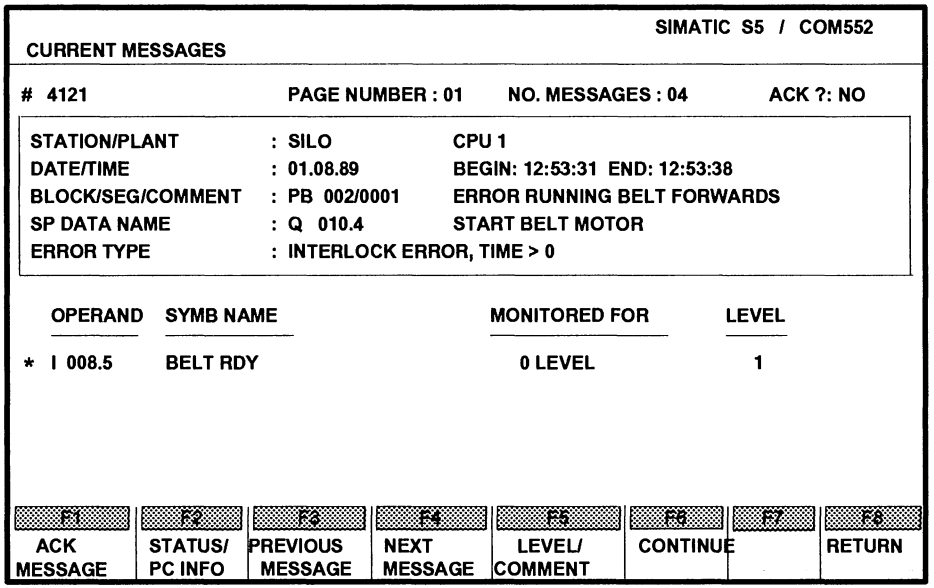


Fig. 4-4

The **function keys** have the following significance:

The function of **F1** ACK MESSAGE and **F2** STATUS/PC INFO can be found in Section 4.3.

F4 PREVIOUS MESSAGE

F5 NEXT MESSAGE

You can page in the message buffer.

F5 LEVEL/ COMMENT

You can switch between the signal status and the comment for the individual operands.

F6 CONTINUE

The functions of the function keys are extended:

F1 DELETE MESSAGE

You can delete the selected error message (even if the error is still valid). The PG then sends a delete job to the CP 552. This deletes the error message from its list and sends the acknowledgement "forced error deletion" to the PG. Only after this reply has been received is the error message deleted in the message buffer and transferred to the background memory.

F3 PAGE UP/PAGE DOWN

If the operand list of a process error message has more than four operands, you can page with these function keys (four entries at a time). You can move line by line with the cursor keys "cursor up" and "cursor down."

F8 RETURN

You exit the ZOOM-IN and return to the CURRENT MESSAGES screen form.

The **fields** of the CURRENT MESSAGES - ZOOM-IN screen form

MESSAGE NUMBER

The message number is displayed preceded by a "#." The PG assigns a message number to every process error message and every system message. This message number allows better identification of messages which belong together in the printout.

For process control messages, you must assign a message number to each process control message when programming in COM PMC.

ACK?

This field only appears if you have preset "YES" for ACKNOWLEDGEMENT. ACK "YES" means that you have already acknowledged the message. "NO" displayed inversely shows that you have not yet acknowledged the error.

The significance of the other fields has already been described in Section 4.3.

4.5 Segment Status with Process Error Messages

The function STATUS/PC INFO supports you in interlock diagnosis, particularly with complex interlocks. All functions (including modification functions) are available as you know them from the LAD, CSF, STL package.

If you select an error message in the CURRENT MESSAGES screen form (position the "*") and press the function key **F2** STATUS/PC INFO, the link to the CP 552 is cleared and the link to the CPU is established. The block and segment to which the setpoint data element (responsible for the selected error message) belongs are established automatically. You then only need to select the representation and display (symbolic/absolute) (see Fig. 4-5).

 **Note:**

The functions STATUS/PC INFO can only be executed if you have specified a PATH FILE in the PRESETS screen form. The path to the CPU must be stored in this PATH FILE. This path must have the same name as the plant designation in the SYSID of the CP 552.

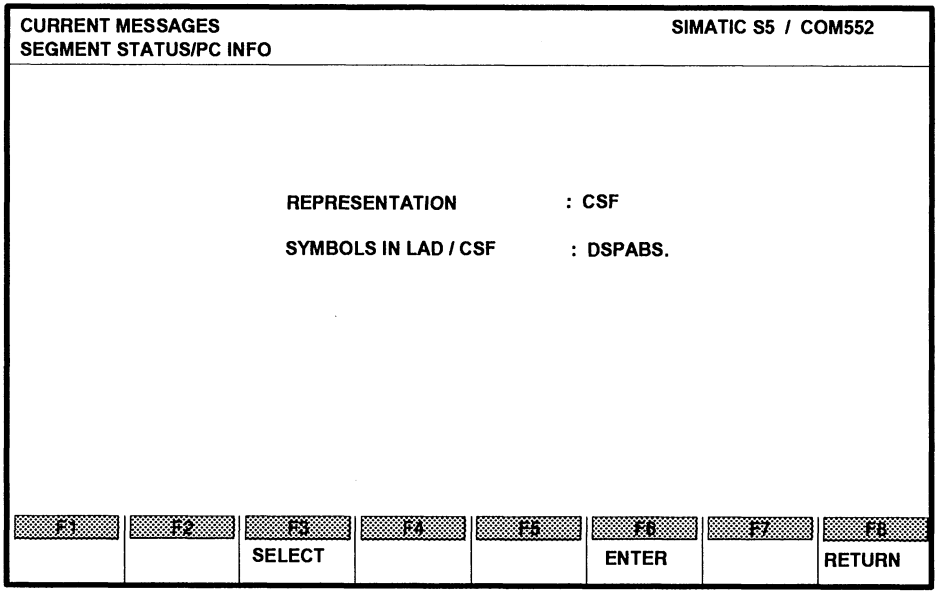


Fig. 4-5

The **function keys** have the following significance:

F3 SELECT — You can select the representation of the segment and make the symbols setting. More information about the representation of symbols in LAD, CSF ("DSPABS." or "DSPSYM.") can be found in the STEP® 5 manual.

F6 ENTER — The input is entered and the segment which caused the error is displayed.

F8 RETURN	You exit the STATUS function. The link to the CPU is cleared and the link to the CP 552 is established again. You then return to the CURRENT MESSAGES screen form.

4.6 PLC Information for System and Process Control Messages

If you press **F2** STATUS/PC-INFO in the CURRENT MESSAGES screen form for a **process control message** or a **system message** instead of a process error message, the function keys are then assigned as follows:

F1	F2	F3	F4	F5	F6	F7	F8
OUTP ADDR	MEM CONF	SYSPAR	BSTACK	ISTACK			RETURN

Fig. 4-6

F1 OUTP ADDR — You can stipulate the start address from which the PLC memory is to be displayed on the screen.

F2 MEM CONF — You can display the memory capacity of the PLC.

F3 SYSPAR — You can display various system parameters of the PLC.

F4 BSTACK — You can display the block stack at the time when the error occurred.

F5 ISTACK — You can display the interrupt stack.

F8 RETURN	The link to the CPU is cleared and the link to the CP 552 established. The CURRENT MESSAGES screen form is then displayed.

For further information on these functions, refer to the STEP® 5 manual.

4.7 CP 552 Error Messages

The following texts can be displayed on the screen as **system messages** from the CP 552 or from the PG (system messages, like process messages, are transferred to the background memory after they have gone and the message acknowledged).

CP 552 START-UP

When the CP 552 is started up (either by the CPU being started up or by switching the mode selector on the CP 552 from STOP to RUN or as a result of a cold restart from the PG) all messages currently present will be deleted both in the CP 552 and in the message buffer of the PG.

BUFFER OVERFLOW CP 552

A maximum of 27 messages can be entered in the buffer of the CP 552 (further messages are lost).

BUFFER OVERFLOW DISPLAY

If the CP 552 sends more messages to the display unit than can be stored in the message buffer of the display unit (max. 40 messages), further messages are lost. If you select ACK "YES" in the PRESETS screen form, then error messages which are no longer valid also occupy the message buffer until they are acknowledged.

CP 552 STOPPED

If the CP 552 changes to STOP (when the CPU changes to STOP or when the mode selector on the CP 552 is switched to STOP or the CP 552 is set to STOP by the PG), process errors are no longer detected.

PC COMMUNICATION ERROR (PLC)

In single diagnosis:

If the CP 552 no longer receives the process image of the CPU cyclically, it signals a PLC communication error. Normally, the CPU has changed to STOP. You can obtain more information using the function ISTACK/BSTACK in the LAD, CSF, STL package.

In group diagnosis:

To indicate that communication is still functioning, each CP 552 sends blank messages to its display unit cyclically. If a display unit no longer receives these blank messages, it signals a PLC communication error for the particular CP 552 (watchdog function). Normally, the CPU has changed to STOP. You can obtain further information using the function ISTACK/BSTACK in the LAD, CSF, STL package.

The BACKGROUND MEMORY Function

Contents

Using this function you can display error messages which have been cleared from the screen and deleted from the message buffer and entered in the background memory as an aid to diagnosing the overall performance of a system. Only the original messages are entered in the background memory, updated error messages are not entered.

The background memory can hold a maximum of 40 error messages. If this limit is exceeded, the oldest error message is overwritten on the first-in, first-out principle (FIFO).

The BACKGROUND MEMORY function is particularly useful if you have selected ACK "NO" as the preset. In this case, errors which only occur briefly are transferred after a brief time from the message buffer to the background memory. Using the BACKGROUND MEMORY function, you can have these error messages displayed at a later point in time to improve the diagnosis of the system performance.

The BACKGROUND MEMORY screen form is displayed when you press **F2** BACKGR MEMORY in the SELECT FUNCTION. The error message which was last deleted from the message buffer will be displayed.

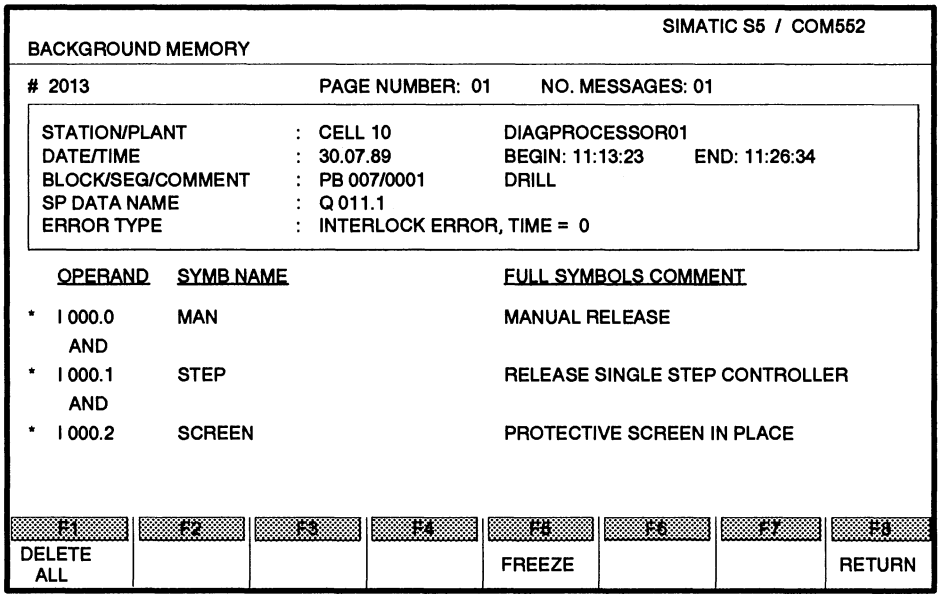


Fig. 5-1

Note:

If the end time is missing for an error message and the plant designation is displayed inversely, the clearing of this error message in the message buffer was forced (see Section 4.3).

The description of the **fields** of this screen form can be found in Sections 4.3 or 4.4.

The **function keys** have the following significance:

F1 DELETE ALL

The whole background memory is deleted. You can block this function with the keyswitch on the PG.

F5 FREEZE

If you call the BACKGROUND MEMORY function, the last message to be entered in the background memory will be displayed on the screen. This message is overwritten on the screen as soon as a message is cleared from the message buffer and transferred to the background memory.

If you press **FREEZE**, the message currently displayed on the screen will not be overwritten.

After pressing **F5** FREEZE, the following functions are available:

F3 PREVIOUS MESSAGE/**F4** NEXT MESSAGE

F5 LEVEL/COMMENT

F6 CONTINUE (**F3** PAGE UP/**F4** PAGE DOWN/ **F6** CONTINUE/**F8** RETURN)

F8 RETURN

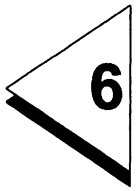
Note:

If the background memory is "frozen," messages cleared from the message buffer are not entered in the background memory. These are, therefore, no longer available for diagnosis of the system performance.

Note:

You can only page in the background memory when this is "frozen."

F8 RETURN — You exit the BACKGROUND MEMORY screen form and return to the SELECT FUNCTION screen form.



The CP 552 ONLINE Function

Contents

6.1 The CP 552 ONLINE Screen Form

If you press **F3** CP 552 ONLINE in the SELECT FUNCTION screen form, the CP 552 ONLINE screen form appears. The function keys are assigned as follows:

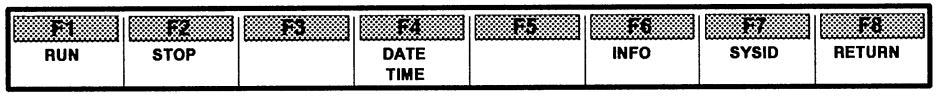


Fig. 6-1

If you have specified a path file and a valid path in the PRESETS screen form, the path name and path file will be displayed in the CP 552 ONLINE screen form.

The **function keys** have the following significance:

F1 RUN

F2 STOP — You can change the operating mode of the CP 552.

Note:

When you switch to "RUN," all messages on the CP 552 are deleted. In the "STOP" mode, process errors cannot be detected.

F4 DATE TIME	You can update the hardware clock of the CP 552. For further information, refer to Section 6.1.1.
F8 INFO	You can select the information functions of the CP 552. For further information, refer to Section 6.1.2.
F7 SYSID	You can display and modify the system identification area (SYSID) of the CP 552. For further information, refer to Section 6.1.3.
F8 RETURN	You exit the CP 552 ONLINE function and return to SELECT FUNCTION screen form.

6.1.1 The DATE/TIME Screen Form

If you call the CP 552 ONLINE function with **F3** in SELECT FUNCTION and press **F4** DATE/TIME, this screen form is displayed:

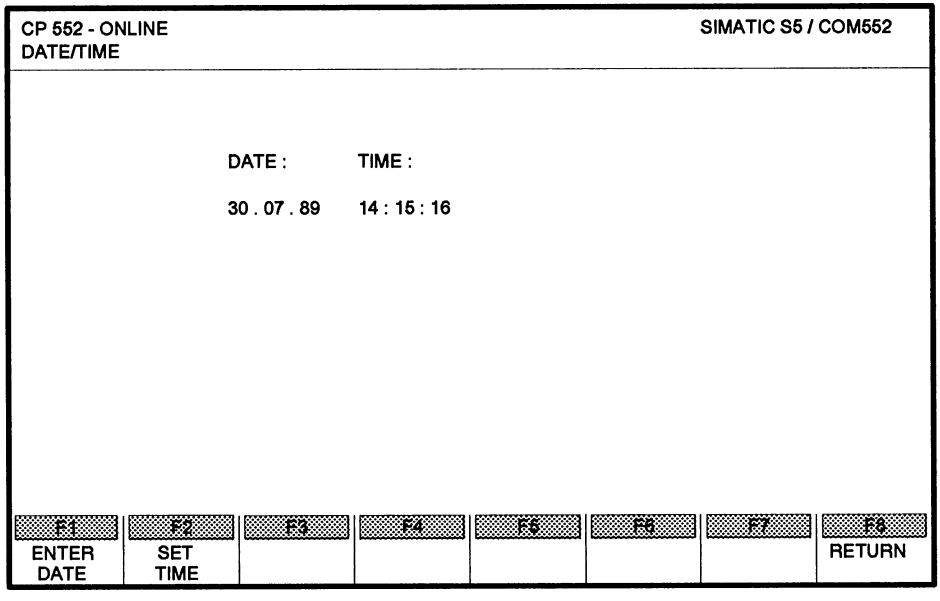


Fig. 6-2

The time is updated continuously until you press **F1** or **F2**.

F1 ENTER DATE	The clock is stopped. The cursor is positioned in the DATE field. Input must be in the format dd:mm:yy. Enter the date with **F6** (see Fig. 6-3).

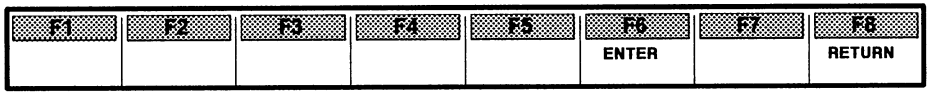


Fig. 6-3

F6 ENTER

The date input will be entered.

F8 RETURN

You return to the initial screen form **without** the data input being entered.

If you press **F2** in the DATE/TIME screen form, you can enter the current time:

F2 SET TIME

The clock is stopped. The cursor is positioned in the TIME field. Your input must be in the format hh:mm:ss and must be completed with the return key.

Once you have entered the time, the function keys are assigned as follows:

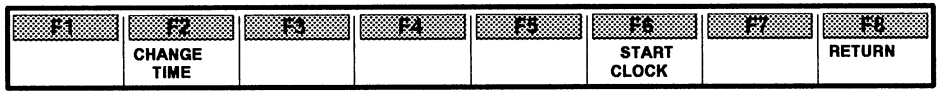


Fig. 6-4

F1 CHANGE TIME	You can change the time once again.
F6 START CLOCK	The specified time is entered.

6.1.2 The INFORMATION Screen Form

If you press **F4** CP 552 ONLINE in the SELECT FUNCTION screen form and press **F6** INFO, the INFORMATION screen form appears. If the CP 552 is in the RUN mode, Fig. 6-5 is displayed. If the CP 552 is in the STOP mode, then either Fig. 6-5 or Fig. 6-6 is displayed. The second of these screen forms is displayed when the CP 552 has changed to STOP due to an access error. This can, for example, occur when a setpoint data element is transferred to the CP 552, which addresses operands not contained in the process image.

Figs. 6-5 and 6-6 contain information which you cannot change in this screen form.

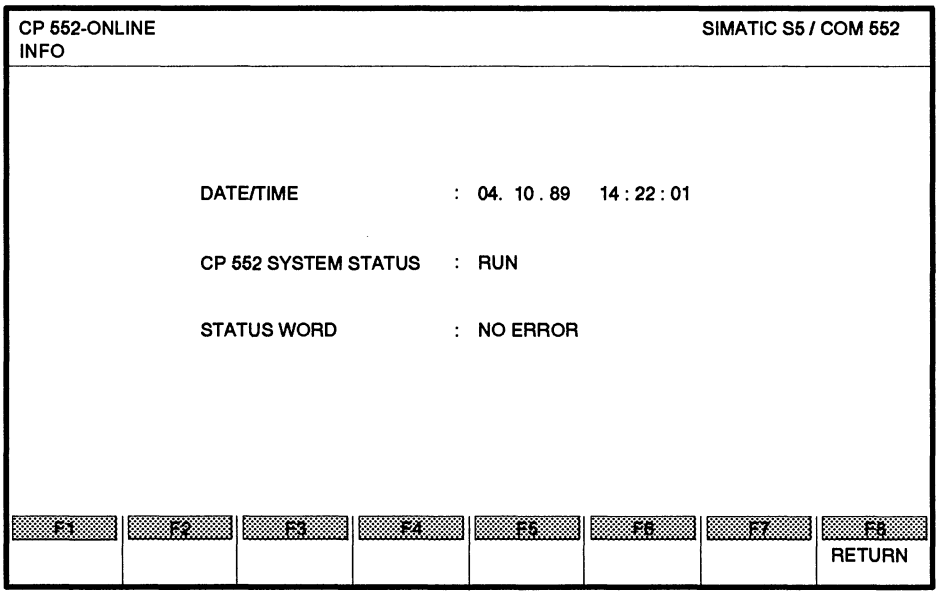


Fig. 6-5

F8 RETURN	You exit the screen form and return to the initial screen form.

The **fields** of the INFORMATION screen form.

DATE/TIME

This field contains the current values for the date and time on the CP 552. The date and time on the CP 552 can be updated as described in Section 6.1.1.

SYSTEM STATUS CP 552

This field contains the current status of the CP 552. The CP 552 can only have the status RUN or STOP. The mode of the CP 552 can be changed by the software using the function keys as described in Section 6.1.

STATUS WORD

If the CP 552 is in the RUN mode, the following message is entered in the STATUS WORD field:

NO ERROR

If the CP 552 is in the STOP mode, the following texts can be displayed:

CP 552 NOT SYNCHRONIZED WITH PC

The CP 552 cannot start up unless communication with the CPU is established. Check the installation of the standard function blocks for process error diagnosis on the CP (may have entered the wrong interface number).

MODE SELECTOR ON CP 552 SET TO STOP

The mode selector must be set to RUN.

The INFORMATION screen form when access errors occur

If the CP 552 changes to STOP following an access error, then instead of Fig. 6-5, a list of unknown inputs and outputs is displayed (see Fig. 6-6). These are only listed in bytes, with contiguous areas being displayed together.

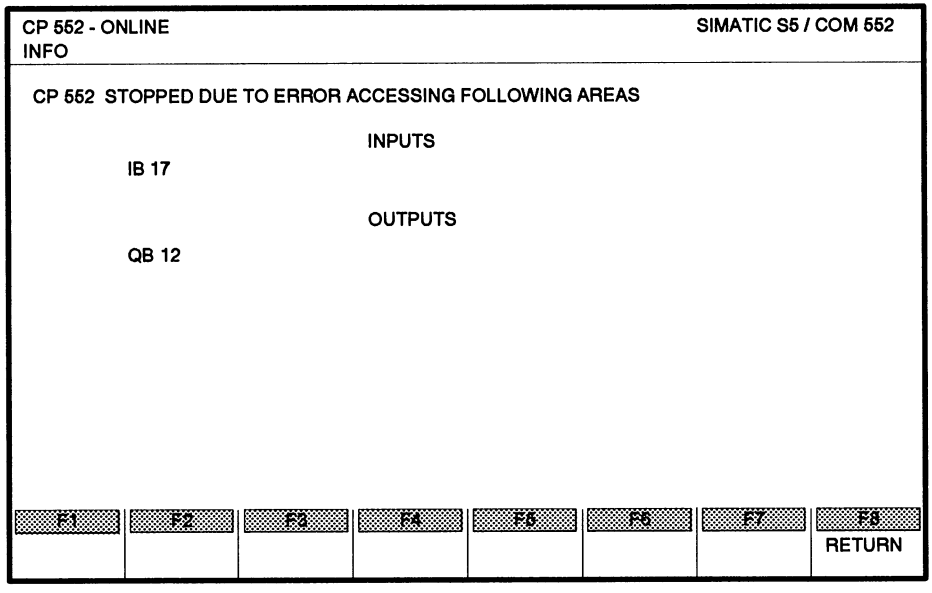


Fig. 6-6

Causes of errors

- In the case of isolated input or output bytes, you can normally assume a typing error was made when generating the setpoint data. Use the OUTPUT SETPOINT DATA ELEMENTS function in the SCREEN FORM EDITOR to search for the setpoint data element with the indicated input or output. Enter the search term "A" (all blocks) in the BLOCK field and the input or output byte with a non-specified bit address in the SEARCH field ("*" in the bit field).

- A module is defective.

6.1.3 The SYSTEM IDENTIFICATION Screen Form

You obtain the SYSTEM IDENTIFICATION screen form by pressing **F7** SYSID in the CP 552 ONLINE screen form. You can edit the system **online** on the CP 552.

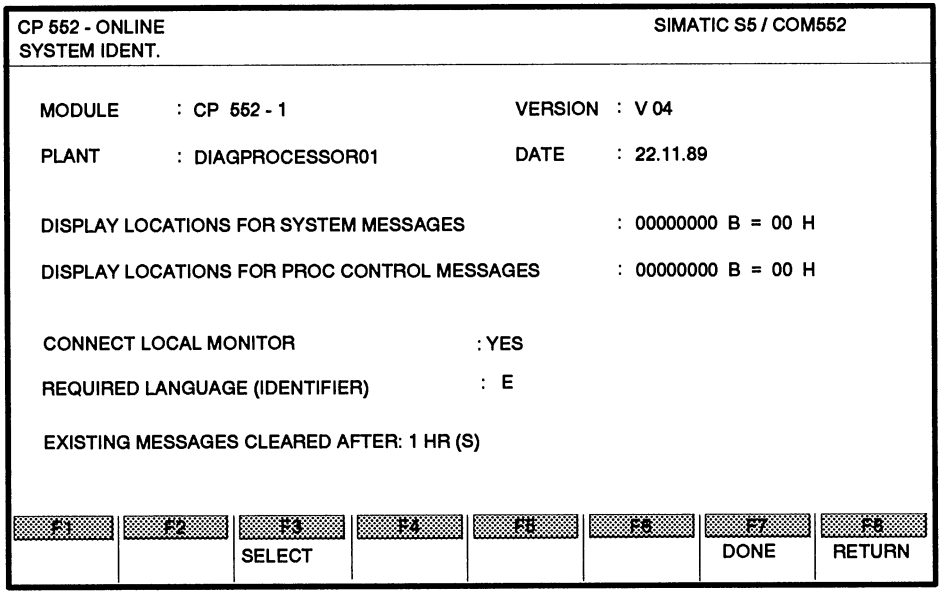


Fig. 6-7

The **function keys** have the following significance:

F3 SELECT	This is only available when you position the cursor on the CONNECT LOCAL MONITOR field. If you enter "YES," the fields of the screen form are extended.

F7 DONE	The data input is entered and transferred to the CP 552.
F8 RETURN	You exit the SYSTEM IDENTIFICATION screen form **without** entering the data and return to the CP 552 ONLINE screen form.

The **fields** of the SYSTEM IDENTIFICATION screen form.

MODULE

This field cannot be changed. It contains the variant of the CP 552: CP 552-**1** or CP 552-**2**.

VERSION

This field cannot be changed. It contains the current version number of the CP 552 firmware.

PLANT

You specify the plant name. It cannot be longer than 19 characters, must match the plant designation in the configuration file (see also Section 7.1), and must match the path name to the CPU in the path file, if the ISTACK, BSTACK or segment status is to be displayed.

DATE

In this field, you can enter the date on which you made the changes in SYSID. This date does not affect the hardware clock of the CP 552.

DISPLAY LOCATIONS FOR SYSTEM MESSAGES

In this field you stipulate the display units to which the CP 552 will send system messages. For example, "1" at a certain position means that a system message is sent to the PG with this device identifier.

DISPLAY LOCATIONS FOR PROC CONTROL MESSAGES

In this field you stipulate which of the connected display units the CP 552 will send process control messages to.

CONNECT LOCAL MONITOR

With **F3** SELECT you enter "YES" if you require display on the local monitor. Enter "NO" if you wish to switch off the display on the local monitor. The connecting or disconnecting of the local monitor is only recognized following a cold restart on the CP 552.

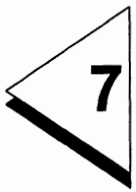
REQUIRED LANGUAGE (IDENTIFIER)

This line is only displayed when the local monitor is connected. You can select the language for display on the local monitor: "**D**" = German, "**E**" = English, "**F**" = French and "**S**" = Spanish.

EXISTING MESSAGES CLEARED AFTER 0 HOUR(S)

This line is only displayed if you have connected the local monitor. You can determine the time after which existing messages are deleted from the monitor. You can enter **from 0 to 23 hours**. If you enter 0 hours, you can only clear existing messages by cold restarting the CP 552.

For further information about display on the local monitor, refer to the User's Guide "Error Display on the Local Monitor" in this manual.



The SPECIAL FUNCTIONS

Contents

If you press **F4** SPECIAL FUNCTION in the SELECT FUNCTION screen form, you change to the SPECIAL FUNCTIONS screen form. The function keys are assigned as follows:

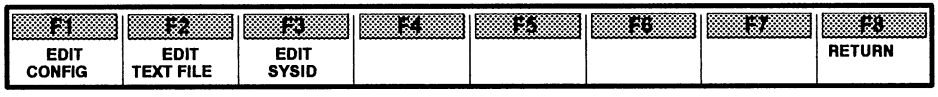


Fig. 7-1

F1 EDIT CONFIG

You can call the editor to generate the configuration file. For further information on the configuration editor, refer to Section 7.1.

F2 EDIT TEXT FILE

You can call the editor to generate the text file for the process control messages. For further information on the message text editor, refer to Section 7.2.

F3 EDIT SYSID

You can display and modify the system identifier area (SYSID) of the CP 552 stored in the program file. For further information, refer to Section 7.3.

Note:

In this function you can display and modify (offline) only the SYSID stored in the program file. You can modify the SYSID in the CP 552 online by performing this in the CP 552 ONLINE function or by transferring the modified SYSID from the program file to the CP 552 (in the SCREEN FORM EDITOR).

F8 RETURN	You exit the SPECIAL FUNCTIONS screen form and return to SELECT FUNCTION.

7.1 The Configuration Editor

For group diagnosis, you must assign parameters to all partners involved. Each display unit must be informed of the diagnostic processors with which it is to communicate. Parameters are assigned to the display units using the **configuration editor**. This is described in the following sections.

Further information about assigning parameters to the partners (CPU, CP 535 and CP 536) can be found in the Instructions "Process Error Diagnosis with the CP 552" and under /3/ in the List of Further Documentation.

7.1.1 The Basic Screen Form of the Configuration Editor

If you press function key **F1** EDIT CONFIG in the SPECIAL FUNCTIONS screen form, you call the configuration editor. You must then specify a file name for the configuration file. If the specified file already exists, a list of the paths contained in it will be displayed on the screen (Fig. 7-2). If the file does not exist, Fig. 7-3 (Section 7.1.2) will be displayed.

SPECIAL FUNCTIONS — SIMATIC S5 / COM552
EDITING THE DEVICE CONF. — CONF. FILE: C:PG17@@KF.INI

PATHNO	PLANT	DEVICE ID
01	AG 5	00000001
02	AG 2	00000001
03	AG 20	10000000
04	AG 21	10000000
05	AG 22	10000000
06	AG 23	00000000
07	AG 25	00000000
08	AG 26	00000000
09	AG 27	00000000
10	AG 28	00000000

F1	F2	F3	F4	F5	F6	F7	F8
MODIFY PATH	DELETE PATH	EDIT NEW PATH				DONE	ABORT

Fig. 7-2

Note:

The path name in the path file and the plant designation in the configuration file must be identical (upper and lower case characters).

The **function keys** have the following significance:

F1 MODIFY PATH	You can modify an already existing path. For further information, refer to Section 7.1.3.
F2 DELETE PATH	You can delete a path which you have selected with the cursor.
F3 EDIT NEW PATH	You can create a new path. For further information, refer to Section 7.1.2.
F7 DONE	Your input is entered. You then return to the SPECIAL FUNCTIONS screen form.
F8 ABORT	You exit the configuration editor **without** storing the modifications. If you have created and processed a new file, it is not saved. You then return to the SPECIAL FUNCTIONS screen form.

7.1.2 The NEW PATH Screen Form

If you specify a file name in the basic screen form which does not yet exist, the screen form NEW PATH is displayed.

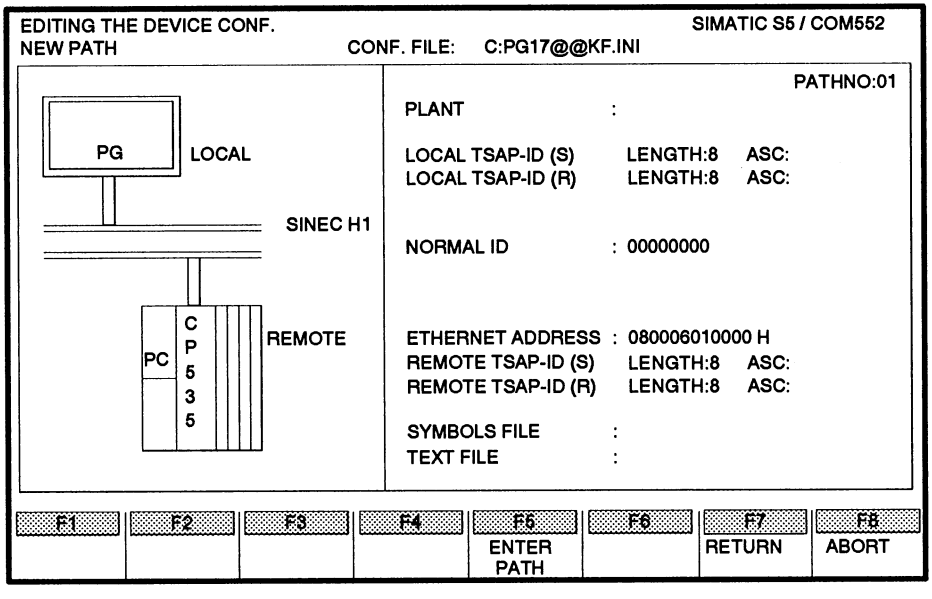


Fig. 7-3

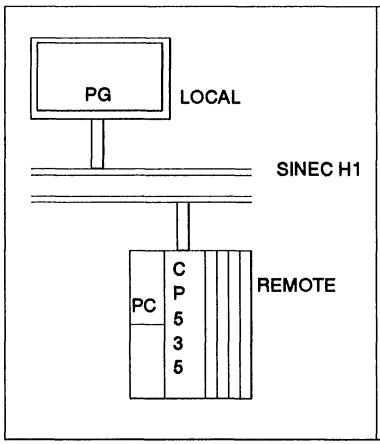
The **function keys** have the following significance:

F3 SELECT	Is only active (visible), when you position the cursor on one of the fields SYMBOLS FILE or TEXT FILE.

F5 ENTER PATH	The new path is entered, the path number is incremented by one and the empty basic screen form is displayed.
F7 RETURN	The created paths are entered. You return to the basic screen form of the configuration editor.
F8 ABORT	The path currently being processed is abandoned. You return to the basic screen form of the configuration editor.

The **fields** of the NEW PATH screen form

In these fields, you enter the parameters for the path in the configuration file. For further information, refer to the CP 535 manual.



PATHNO:01

PLANT	: DIAGPROCESSOR01	
LOCAL TSAP-ID (S)	LENGTH:7	ASC:PG SEND
LOCAL TSAP-ID (R)	LENGTH:7	ASC:PG1 RCV
NORMAL ID	: 00000001	
ETHERNET ADDRESS	: 080006010000 H	
REMOTE TSAP-ID (S)	LENGTH:5	ASC:PC S1
REMOTE TSAP-ID (R)	LENGTH:6	ASC:PC RCV
SYMBOLS FILE	:	
TEXT FILE	:	

Fig. 7-4 Example

PLANT

The plant designation has a maximum of 19 ASCII characters. The diagnostic processor is identified uniquely by this name.

Note:

Make sure that this designation is identical to the designation in the SYSID of the CP 552. For more information on "SYSID," refer to Sections 6.1.3 and 7.3.

PATH NO

This number is irrelevant for the establishment of the link. It helps to orientate you if you page through the configuration file.

LOCAL TSAP - ID

For each path there are two links to the CP 552 - a SEND job and a RECEIVE job. These links are established from the CP 536 in the PG to the CP 535 in the PLC frame.

The local TSAP-ID (S) and the REMOTE TSAP-ID (R) belong to the SEND job of the CP 536.

The LOCAL TSAP-ID (R) and the REMOTE TSAP-ID (S) belong to the RECEIVE job of the CP 536.

You must specify the lengths and designations of the TSAP-IDs of the CP 536. You can use all printable ASCII characters, however, a maximum of eight characters (R = RECEIVE, S = SEND).

NORMAL ID

You can enter a "1" at a maximum of one position. This stipulates which identifier the CP 552 uses to identify the display unit.

 Note:

Unlike the previous version (release 04, Order no. 6ES5998-3SE22) the COM 552 now recognizes only one unit ID, i.e. the normal ID in the old COM 552 V 04.

If you wish to use old configuration files containing paths with spare IDs (unit group: normal + spare unit, spare unit), this should be checked according to the following table.

Configuration file generated with:

COM V 04 (old)		COM V 05	
Unit gr.	Field contents (example)	Field contents	Remark
N	0100 0000	0001 0000	Is entered
N + S	N: 0100 0000 S: 0011 1111	0100 0000	Information on the spare unit is lost
S	0001 1100	0000 0000	Information on the spare unit is lost. Hence the path is pointless and should be adapted or deleted.

In old configuration files (generated with COM 552 V 04) the COM 552 ignores the spare ID and uses the normal ID specification.

You must use the configuration editor of the COM 552 V 04 if you wish to delete the information on the group N + S or S from an existing configuration.

ETHERNET ADDRESS

Here, you must enter the Ethernet address of the CP 535 in the PLC rack.

 Note:

Remember to use the same address as when assigning parameters to the CP 535. Please refer to the CP 535 manual for more details.

REMOTE TSAP - ID

Here, you must specify the lengths as well as the designations of the TSAP-IDs (R) and the TSAP-IDs (S) of the CP 552. You can use all printable ASCII characters (maximum 8 characters).

SYMBOLS FILE

You can allocate a symbols file of its own to each path or each plant. This file must be located on the specified drive.

TEXT FILE

If process control messages are to be sent via this path, you must enter the name of a text file in this field. This field contains the message texts assigned to the numbers of the process control messages. For further information, refer to Section 7.2.

7.1.3 The MODIFY PATH Screen Form

By pressing **F1** MODIFY PATH in the basic screen form of the configuration, you can select and modify an already existing path.

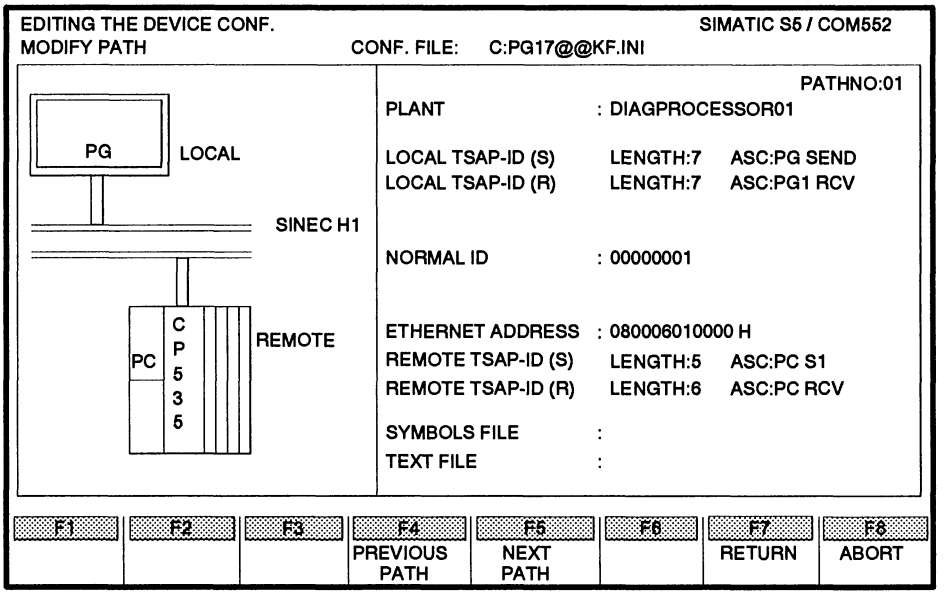


Fig. 7-5 Example

The **function keys** have the following significance:

F3 SELECT	This is only activated (visible) when the cursor is positioned on the SYMBOLS FILE or TEXT FILE fields.

F4 PREVIOUS PATH	
F5 NEXT PATH	You can page through the list of existing paths.
F7 RETURN	The changes are entered. You then return to the basic screen form of the configuration editor.
F8 ABORT	The currently processed path is discarded. You then return to the basic screen form of the configuration editor.

A description of the **fields** of the MODIFY PATH screen form can be found in Section 7.1.2.

7.2 The Message Text Editor

Using the message text editor, you generate a text file. This contains a maximum of 2000 message texts displayed on the screen for process control messages. In single diagnosis, this text file is loaded when you enter "YES" in the PROC CONTROL MESSAGE field in the PRESETS screen form. In group diagnosis, you must enter the name of the text file in the configuration file when you create a path. You can enter a text file for each path.
The following screen form overview serves as a guide for the paths within the message text editor.

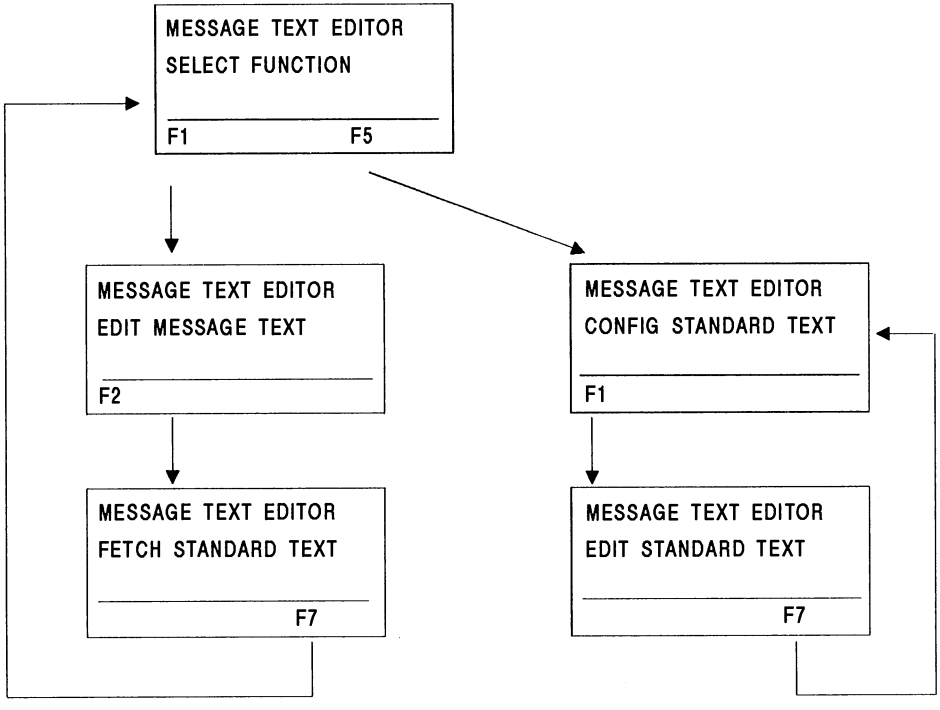


Fig. 7 - 6

If you press **F2** EDIT TEXT FILE in the SPECIAL FUNCTIONS screen form, the following screen form will be displayed:

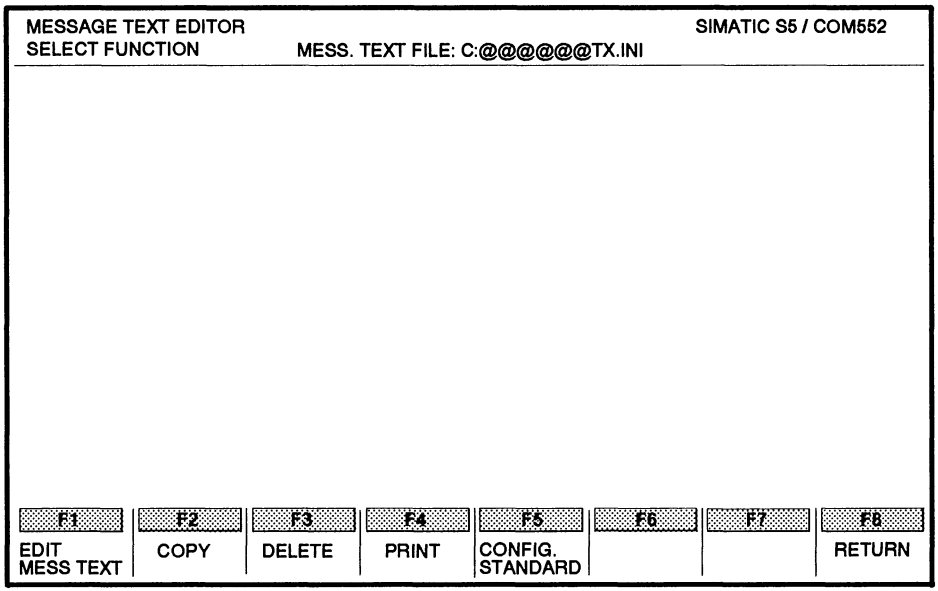


Fig. 7- 7

Enter the file name.

The **function keys** of the SELECT FUNCTION screen form

F1 EDIT MESS TEXT	The contents of the message text file are displayed with the editor screen form, beginning from message number 1. You can modify this text.
F2 COPY	You can copy the message text file with the corresponding index file. The PG then displays the following command line: Copy the message text file to B: @@@@@@TX.INI The corresponding index file is also copied.
F3 DELETE	The message text file and the corresponding index file are deleted.
F4 PRINT	The message text file is printed out. If you have configured standard text files in the CONFIGURATION screen form, they will also be printed out.
F5 CONFIG. STANDARD	With this function you branch to the CONFIGURATION screen form. There, you can configure the file name and define columns for the standard texts.

7.2.1 Editing the Message Text File

If you press **F1** EDIT MESS TEXT in the SELECT FUNCTION screen form, the EDIT screen form is displayed:

SPECIAL FUNCTIONS — SIMATIC S5 / COM552
EDIT — MESS. TEXT FILE: C:@@@@@@TX.INI — - Insert -

TXTFILE MESS.NO	C:COLUMN1	C:COLUMN2	C:COLUMN3	C:COLUMN4
1	PLANTX	STATIO4711	MIXER VALVE	OPEN
2				
3	PLANTX	STATION10	ELEVATING PLATFORM 33	UP
4	PLANTX	STATION10	CONVEYOR BELT 88	RUNNING
5				
6	PLANTX	STATION11	MIXER VALVE	CLOSED
7	PLANTX	STATION11	LIFTING CYLINDER 33	
8	PLANTX	STATION12	MIXER VALVE	FAULT
9				
10				
11				
12				
13	PLANTY	STATION4711	CONVEYOR BELT 88	STOPPED
14				
15				

F1	F2	F3	F4	F5	F6	F7	F8
BUFFER	COPY	DELETE	SEARCH	CONTINUE	SAVE	FINISHED	RETURN

The significance of the fields

You can no longer modify the **MESSAGE TEXT FILE** here.

If you have defined columns in the CONFIGURATION screen form, the names of the standard text files configured will be displayed in the TXTFILE line. The maximum length of the names of the standard text files is 8 characters. The first two characters are the disk drive letter and the colon.

 Note:

The edited message texts are displayed later, unmodified, as process control messages (including the blanks!).

In the upper right corner of the screen form, you can read the editing mode **INSERT** or **OVERWRITE**.

The cursor is positioned automatically on the first message. Non-assigned message texts are displayed as blank lines, preceded by a number.

Other operating facilities

Cursor keys: All cursor keys are permitted. You can place the cursor on any position and also edit the message texts across column limits.

SHIFT CURSOR or **TAB**: The cursor is positioned columnwise on the next text element. If you have not configured any text elements, the cursor is positioned on the next line or on the next message.

RETURN key: The edited message text is entered and the cursor is positioned on the next line. If you have configured columns, the cursor is positioned on the start of the next text element.

DEL key: With this key you delete the character on which the cursor is positioned.

Backspace key: The behavior is S5-specific; the cursor is moved by one character to the left, but the character is not deleted.

EXPAND HORIZONTALLY key: A blank character is inserted, the text to the right of the character is moved to the right. Only the column containing the cursor is expanded.

SCROLL SCREEN key: With this key you can page through the message texts on the screen.

ABORT KEY (ESC key): This key effects the same action as the function key **F8** RETURN.
EXCEPTION: It acts as a NO acknowledgement when acknowledging.

The **function keys** of the EDIT screen form

F1 BUFFER	A further menu is displayed. From this subsequent menu, you can write into a buffer memory complete message texts (lines), any character strings and entire message text blocks. The system does not register the message numbers.
F2 COPY	With this function you can copy a message text, character string or a message text block from the buffer memory to the cursor position. Besides, you can copy a message text or a message block from any file to the cursor position. The message text numbers are not displaced.

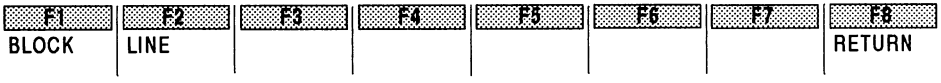
If you press either function key F1 or F2, the following menu is displayed:

F1	F2	F3	F4	F5	F6	F7	F8
BLOCK	LINE	TEXT	FILE				RETURN

The procedure to be further adopted is described overleaf.

F3 DELETE	You can delete a message text or a message text block. The element to be deleted is written to a buffer memory. Any elements already deleted are overwritten in the buffer memory. The message text numbers are not displayed.

After pressing F3, the following screen form appears:



Here is a brief description of the tasks frequently performed in order to facilitate handling of the screen form editor.

Copy a file

Position the cursor on the line to be copied

F1 BUFFER	press
F2 LINE	press

Position cursor on target

F2 COPY	press
F2 LINE	press

The line is copied to the desired position.

Copy a block

Position cursor on the line containing the start of block

F1 BUFFER	press
F2 BLOCK	press

With the Arrow key move to required block length, then again

F1 BUFFER	press
F1 BLOCK	press

Position cursor on target

F2 COPY	press
F1 BLOCK	press

The block has been copied to the desired position.

Delete a line

Position cursor on the line to be deleted

F3 DELETE	press
F2 LINE	press

The line has been deleted.

Delete a block

Position cursor on the 1st line of the block to be deleted

F1 DELETE	press
F2 BLOCK	press

then

F1 DELETE	press
F2 BLOCK	press

The selected block has been deleted.

Insert defined text sections

F1 BUFFER	press
F3 TEXT	press

now you can enter your defined text in the line display.

F6 ENTER	press

Position cursor on the position where you wish to insert the text

F2 COPY	press
F3 TEXT	press

Your defined text has been inserted.

Store block in a file

You can store buffered text sections/blocks in a file.

Procede as for **Copy a block**, then

F1 BUFFER

F2 FILE

The buffered block has been stored in the file.

F4 SEARCH

You can jump to the start or end of the message text file. Likewise, you can jump to a particular message number, to the next free or assigned message text or to any character string. Pay attention to upper and lower case letters for the search code.

F5 CONTINUE

Here the subsequent menu is displayed.

F1	F2	F3	F4	F5	F6	F7	F8
	READ STANDARD		REPLACE TEXT	CONTINUE	MODE		

Significance of the keys in the subsequent menu (continue with F5)

F2 READ STANDARD	The text elements can be read from the assigned standard text file. The assignment of standard text file and text element is effected by the cursor position in the message text (column 1 ... 4). The STANDARD TEXT screen form is displayed.
F4 REPLACE TEXT	You can replace any character strings (max. 20 characters). You can select between total replacement or individual replacement, with or without a prompt. Replacement is effected only up to the cursor position.
F5 CONTINUE	Display the basic menu.
F6 MODE	You can select between the Insert mode and Overwrite mode.The currently active mode is displayed in the header. The message texts are expanded horizontally using Insert.

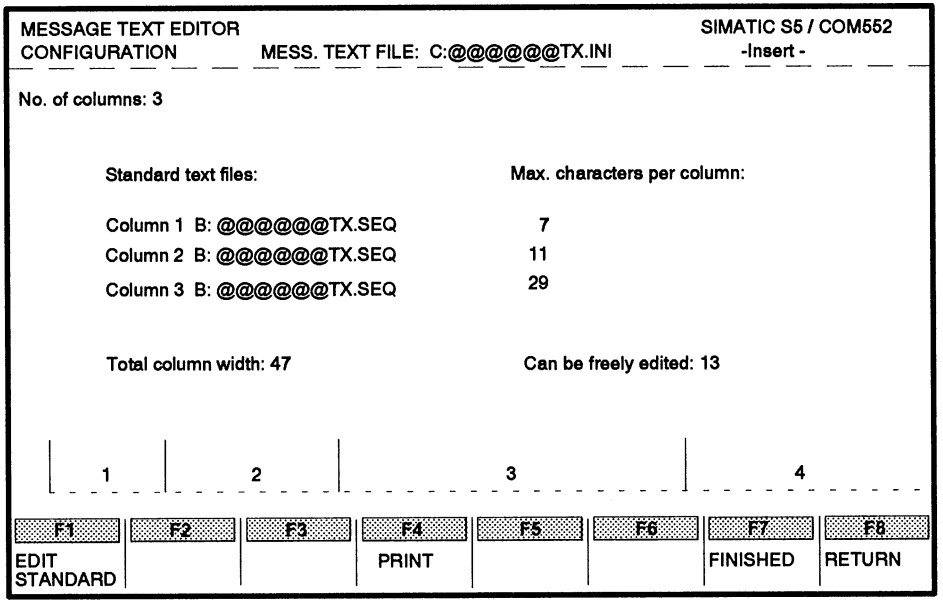
Filling the editing lines with characters

You can terminate or exit a message text line by pressing the Return key. By filling the line with characters, the cursor moves to the first character in the message text of the next line.

F6 SAVE	The message texts are written back to FD with acknowledgement and the SELECT FUNCTION screen form is displayed.
F7 FINISHED	or **Enter** key: The message texts are written back to FD with acknowledgement and the SELECT FUNCTION screen form is displayed.
F8 RETURN	The editing task is abandoned with prior acknowledgement only if the file has been modified.Your edited and non-saved data are abandoned.

7.2.2 Screen Form for Standard Text CONFIGURATION

You can reach this screen form from SELECT FUNCTION of the MESSAGE TEXT EDITOR with **F5** CONFIG STANDARD.



You can enter the configuration of the message texts, i.e. the column widths and the assigned standard text files. The column definition has not been preset. Columns already configured for this file will be displayed.

Meaning of the fields

No. of columns

The number of columns can be selected between 0 and 4. Zero is the default value, meaning that no columns have been configured and that therefore no standard text files are entered.

Standard text files:

Here, the names of max. 4 standard text files are entered. Standard text files which do not yet exist are created. The file marked by the cursor position can be edited with **F1** EDIT STANDARD.

Max. characters per column

The column widths for each file are entered here. Please note that the total length may not exceed 60 characters. If the total length permitted is exceeded the PG issues a message.

If the specified standard text files already exist, the length is ascertained automatically and displayed in the fields. The longest text element in the standard text file then determines the value for Max. characters per column.

Total column width:

To give you a clearer overview, the total text length of the configured columns in the entire message text are displayed.

Can be freely edited:

Here, the text length remaining, up to 60 characters, which is not defined in columns is displayed.

The **function keys** of the CONFIGURATION screen form

F1 EDIT STANDARD	You can edit the file marked by the cursor position. To do this, the system branches to the EDIT STANDARD TEXT screen form.
F4 PRINT	All text files specified in the screen form are printed out with file name, configured text length and serial text number.
F7 FINISHED	The configuration is entered into the message text file and you return to the SELECT FUNCTION screen form.

 Note:

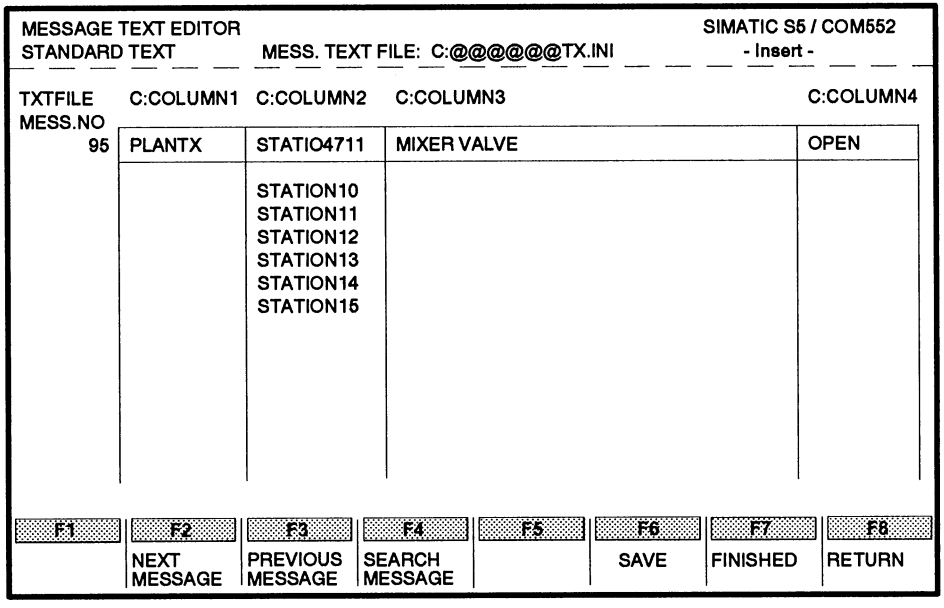
If you have modified the configuration (column definition) of an existing message text file, the message texts in the entire message text file are automatically adapted after acknowledgement, i.e. blank characters are inserted or deleted between the text elements acc. to the column width. The total length of the message texts is restricted to 60 characters.

F8 RETURN	The configuration is abandoned and remains unchanged.

7.2.3 Screen Form for Fetching STANDARD TEXTS

You gain access to this screen form if you have configured columns in the message text file and press **F2** READ STANDARD in the EDIT screen.

The form Message text marked by the cursor position in the edit screen form (MESS. NO. 95 in the example) moves upwards on the screen. The text elements from the standard text file are displayed for the current column (**STATION 10**). The current column has also been defined previously by the cursor position in the EDIT screen form. The current text element (**STATION 10**) is displayed inversely. The cursor is positioned on the start of the column in the message text (STATION 4711 in the example). The message text column can now be overwritten from the text file.



Other operating facilities

Cursor keys: All cursor keys are permitted. With CURSOR LEFT/RIGHT the characters in the message text column are selected (standard edit function). If the cursor is moved over the column limits, changeover to the text elements of the adjacent column is effected.

With **CURSOR UP/DOWN** the text elements are selected.

SHIFT CURSOR or TAB: The columns of the text elements are changed with these keys and the keys from the standard text files are displayed.

RETURN key: The text element marked in each case is transferred from the standard text file to the message text. Any characters already existing in the message text are entered. The cursor remains at the same position.

SCROLL SCREEN keys: The text elements are displayed pagewise (page).

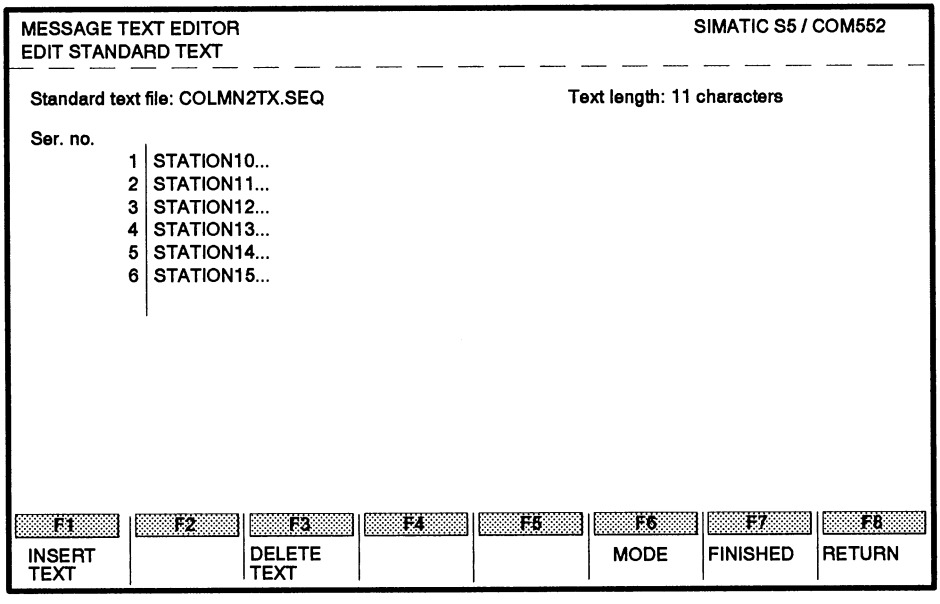
ABORT KEY (ESC key): This key performs the same action as the **F8** RETURN function key.
EXCEPTION: It acts as a NO acknowledgement when acknowledging.

The **function keys** of the STANDARD TEXT screen form

F2 NEXT MESSAGE	The next message is displayed (MESS. NO. 96 in the example)
F3 PREVIOUS MESSAGE	The previous message is displayed (MESS. NO. 94 in the example) as in the EDIT screen form
F4 SEARCH MESSAGE	As in the EDIT screen form
F6 SAVE	As in the EDIT screen form
F7 FINISHED	As in the EDIT screen form
F8 RETURN	With this key, you automatically return to the EDIT screen form. If you press F8 again, you proceed as in the EDIT screen form.

7.2.4 Screen Form for EDIT STANDARD TEXT

After pressing **F1** EDIT STANDARD in the CONFIGURATION screen form, the following screen form appears.



With this function you can modify standard texts selected in the CONFIGURATION screen form.

You can edit or delete the text elements. You can also insert elements.

Note:

Each standard text file can comprise a maximum of 128 texts. If you enter a maximum of 40 text elements, you can display these on two screen pages and, accordingly, select quickly.

While editing, you cannot exceed the max. text length configured for the elements. You must return to the CONFIGURATION screen form to reconfigure the text lengths and to select the text files.

Meaning of the fields

The edit mode selected - Insert - or - Overwrite -, the max. text length and the file name are displayed.

Ser. no. — The serial number of the standard texts (line number) is displayed.

The **function keys** of the EDIT STANDARD TEXT screen form

F1 INSERT TEXT	A new element is inserted after the standard text element marked (e.g. STATION 10). The text elements are moved by this action.
F3 DELETE TEXT	The marked text element is deleted in the standard text file. The gap is filled in.
F6 MODE	As in the EDIT screen form
F7 FINISHED	After acknowledgement, the edited text elements are entered into the standard text file. The system returns to the CONFIGURATION screen form.
F8 RETURN	Editing of the standard text file is abandoned and you return to the EDIT screen form for message texts.

The STATUS FUNCTION

Contents

In single diagnosis: **if you press F5 STATUS in the SELECT FUNCTION screen form, you call the SEGMENT STATUS/PC-INFO screen form. The STATUS function is identical to the function STATUS/PC-INFO, described in Section 4.5, with the one difference that you can now see the status of any block. With the function STATUS/PC-INFO in Section 4.5, you automatically change to the status processing of the segment which led to the error message. For further information on the STATUS function, refer to Section 4.5.**

In group diagnosis: if you call the STATUS function, Fig. 8-1 is displayed. You can select the PLC whose status you wish to see using the cursor keys on the PG. Otherwise the function is the same as in single diagnosis.

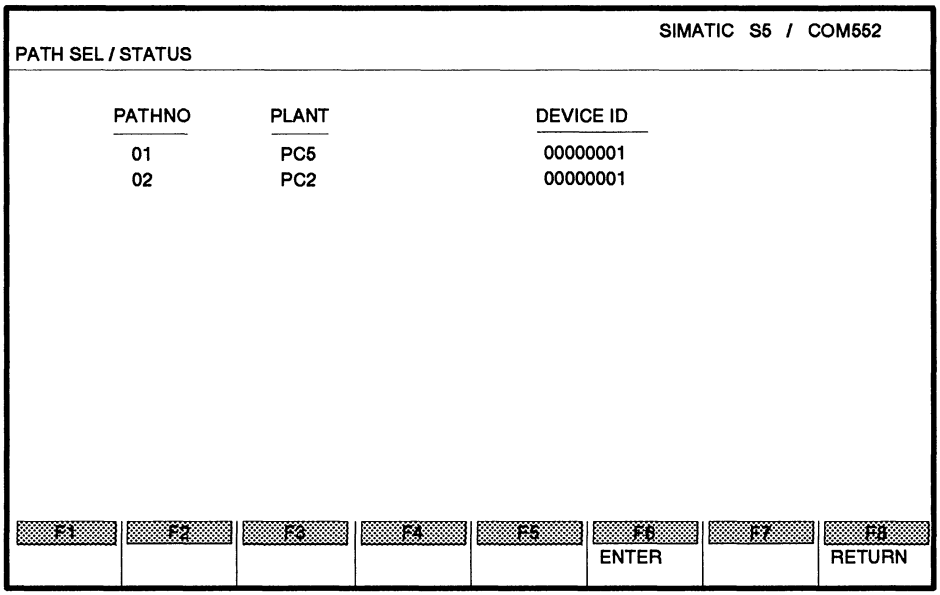


Fig. 8-1

The SCREEN FORM EDITOR Function

Contents

9.1 The Basic Screen Form of the SCREEN FORM EDITOR

The basic screen form of the SCREEN FORM EDITOR provides the following functions (if you press the HELP key on the PG, the individual functions are described - as illustrated here).

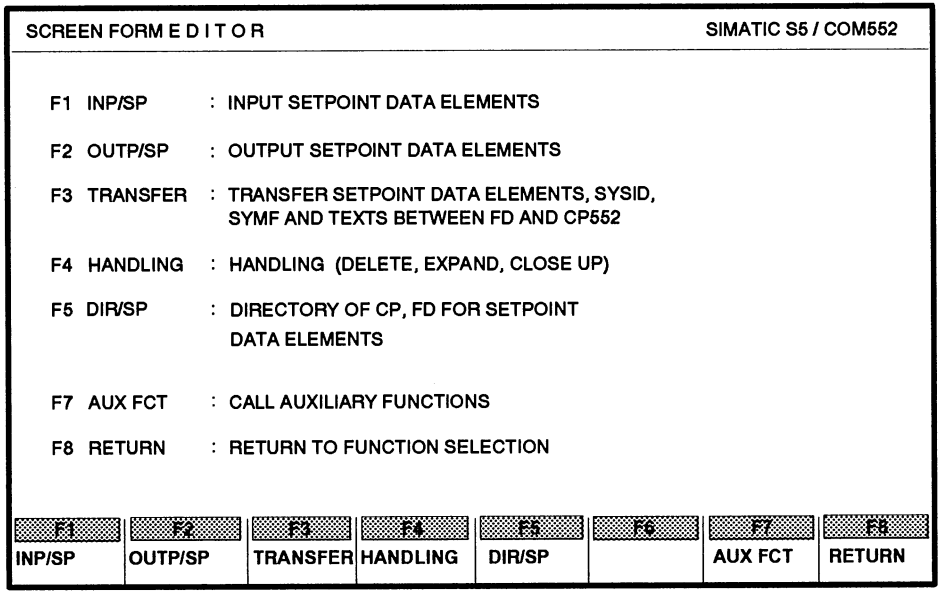


Fig. 9-1

9.1.1 INPUTTING SETPOINT DATA ELEMENTS

You can perform the following tasks:

- enter new setpoint data elements
- display already existing setpoint data elements
- correct setpoint data elements
- delete setpoint data elements
- append or insert setpoint data elements

The input is always to the destination "**FD**." If you press **F1** INP/SP, the following line is displayed:

```
SP DATA FOR BLOCK:          SEGMENT:
```

Fig. 9-2

As block, you can enter PB, FB, FX, OB or SB along with the block number. The segment number must be between 1 and 1500.

Example of an input line:

```
SP DATA FOR BLOCK: FB1      SEGMENT: 1
```

Fig. 9-3

When you then press the enter key, the **setpoint data editor** is called automatically. This is described in Section 9.2.

You can **exit** the **setpoint data editor** as follows:

- with the enter key: all input is entered in the program file,
- with the break key: all input for the selected block is discarded.

Fig. 9-4 indicates the sequences when the setpoint data is exited.

Exiting the setpoint data editor

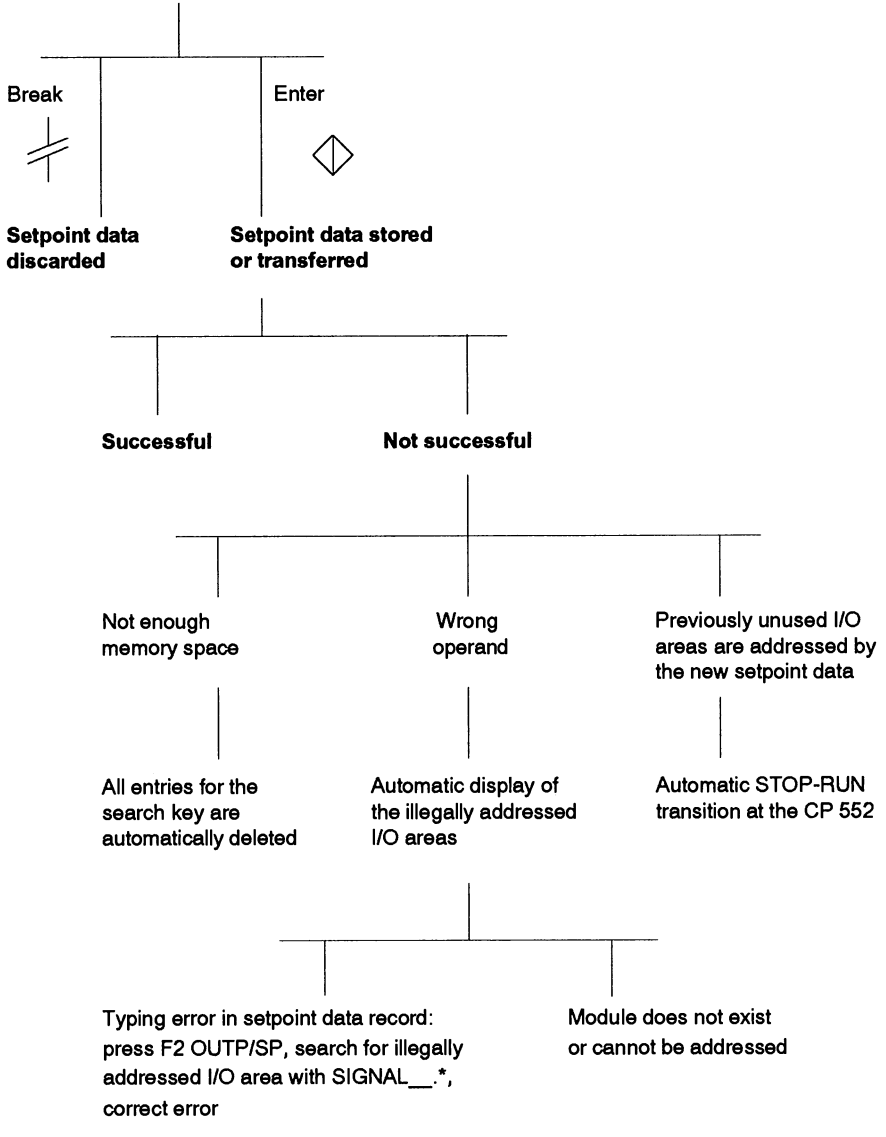


Fig. 9-4 Sequences when exiting the setpoint data

9.1.2 OUTPUTTING SETPOINT DATA ELEMENTS

You can perform the following tasks:

- find already existing setpoint data elements using a search key and display them on the screen or print them out
- correct setpoint data elements
- delete setpoint data elements

Inserting or appending setpoint data elements is only possible with the INPUT SETPOINT DATA ELEMENTS function.

If you press **F2** OUTP/SP in the SELECT FUNCTION screen form, the following input line is displayed:

OUTPUT DEVICE:	SP DATA FOR BLOCK:	SEARCH:	PTR:

Fig. 9-5

OUTPUT DEVICE

For the output device (source or destination device) you can select both the **program file (FD)** or the **diagnostic processor (CP)** (online function) in contrast to the INPUT SETPOINT DATA ELEMENTS, where FD is selected automatically.

You **must** specify the output device.

SP DATA FOR BLOCK

As the block, you can specify PB, FB, FX, OB or SB along with the block number. As an alternative to single blocks you can also enter "A" for all blocks.

SEARCH

Here, you can specify a signal (input, output or flag) or a segment number (1 to 1500). With a signal, the bit address can remain undefined (e.g. I 5.*).

PTR

To print out the setpoint data elements you can specify the following in the PTR field:

blank = do not print

* = standard printout

1 = printout in normal print

2 = printout in condensed print (with margin)

Example of an input line:

OUTPUT DEVICE: FD	SP DATA FOR BLOCK: OB10	SEARCH: I 7.*	PTR:

Fig. 9-6

If you then press the enter key, the setpoint data editor, described in Section 9.2, is called automatically. The setpoint data elements are then fetched block by block from the specified device (FD or CP) and displayed for editing.

If you exceed a block boundary when editing (when you have specified SP DATA FOR BLOCK: "A"), then the question "continue?" appears after the previous block has been stored. If you reply with the break key, the block processing is completed. If you press the enter key, the next block is displayed for editing.

You can exit the setpoint data in the following ways:

- with the enter key: all input is entered
- with the break key: all input to the selected block is discarded (see Fig. 9-4).

9.1.3 TRANSFER

If you press **F3** TRANSFER in the SCREEN FORM EDITOR screen form, the TRANSFER screen form appears (if you also press the HELP key on the PG, the individual functions are described - as illustrated here):

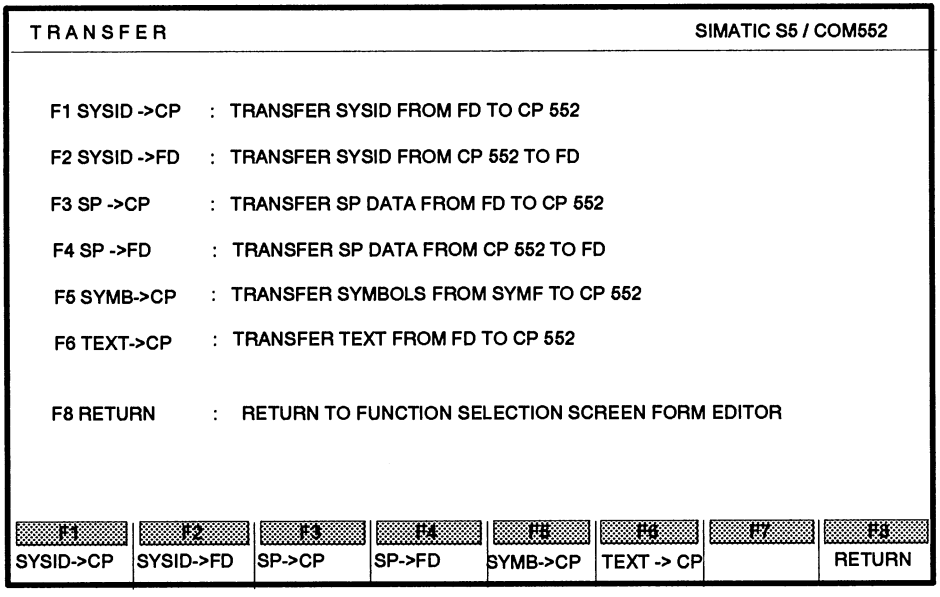


Fig. 9-7

F1 SYSID->CP — You can transfer the data in the SYSID, which you processed in the program file **offline**, to the CP 552.

F2 SYSID->FD — You can transfer the data in the SYSID, which you processed **online** on the CP 552, to the program file on the PG.

F3 SP->CP

F4 SP->FD

With **F3** or **F4** you can transfer the setpoint data. In the input line displayed on the screen, you must specify the block to be transferred. You can specify either single blocks on the source device (FD or CP) or all blocks on the source device ("A"). The transfer is started by pressing the enter key.

 **Note:**

If you wish to transfer the setpoint data of a block, the program first checks whether the name of this block already exists on the destination device. If it does not exist, the setpoint data are transferred immediately. If it does exist, the prompt "file name already exists on target device, overwrite?" will be displayed. If you confirm your intention, the setpoint data of this block on the target device are deleted before the transfer.

If you wish to transfer the setpoint data for all blocks with "**A**," before each individual block which already exists on the destination unit, the prompt "file name already exists on target device, overwrite?" will be displayed. If you confirm your intention, the setpoint data on the destination unit are deleted before the transfer. If you press the break key, the program skips to the next setpoint data element.

 **Note:**

We recommend that you transfer from FD to CP 552 when the CP 552 is in the **STOP mode**.

If you wish to **transfer setpoint data** in the RUN mode, you must expect the PG to **stop the CP 552 briefly** following the transfer, in order to repeat the initialization. This is necessary when the setpoint data elements contain operands which have not been used up to now by the CP 552. If the

transferred setpoint data elements contain operands for which the corresponding I/O area is missing on the CPU, this is only recognized by the CP 552 in the RUN mode. The CP 552 then stops. A list with the missing I/O areas appears on the PG. You can have the cause of the error displayed using the CP-INFO function in the CURRENT MESSAGES screen form or with the INFORMATION function in CP 552 ONLINE.

You only require these functions for **error display on the local monitor**:

F5 SYMB -> CP	If you require symbolic representation on the monitor, you must transfer the symbols from the FD to the CP 552. You must, however, first enter "YES" for SYMBOLS in the PRESETS screen form (see Sections 2.1 and 2.2).
F6 TEXT -> CP	If the process control messages are to be displayed on the monitor, you must transfer the corresponding texts from FD to the CP 552. First, however, note the presettings for process control messages in Sections 2.1 and 2.2

 **Note:**

If symbols or texts already exist on the CP 552, you will be asked whether you wish to overwrite them or not. If "YES" they are first deleted and then the symbols or texts of the preset symbols or text file transferred from FD to CP 552. The number transferred is displayed. If there is insufficient memory space on the CP 552, the only symbols and texts which will be transferred are the ones for which there is room on the CP 552.

For further information about displays on the local monitor, refer to the User's Guide "Error Display on the Local Monitor" in this manual.

9.1.4 HANDLING

If you press **F4** HANDLING in the SCREEN FORM EDITOR screen form, the SETPOINT DATA HANDLING screen form appears (if you also press the HELP key on the PG, the individual functions are described - as illustrated here).

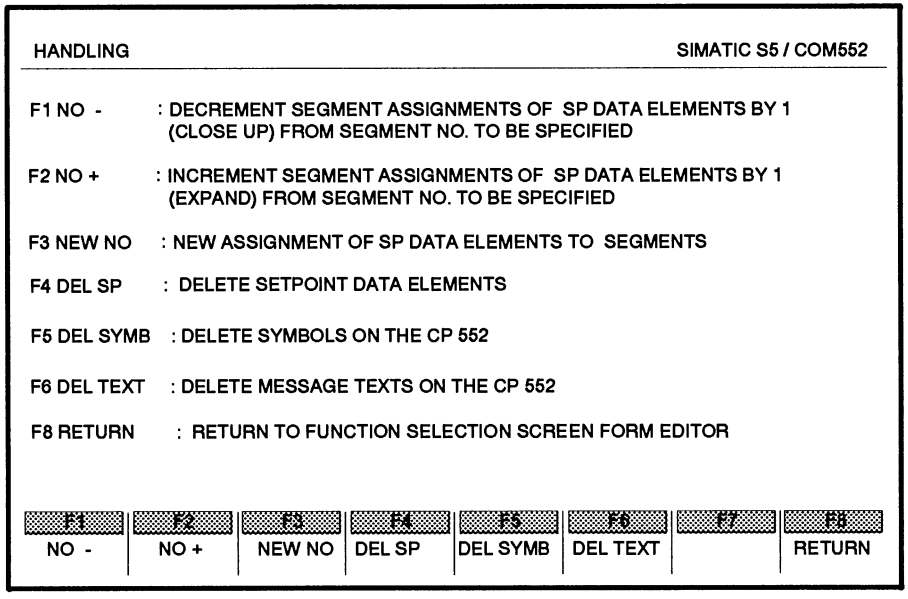


Fig. 9-8

The **function keys** have the following significance:

F1 NO - You can assign a setpoint data element to the next lower segment. You enter the segment number to be decremented by 1, as follows:

Fig. 9-9

You can specify single blocks, PB, FB, FX, OB or SB along with the block number. As the segment number, enter the number to be decremented by 1.

F2 NO +

You can assign a setpoint data element to the next highest segment. Enter the segment number to be incremented by 1, as follows:

Fig. 9-10

F3 NEW NO

You can assign a setpoint data element to a new segment as follows:

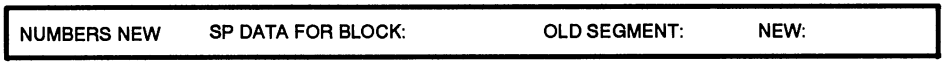


Fig. 9-11

Note:

This function can only be realized if no setpoint data elements are assigned to segments between the old and the new number.

F4 DEL SP

You can delete setpoint data elements. You make your selections in the following input line:

DELETE FROM SOURCE:	SP DATA FOR BLOCK:	SEARCH:

Fig. 9-12

As source device on which the setpoint data elements are to be deleted, you can specify either **CP** or **FD**. You **must** specify a source device.

You can specify single blocks, **PB, FB, FX, OB** or **SB** along with the block number. As an alternative to single blocks you can also enter "A" for all blocks. If you select all blocks ("A"), you should think over the consequences carefully first!

With the search function, you can specify a signal (input, output or flag) or a segment number (1 to 1500). With the signal, the bit address can remain undefined (e.g. I 5.*).

F5 DEL SYMB

You can delete the symbols on the CP 552 if you no longer require the error display on the local monitor. The number of symbols deleted is then displayed.

F6 DEL TEXT

You can delete the texts for process control messages on the CP 552 if you no longer require the display on the local monitor. The number of texts deleted is then displayed.

9.1.5 SP DATA DIRECTORY

You can display or print out the number and length of the setpoint data elements for a single block (e.g. OB 1) or for all blocks of a block type (e.g. PB) or for all blocks (A).

As the source device, you can specify either **CP** or **FD**, as blocks you can specify **PB, FB, FX, OB** or **SB**.

DIR	DEVICE:	SP DATA FOR BLOCK:	PTR:

Fig. 9-13

SP DATA DIR SIMATIC S5 / COM552

BLOCK TYPE	NUMBER	NO. OF SDE	LENGTH OF SDE
PB	50	4	338
PB	51	4	344
PB	52	4	350
PB	53	4	356
PB	54	4	362
TOTAL LENGTH OF SDE :			1750

Continue?

DIR DEVICE: FD SP DATA FOR BLOCK: PB PTR:

Fig. 9-14 Example

9.1.6 AUXILIARY FUNCTIONS

If you press **F7** AUX in the SCREEN FORM EDITOR screen form, you can call the auxiliary functions already known from the LAD, CSF, STL package (if you also press the HELP key on the PG, the auxiliary functions are described - as illustrated below).

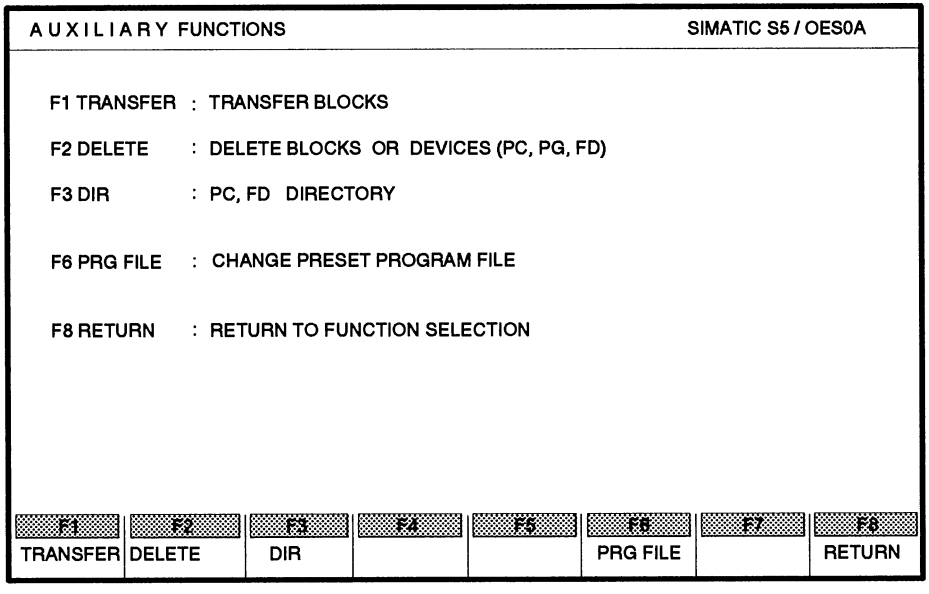


Fig. 9-15

Note:

To be able to use these ONLINE functions, you must first select the path to the CPU in the PRESETS screen form and unplug the connector from the CP 552 and connect it to the CPU, unless the PG-MUX functions are available.

If you press **F3** DIR, you can display all the blocks on the FD or PLC. If the output is from the FD, the files will be displayed with the setpoint data. The following convention is used:

blocktypeSO.blocknumber

e.g. PBSO.020 file with the setpoint data for PB 20

The setpoint data are stored as docfiles, as shown in the example below:

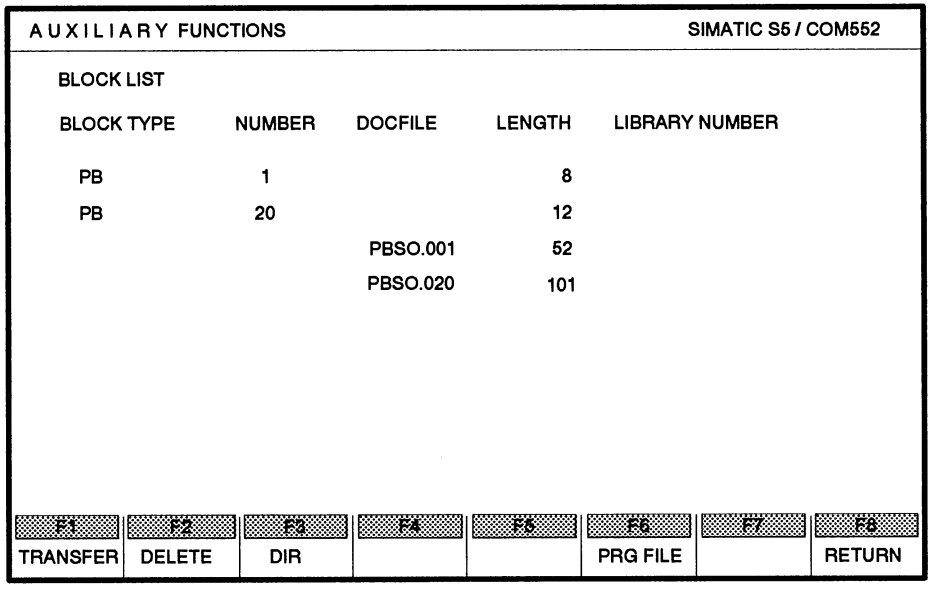


Fig. 9-16

9.1.7 RETURN to SELECT FUNCTION

If you press **F8** RETURN, you return once again to the SCREEN FORM EDITOR screen form, and with **F8** a second time, to the SELECT FUNCTION form.

 **Note:**

If you have selected the path to the CPU and have switched over the connector to the CPU, you must now reconnect it to the CP 552.

9.2 The Setpoint Data Editor

In the setpoint data editor you can **enter and modify setpoint data**. You can call the setpoint data editor both in the LAD, CSF, STL package as well as in the COM 552 programming package. Calling the setpoint data editor in the COM 552 programming package is described in this section.

In the LAD, CSF, STL package, the setpoint data editor is called automatically when you close a segment with the enter key. During segment output, you can call the setpoint data editor by pressing **F4** DIAGNOSIS (see User's Guide "LAD, CSF, STL Package with Process Error Diagnosis").

In the setpoint data editor you can perform the following in the **INPUT SETPOINT DATA ELEMENTS** function:

- generate new setpoint data elements **on the PG** (FD) and
- modify or delete already existing setpoint data elements **on the PG** (FD).

In the function **OUTPUT SETPOINT DATA ELEMENTS** you can perform the following:

- modify or delete already existing setpoint data elements **on the PG** (FD) or
- **online on the CP 552**.

 **Note:**

The maximum length of the file for setpoint data elements on the PG is 16 Kbytes per block. This means, you can enter between 64 and 160 setpoint data elements **per block** depending on the type of setpoint data elements (dynamic or static), comment length and number of terms.

9.2.1 The Function INPUT SETPOINT DATA ELEMENTS

In the INPUT SETPOINT DATA ELEMENTS function there are four different processing statuses (see Fig. 9-17) as follows:

- The processing status **DISPLAY EMPTY ELEMENT** is selected if no setpoint data element exists for the specified block and segment. You can then generate a new setpoint data element in the processing status CORRECTION.

- In the processing status **OUTPUT** an already existing setpoint data element is displayed.

- You can only make entries in the screen form in the processing status **CORRECTION**, i.e. create new setpoint data elements or modify already existing setpoint data elements.

- In the processing status **DISPLAY COPY**, the copy of an existing setpoint data element is displayed.

The selected processing status is displayed in the header line of the screen form **inversely**.

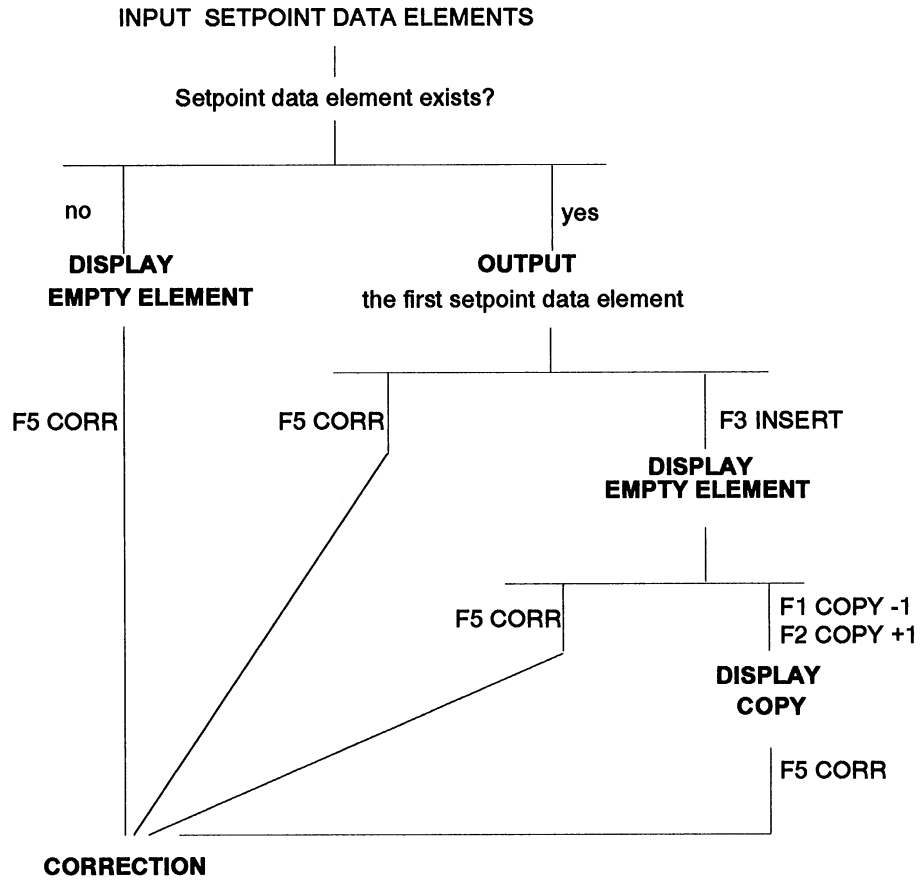


Fig. 9-17 Processing statuses

Process error diagnosis with the CP 552 can monitor both dynamic processes as well as statuses (see User's Guide "Process Error Diagnosis with the CP 552"). The setpoint data elements for monitoring dynamic processes are created in the **PROCESS ELEMENT MONITORING screen form**, the setpoint data elements for monitoring the static statuses are displayed in the **MONITORING STATIC SIGNALS screen form**.

Note:

When you enter terms, you must distinguish between absolute and symbolic terms (for further information on "term," refer to the User's Guide "Process Error Diagnosis with the CP 552").

- **Input of absolute terms:**
  An absolute term consists of a signal, equality character and signal status. The signal status can be 0, 1, P (positive edge) or N (negative edge), e.g.

  I 1.4 = 0
  F 9.7 = N

- **Input of symbolic terms:**
  A symbolic term consists of a hyphen, symbol, equality character and signal status. The symbol must be linked into a symbols file using the SYMBOLS EDITOR programming package. For further information, refer to the STEP® 5 manual.

  -Button = P
  -Emergency off = 1

 **Note:**

You should not use the same term in the setpoint data elements more than a maximum of 100 times, except with the release.

9.2.1.1 The PROCESS ELEMENT MONITORING Screen Form

If you press **F1** INP/SP in the SCREEN FORM EDITOR screen form and select a block for which no setpoint data element exists, an empty setpoint data element for monitoring dynamic processes is displayed (Fig. 9-18).

With **F4** STAT/DYN, you can change to MONITORING STATIC SIGNALS and Fig. 9-24 is then displayed.

The screen form for monitoring dynamic processes contains the type of setpoint data element ("PROCESS ELEMENT MONITORING"), the selected block with the segment number and the current processing status (here "DISPLAY EMPTY ELEMENT").

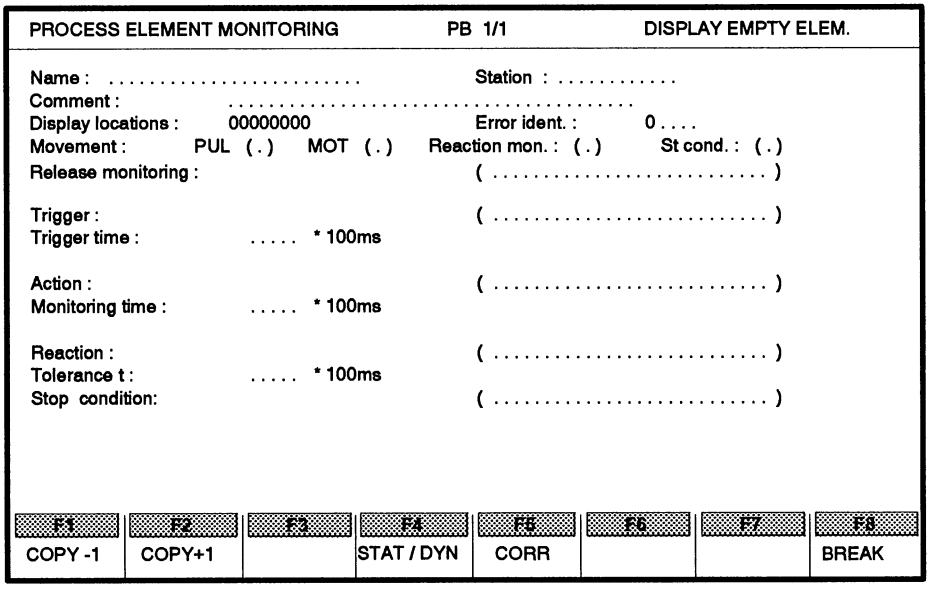


Fig. 9-18

 **Note:**

If setpoint data elements already exist for the selected block and segment, the first setpoint data element of the list is displayed on the screen instead of the empty element.

The following pages first describe the **function keys** followed by the **fields of the PROCESS ELEMENT MONITORING screen form.**

The **function keys** have the following significance:

The assignment of the function keys changes when you select a different processing status.

Processing status **DISPLAY EMPTY ELEMENT:**

F1	F2	F3	F4	F5	F6	F7	F8
COPY -1	COPY +1		STAT / DYN	CORR			BREAK

Fig. 9-19

F1 COPY -1

F2 COPY +1

Providing it exists, you can copy the previous or next setpoint data element into the current screen form. A branch is then made to the processing status DISPLAY COPY.

F4 STAT / DYN

With this key you alternate between the PROCESS ELEMENT MONITORING screen form and MONITORING STATIC SIGNALS.

F5 CORR

This key changes to the CORRECTION processing status. The cursor is positioned on the first input field.

F8 BREAK

Exit the function INPUT SETPOINT DATA ELEMENTS.

With the **scroll up/scroll down** keys on the PG you can move the visible area on the screen.

Processing status: **OUTPUT**

The processing status OUTPUT is selected when a setpoint data element already exists for the specified block and segment and SYMBOLS "YES" has been preset.

F1	F2	F3	F4	F5	F6	F7	F8
ELEMENT -1	ELEMENT+1	INSERT	DELETE	CORR	CONTINUE	ENTER	BREAK

Fig. 9-20

F1 ELEMENT -1

F2 ELEMENT+1 The previous or next setpoint data element in the list is displayed.

F3 INSERT Changes to the processing status DISPLAY EMPTY ELEMENT. An empty setpoint data element is displayed for PROCESS ELEMENT MONITORING. You can enter a setpoint data element.

F4 DELETE The setpoint data element displayed on the screen is deleted after operator confirmation.

F5 CORR Changes to the processing status CORRECTION. The cursor is positioned on the first input field.

F6 CONTINUE

F1	F2	F3	F4	F5	F6	F7	F8
ELEMENT -1	ELEMENT+1	SYM - LIST	ABS / SYM	CORR	CONTINUE	ENTER	BREAK

Fig. 9-21

F3 SYM LIST — You can see the symbols list: operand-symbol-comment.

F4 ABS/SYM — You can switch between absolute and symbolic representation.

F7 ENTER — The data input is entered and the function is exited.

F8 BREAK — The function OUTPUT SETPOINT DATA ELEMENTS is exited.

Processing status **DISPLAY COPY:**

In the processing status DISPLAY EMPTY ELEMENT you can copy the previous or next setpoint data element into the current screen form with F1 or F2. You are then in the processing status DISPLAY COPY.

F1	F2	F3	F4	F5	F6	F7	F8
COPY -1	COPY +1	INVERT		CORR		ENTER	BREAK

Fig. 9-22

F1 COPY -1

F2 COPY +1

Providing it exists, you can copy the previous or next setpoint data element into the current screen form. A branch is then made to the processing status DISPLAY COPY.

F3 INVERT

This function is intended to make easier the **planning of a forwards or backwards movement**.

In the displayed setpoint data element the fields "action," "reaction" and "stop condition" contain the "inverse" data from the current data. With the inverse data, the following occurs:

- **the action is replaced by the stop condition,**
- **the signal values of the reaction are inverted:**

0 -> 1 P -> N
1 -> 0 N -> P

F5 CORR

Changes to the processing status CORRECTION. The cursor is positioned on the first input field.

F7 ENTER

The data are entered and the processing status DISPLAY COPY is exited.

F8 BREAK

The processing status DISPLAY COPY is exited. **All** modifications carried out up to then in DISPLAY COPY are **discarded**.

Processing status **CORRECTION**

In this processing status you can create new setpoint data elements. You can use symbolic names just as in the LAD, CSF, STL package. To do this, however, you must select "YES" in the SYMBOLS FIELD of the PRESETS screen form and specify a SYMBOLS FILE (see Chapter 2). If you preset SYMBOLS "NO," **F6** CONTINUE has no function in the following screen form.

F1	F2	F3	F4	F5	F6	F7	F8
= 1	= 0	= P	= N	DELETE Z	CONTINUE	ENTER	BREAK

Fig. 9-23

The keys on the PG have the following functions:

Alphanumeric keyboard to complete fields

Cursor keys to position the cursor on a different field

Scroll up/scroll down to move the visible area on the screen

Insert (expand) key to AND/OR several terms with the operands AND (A) or OR (O)

Example:

	Action
	Q 1.1 = 0
O	Q 2.7 = 1

The **function keys** have the following significance:

F1 = 1	You can assign level 1 to an operand.
F2 = 0	You can assign level 0 to an operand.
F3 = P	You can assign a positive-going edge to an operand.
F4 = N	You can assign a negative-going edge to an operand.
F5 DELETE Z	You can delete whole input areas. This key is only permitted when the cursor is positioned on the fields "action," "reaction," "trigger" or "stop condition." Individual characters can only be deleted by overwriting them with the space bar. A single group of terms can only be deleted by overwriting with blanks or periods.
F6 CONTINUE	See Fig. 9-24
F7 ENTER	The data input is saved and you change to the processing status OUTPUT. The data is only stored when the setpoint data element has been correctly completed. Otherwise an error message appears (see Chapter 10).

F8 BREAK The input is discarded and you change to the processing status OUTPUT.

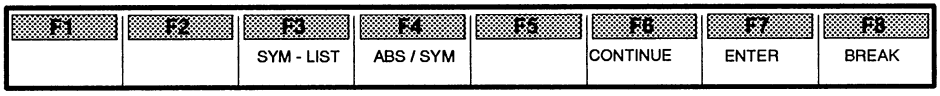


Fig. 9-24

F3 SYM LIST You can display the SYMBOLS list: OPERAND - SYMBOL - COMMENT

F4 ABS / SYM You can switch between absolute and symbolic representation.

F6 CONTINUE Fig. 9-23 is displayed.

F7 ENTER The data input is saved and you change to the processing status OUTPUT. The data is only stored when the setpoint data element has been correctly completed. Otherwise an error message appears (see Chapter 10).

F8 BREAK The input is discarded and you change to the processing status OUTPUT.

The fields of the PROCESS ELEMENT MONITORING screen form

The following pages explain the significance of the individual fields and permitted input.

Name

This field contains the name of the setpoint data element. It is automatically preset with the first term of the ACTION field.

 **Note:**

With this automatic allocation of names it is possible that several setpoint data elements have the **same** name.

Station

The station name is displayed in the error message. If you separate your system into individual stations, you will find it easier to locate defective equipment.

The name can be up to 12 ASCII characters long.

Comment

Here you can enter a text. This is assigned to the corresponding error message. You can enter up to 40 printable ASCII characters.

Note:

Long comment texts reduce the maximum number of setpoint data elements that can be stored on the CP 552. If you encounter problems with storage space, you should check whether your setpoint data elements contain unnecessary comments.

Display locations

If you only work in the single diagnosis mode, you must set all display locations to "0." In group diagnosis via the SINEC H1 bus, you must stipulate which of the maximum eight display units are to receive an error message. Example - allocation of display units:

Device numbers:	8 7 6 5 4 3 2 1
Display locations:	0 1 0 0 1 0 0 0

Here, units 4 and 7 are selected. You can only select "1" or "0" as the input. In this way, you can display the error messages of a setpoint data element on up to eight display units. If, for example, you have a PLC working with eight stations, each of these stations can have its own display unit allocated.

Error ident

The CP 552 sends this number to the STEP® 5 user program if the corresponding setpoint data element led to an error being detected. The STEP® 5 user program can, for example, react to an incoming error identifier with an acoustic or visual warning and make you aware of the process error.

You can enter numbers between **0** and **4095**.

Note:

Using error identifiers in setpoint data elements
Identical error identifiers may not be put to multiple use. Each error identifier no. may only be allocated to one single setpoint data element. The identifier no. means "0" that the CP 552 sends no error identifier to the STEP® 5 program. Therefore "0" may be used as often as you wish.

Movement

In these fields you stipulate which type of process you wish to monitor (motive, pulse-dependent or motive/pulse-dependent). For further information, refer to the User's Guide "Process Error Diagnosis with the CP 552" in Section 1.2.1.

mot
You must enter an "X" if you wish to monitor a motive process with this setpoint data element.

pul
You must enter an "X" if you wish to monitor a pulse-dependent process with this setpoint data element.

mot and **pul**
You must enter an "X" in both fields if you wish to monitor a motive /pulse-dependent process with this setpoint data element.

Reaction mon.

You must complete this field if you intend to monitor final process statuses.

Only "X" can be entered.

St cond.

In this field, you can specify whether the condition in the "reaction" field should be checked when the CP 552 is cold restarted (see also the User's Guide "Process Error Diagnosis with the CP 552", Section 1.1).

Only "X" can be entered.

Release monitoring

The monitoring is only started when the condition specified here is fulfilled. If the field is not completed, the release is taken as fulfilled.

The release can only be a signal **level**.

Trigger and trigger time

Along with the "action" field, these fields specify the **interlock diagnosis** for monitoring process requirements. If the condition contained in the "trigger" field is fulfilled, the trigger time is started. If the action does not start during this trigger time, the CP 552 signals an interlock error.

As "trigger" you can specify several terms, either ORed with "O" or ANDed with "A."

The "trigger time" can be a number between **0** and **32500**. The input is multiplied by 100 ms.

Action and monitoring time

These fields and the "reaction" field specify the **action diagnosis** for monitoring dynamic processes. When the action occurs, the monitoring time is started. If the reaction or stop condition do not occur during the monitoring time, the CP 552 signals the error "reaction not reached."

The "action" field is preset with the last term in the corresponding segment. In the "action" field you can specify several terms, either ORed with "O" or ANDed with "A."

The "monitoring time" can be a number between **0** and **32500**. The input is multiplied by 100 ms.

Reaction and tolerance time

Along with the "action," "monitoring time," "stop condition" and "reaction mon." fields, these fields specify the **reaction diagnosis** for monitoring final process statuses. In the "tolerance time" field, you specify how long the reaction can disappear after it first occurs without an error being signalled.

In the "reaction" field you can specify several terms, either ORed with "O" or ANDed with "A."

The "tolerance time" can be a number between **0** and **32500**. The input is multiplied by 100 ms.

Stop condition

The "stop condition" field contains the condition for the end of the action and reaction diagnosis.

In the "stop condition" field you can specify several terms, either ORed with "O" or ANDed with "A."

You can use a setpoint data element of the PROCESS ELEMENT MONITORING for interlock diagnosis, action diagnosis and reaction diagnosis. A detailed description of the various diagnostic modes can be found in the User's Guide "Process Error Diagnosis with the CP 552," Section 1.2.

The entries and combinations of entries required in the fields of the PROCESS ELEMENT MONITORING screen form for the various diagnostic modes can be found in Fig. 9-25.

Diagnostic mode / Field	Interlock diagnosis	Action diagnosis	Action and reaction diagnosis	Interlock and action diagnosis	Interlock, action and reaction diagnosis
Station	O	O	O	O	O
Display locations	O	O	O	O	O
Error identifier	O	O	O	O	O
Movement		+	+	+	+
Reaction mon.			+		+
St cond.			O		O
Release monitoring	O	O	O	O	O
Trigger	+			+	+
Trigger time	+			+	+
Action	+	+	+	+	+
Monitoring time		+	+	+	+
Reaction		+	+	+	+
Tolerance time			+		+
Stop condition		O	+	O	+

+	**Field must be completed**
	Field must remain empty for the selected monitoring
O	**Field can be completed**

Fig. 9-25 Various diagnostic modes and corresponding entries

9.2.1.2 The MONITORING STATIC SIGNALS Screen Form

If you are in the processing status DISPLAY EMPTY ELEMENT in the PROCESS ELEMENT MONITORING screen form, you can change to the MONITORING STATIC SIGNALS screen form with **F4** STAT/DYN.

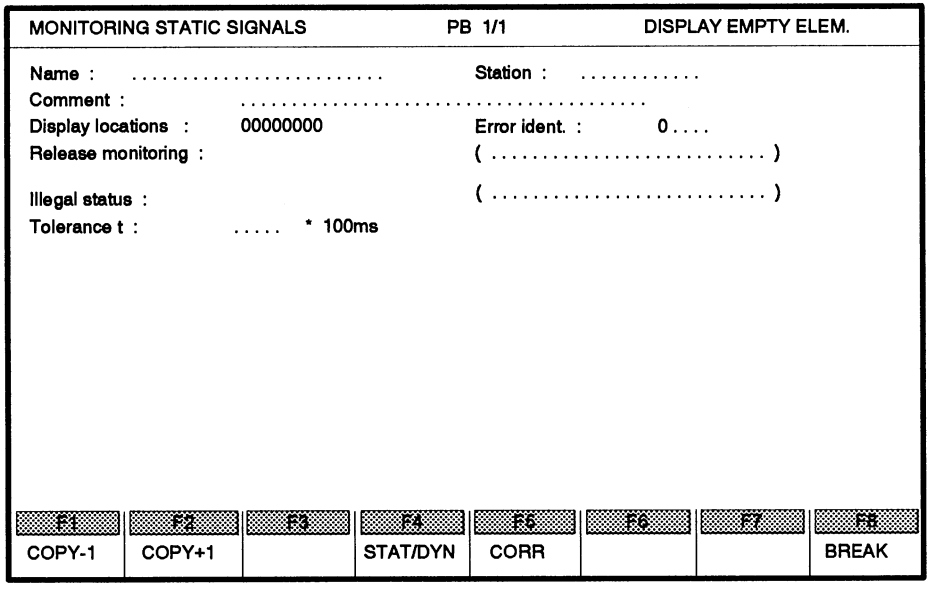


Fig. 9-26

Since the functions of the function keys are essentially identical to those of the PROCESS ELEMENT MONITORING screen form, refer to Section 9.2.1.1. The following points are, however, different in the MONITORING STATIC SIGNALS screen form as follows:

In the processing status CORRECTION

F3 = P	
F4 = N	are omitted
F5 DELETE Z	Is only permitted when the cursor is positioned on the field "illegal status." Other characters can only be deleted by overwriting them with the space bar.

In the processing status OUTPUT:

The **insert key** (expand) on the PG is only permitted when the cursor is positioned on the "illegal status" field.

The data are only stored when the setpoint data element is completed **correctly**. The fields "illegal status" and "tolerance time" must be completed. Otherwise an error message appears (see Chapter 10).

The fields of the MONITORING STATIC SIGNALS screen form

Release monitoring

The monitoring of the setpoint data element is only started when the condition specified here is fulfilled. If the field is not completed, the release is taken as fulfilled.

The release must be a **signal level**.

Illegal status

The "illegal status" field contains specifications about a **non-permitted** status in the equipment being monitored. You can specify several terms ORed (O) or ANDed (A) with each other. In contrast to the PROCESS ELEMENT MONITORING screen form, here you must enter the **illegal status**.

The terms must only include **signal levels**.

Tolerance time

In the "tolerance t" field you can specify how long the illegal status can occur without the CP 552 signalling an error.

You can enter a number between **0** and **32500**. This number is multiplied by 100 ms.

For the other fields - refer to the PROCESS ELEMENT MONITORING screen form in Section 9.2.1.1.

9.2.2 The Function OUTPUT SETPOINT DATA ELEMENTS

If you press **F2** OUTP/SP in the SCREEN FORM EDITOR screen form, you call the function OUTPUT SETPOINT DATA ELEMENTS: You can perform the following with this function:

- **Modify setpoint data elements in the CP 552 online**
  This means that you can modify the setpoint data elements while the system is in operation.

- **Delete setpoint data elements in the CP 552 online**

Remember that you can only create the setpoint data elements offline with the INPUT SETPOINT DATA ELEMENTS function.

In the OUTPUT SETPOINT DATA ELEMENTS function there are **two** processing statuses:

- In the processing status **OUTPUT** you can display the setpoint data elements.

- In the processing status **CORRECTION** you can modify already existing setpoint data elements on the **PG** or on the **CP 552**.

The **function keys** have essentially the same functions as in the function INPUT SETPOINT DATA ELEMENTS (see Section 9.2.1.1).

Processing status **OUTPUT**:

F1	F2	F3	F4	F5	F6	F7	F8
ELEMENT -1	ELEMENT+1		DELETE	CORR		ENTER	BREAK

Fig. 9-27

F1 ELEMENT -1

F2 ELEMENT+1 The previous or next setpoint data element is displayed.

Note:

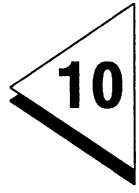
If you display the setpoint data elements directly from the CP 552, you cannot "page" over block boundaries. If you receive the message "no further setpoint data element", this only refers to the selected block and not to the whole CP 552.

F4 DELETE The setpoint data element displayed on the screen is deleted after operator confirmation.

F5 CORR	Changes to the processing status CORRECTION. The cursor is positioned on the first input field.
F7 ENTER	The data input is entered and the function is exited.
F8 BREAK	Exits the function OUTPUT SETPOINT DATA ELEMENTS:

Process status **CORRECTION**

In this processing status you can modify the setpoint data elements. The functions of the keys are the same as those in the function INPUT SETPOINT DATA ELEMENTS in Section 9.2.1.1.



COM 552

Error Messages

Contents

10.1 Error Messages of the SCREEN FORM EDITOR

The error messages are listed and explained in alphabetical order.

Action incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1 P N
Examples:	I 5.6 = 0 -BUTTON = P

Action undefined

An action must be always be defined.

All elements were deleted

The last setpoint data element of the currently processed setpoint data elements was deleted. With "enter" the previous deletions can be confirmed, with "break" they are cancelled.

Append only to last element

The setpoint data element displayed on the screen is not the last setpoint data element. If you wish to insert a setpoint data element at this point, use **F3** INSERT.

Bad setpoint data element

A setpoint data element in the source file is not OK. The corresponding block must be recreated.

Block in CP 552 not present

Blocked key

Break key pressed

You have pressed the break key, the transfer PG-CP was abandoned.

CP 552 timeout

The CP 552 cannot be accessed. Check the setting of the interface in the SELECT PACKAGE screen form.

Data element does not exist

The specified setpoint data elements on the source device do not exist. Check which program file you have entered in the PRESETS screen form.

Deleting impossible: CP error

At present, you cannot delete any setpoint data elements on the CP 552. Check the connection PG/CP 552. The error message must be acknowledged with the break key.

Directory does not exist

The preset program file does not contain any data, i.e. either you have not created a new file or all the data in the old file has been deleted.

Element start reached

The first line of the setpoint data element is already on the screen. You cannot scroll the display further or move the cursor further upwards.

End of element reached

The last line of the setpoint data element is already on the screen. You cannot scroll the display further or move the cursor further downwards.

Error identifier incorrect

The error id must be a number between 0 and 4095.

IF interface in PG not ready

Check the physical connection between the PG and CP 552. Then call the required function again.

Illegal status incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1
Examples:	I 5.6 = 0 -BUTTON = P

Illegal status undefined

For monitoring static statuses, at least one illegal status must be defined.

Key has no function

Maximum length reached

A setpoint data element can have a maximum of 51 terms.

Monitoring time defined

If you require action diagnosis, the monitoring time and reaction time must be defined.

If you only require interlock diagnosis, no monitoring time must be defined.

Monitoring time incorrect

You can enter a number between 0 and 32500.

Monitoring time undefined

If you only require interlock diagnosis, the reaction must not be defined.

If you require action diagnosis, you must define the monitoring time.

Movement type defined

You have selected the movement ("pul" or "mot"), but have not defined a reaction.
If you require action diagnosis, you must enter the reaction.
If you only require interlock diagnosis, you must not specify the movement ("pul" or "mot").

Movement type undefined

You have defined the reaction, however, no movement ("pul" or "mot").
If you require action diagnosis, you must also specify the movement.
If you only require interlock diagnosis, you must not specify a monitoring time nor reaction nor movement.

No further setpoint data element

There is no previous or no next setpoint data element before or after the selected setpoint data element.

No more memory space

You cannot create a new setpoint data element, since there is insufficient space in the main memory.

No reference element exists

Inversion is not possible.

Not enough memory space on the CP 552

Reduce the comments, to create free storage space for setpoint data elements.

Only one term exists

The term on which the cursor is positioned cannot be deleted since an expression must have at least one term. If you nevertheless wish to delete the term, you must use blanks or periods.

Reaction incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1 P N
Examples:	I 5.6 = 0 -BUTTON = P

Reaction monitoring undefined

An "X" must be entered in the "reaction monitoring" field for reaction diagnosis.

Reaction undefined

In action diagnosis, the reaction must be defined.

Release monitoring incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1
Examples:	I 5.6 = 0 -BUTTON = P

Station incorrect

Correct form: name

The name consists of a maximum of 12 characters.

Example:

Plant01

Stop condition incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1 P N
Examples:	I 5.6 = 0 -BUTTON = P

Stop condition undefined

A stop condition must be defined for reaction monitoring.

Symbol unknown

The symbol entered does not exist in the preset symbols file.

Tolerance time defined

The tolerance time must not be defined unless reaction monitoring is selected.

Tolerance time incorrect

You must enter a number between 0 and 32500.

Tolerance time undefined

The tolerance time must be defined for reaction diagnosis or monitoring static signals.

Transmit line to IF interrupted

No physical link between the PG and the CP 552.

Trigger and reaction undefined

For interlock diagnosis, a trigger must be defined. For action diagnosis a reaction must be defined.

Trigger incorrect

Correct form: signal = signal status
with

signal:	I 0 to 127.0 to 7 Q 0 to 127.0 to 7 F 0 to 255.0 to 7 -symbolic name
Signal status:	0 1 P N
Examples:	I 5.6 = 0 -BUTTON = P

Trigger time defined

When you require interlock diagnosis, you must define the trigger time and trigger.
If you only require action diagnosis, you must not define a trigger or trigger time.

Trigger time incorrect

You must enter a number between 0 and 32500.

Trigger time undefined

When you require interlock diagnosis, you must define the trigger time and trigger.
If you only require action diagnosis, you must not define a trigger or trigger time.

Unnecessary input area exists

When inserting terms you have left too many empty lines. Delete the unnecessary lines.

10.2 COM 552 Error Messages (other than SCREEN FORM EDITOR messages)

The error messages are listed and explained in alphabetical order.

CP 536 initialization error

Check your configuration file.

File does not exist

Check whether you have entered the wrong file name or whether the file really is missing on the specified drive.

This message is also displayed when a process control message is received and you have not specified a text file in the PRESETS screen form.

File reserved (at server, by remote PG)

The function cannot be carried out as long as a remote PG is using the file.

Function identifier in IF unknown

Link to incorrect module: check the installation of your system or the path file.

Link not established

Check interface; check path in path file.

Module is not CP 552

Connection to the wrong module: check the installation of your system, the path file and the presets.

No link to CP 552

In single diagnosis: check the installation of your cable at the PG and return to the PRESETS screen form.

In group diagnosis: check the installation of your system and the selected configuration file.

Overlay cannot be loaded

Insert a diskette with the overlay program in the floppy disk drive of your PG or transfer the program to the hard disk.

Path does not exist in specified file

Check whether you have specified the correct path file and correct path name. If necessary enter the path in the path file.

Path does not match selected interface

Return to the SELECT PACKAGE screen form and select a different interface.

Printer fault

Check whether the printer is online and still has paper.

Station on bus not obtainable

Either the selected path is wrong or the station does not exist or does not respond.

Station on bus occupied

Wait until the station is free or release the station actively.

SYSID read/write error

Check whether the link to your system is still in order. Then start the function again.

Too many files open

Too many files are being processed simultaneously at the server.

Transmit line to IF interrupted

Check the installation of your cable at the PG and the presets. Repeat the last command.

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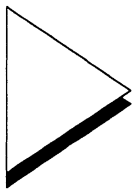
SIEMENS

SIMATIC S5

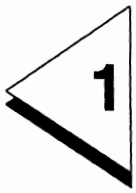
Displaying Process Control Messages

User's Guide

C79000-B8576-C676-05



Contents



General

Contents

Process control messages are messages detected by the CPU. Process control messages can be displayed on the programmer and on a local monitor via the CP 552. The process control messages are programmed either

- **without COM PMC** - see Chapter 2

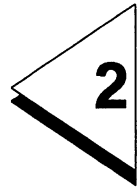
  or

- **with COM PMC** - see Chapter 3

Each process control message is assigned a message number. For each message number, you can create a message text using the **message text editor** of the programming package **COM 552**. This message text is displayed on the display unit. For further information on the message text editor, refer to the User's Guide "COM 552 Programming Package".

When the CP 552 receives the process control message, it enters the current time. The display unit does not send an acknowledgement to the CPU.

For detailed information on operating COM PMC, refer to the COM PMC programming package instructions.



Programming Process Control Messages without COM PMC

Contents

If you wish to program process control messages without COM PMC, you must remember the following points:

2.1 The STEP® 5 User Program

Your STEP® 5 user program on the CPU must recognize the events for which you require messages and enter these in a data block, known as **DB M-REC**, (for the structure of DB M-REC, see Section 2.2).

 **Note:**

The CP 552 can only process messages when the structure of DB M-REC is strictly adhered to, particularly with regard to the body length.

For processing messages, your STEP® 5 user program should be called cyclically and must fulfil the following requirements:

2.1.1 Recognizing Events

The STEP® 5 user program must perform the following functions:

- stipulate areas which serve as sources of messages (input, output, flag or data areas)
- assign the message number to the source of the message. This is achieved with a data block **DB M-OLDNEW**
- compare the NEW and OLD areas in DB M-OLDNEW cyclically, to determine whether an event has occurred since the last comparison or whether an event has been "cleared".

OLD area	NEW area	Message status
1	0	cleared
0	1	arrived

2.1.2 Setting up Message Records

The STEP® 5 user program must perform the following functions:

- determine the message number from the status change in DB M-OLDNEW and enter it in the "message record" (for message records, refer to Section 2.2)
- enter the message status (signal edge evaluation) in the message record
- enter the date/time in the message record
- enter the parameter type and the parameter in the message record. If no parameter is entered, the parameter type must be specified as FF H.

☞ **Note:**

The parameter is **not** displayed.

2.1.3 Entering Message Records in DB M-REC

The STEP® 5 user program must perform the following functions:

- enter message records in DB M-REC
- increment the body length according to the length of the message records entered.

2.1.4 Transferring DB M-REC to the CP 552

It is advisable to transfer a copy of DB M-REC, called **DB M-SEND** to the CP 552. The STEP® 5 user program must perform the following functions:

- guarantee the transfer of DB M-SEND to the CP 552 by means of a SEND DIRECT either depending on the number of entries and/or time-driven.

  Note:

  The job number of the SEND DIRECT must be **63**. The number of the DB M-SEND must be specified when the SEND DIRECT is assigned parameters.

- Clear DB M-REC, i.e. create space for new entries (body length = 0; pointer = 1st message record)

2.2 Interface between the CPU and CP 552: DB M-REC

DB M-REC is structured according to certain rules. This ensures that the CP 552 can evaluate DB M-REC correctly.

DB M-REC comprises a header and body:

Byte	DW no.	Contents
0 1	0	Header
2 to 510, 511	1 255	Body

The **header** contains organizational information:

Byte	DW Addr.	Contents	Comment
0	DL 0	33H	Identifier for messages
1	DR 0	Length (HEX)	Length of body in words

The **body** begins at byte 2 of DB M-REC. It contains the message records. The length of a message record depends on whether or not it contains a parameter.

12 bytes = 6 words without parameter

16 bytes = 8 words with parameter

A DB M-REC can be a maximum of **256 words** long. It can therefore contain a maximum of:

42 message records without parameter

31 message records with parameter

Note:

Even if a parameter is entered, it is **not** displayed on the PG or on the local monitor.

The current information is listed in a **message record** in the following order:

1. Parameter type
2. Message status
3. Message type
4. Message number
5. Time
6. Date
7. Parameter (**not** displayed on the PG or on the local monitor)

Structure of a message record:

Byte	S5 Addr	Contents
0	DL 0	**Parameter type**
1	DR 0	**Message status**
2	DL 1	**Message type, message number**
3	DR 1	**Message number**
4	DL 2	**Time** 10 ms
5	DR 2	s
6	DL 3	min
7	DR 3	h
8	DL 4	day
9	DR 4	**Date** month
10	DL 5	year
11	DR 5	reserved
12	DL 6	**Parameter**
13	DR 6	
14	DL 7	
15	DR 7	

1. Parameter type - byte 0:

This indicates whether or not there is a parameter in the message record and if so, which parameter type.

 **Note:**

Although a parameter can be entered, it is **not** displayed on the PG or on the local monitor.

Type (Hex)	Significance
0	Binary
1	Character
2	Byte
3	16-bit BCD number
4	32-bit BCD number
5	16-bit fixed point number
6	32-bit fixed point number
7	32-bit floating point number
8	Timer
9	Counter
FF	No parameter contained

Length of the message record:

12 bytes	without parameter
16 bytes	with parameter

2. Message status - byte 1:

The following information describes the status of the event:

arrived the event has just occurred and has been recorded; it is still pending, you have not yet acknowledged the message.

cleared the previously signalled event has "gone."

acknowledged you have acknowledged the message. The event is however still present.

Note:

This message status is **not** evaluated by the CP 552.

The message status in the message record must be as follows: (byte 1, bit 2^0 and 2^1):

Bit number 7	6	5	4	3	2	1	0	Significance
0	0	0	0	0	0	0	0	arrived
0	0	0	0	0	0	0	1	cleared
0	0	0	0	0	0	1	0	acknowledged
0	0	0	0	0	0	1	1	not allowed

3. Message byte - byte 2:

This indicates whether or not the message is a fault message (byte 2, bit 2^4 to 2^7):

Bit number 7	6	5	4	3	2	1	0	Dec	Significance
0	0	0	0	see				0	Fault message
0	0	0	1					1	reserved
0	0	1	0	message				2	for
to									
1	1	1	1	number				15	expansions

4. Message number - byte 2 and byte 3:

The messages are numbered. This ensures that

- the correct values are assigned to each event on the **CPU**
- the correct message text is assigned to each message on the **CP 552**

Byte 2 bits 2^3 to 2^0 contains the more significant part of the message number, byte 3 contains the less significant part:

Byte 2 **DL 1** **Bit number** F E D C B A 9 8	**Byte 3** **DR 1** 7 6 5 4 3 2 1 0
Message type	Message number

You can assign a number between **1** and **2000** as message number.

5./6. Date and time - byte 4 to byte 10:

The time at which the event occurred or at which the status changed can be entered in the message record - the date and time must be entered in BCD code:

Byte	S5 Addr.	Contents	Example 23.05.87 14.15 / 16 s 700 ms
4	DL 2	10 ms **Time**	70H
5	DR 2	s	16H
6	DL 3	min	15H
7	DR 3	h	14H
8	DL 4	day **Date**	23H
9	DR 4	month	05H
10	DL 5	year	87H

Note:

The CP 552 checks whether there is a zero in the field for the day (byte 8). If this is the case, the date and time are not entered in the message record. For this reason, the CP 552 enters the current value of its own clock in the message record.

2.3 Example of the Structure of a DB M-REC

DB 206 LEN=260
PAGE 1

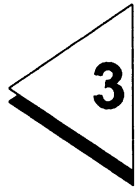
```
 0 :          KH= 330E;
 1 :          KH= 0001;
 2 :          KH= 0065;
 3 :          KH= 6056;
 4 :          KH= 3715;
 5 :          KH= 2205;
 6 :          KH= 8700;
 7 :          KH= 0001;
 8 :          KH= 0100;
 9 :          KH= FF00;
10 :          KH= 0064;
11 :          KH= 6056;
12 :          KH= 3715;
13 :          KH= 2205;
14 :          KH= 8700;
15 :          KH= 0000;
16 : 240  <KH= 0000;>
```

This is the printout of DB 206 used in our example as DB M-REC. Here, only data words DW 0 to DW 14 are of interest, since only two messages were entered.

Explanation of DB M-REC:

DW-no	DL DR	Significance
0	**33** **0E**	: identifier for DB M-REC = 14D : body length in words DW 1 to DW 14
1 to 8		**Message record of the first message**
1	**00** **01**	= Parameter type = BINARY = Message status = ARRIVED
2	**0** **065**	= Message type = Fault message = Message number = Message 101
3	**60** **56**	= Time : 10 milliseconds = Time : seconds
4	**37** **15**	= Time : minutes = Time : hours
5	**22** **05**	= Date : day = Date : month
6	**87** **00**	= Date : year = Reserved
7	**0001**	= Parameter (bit 0 = 1, bit 1 to bit 15 = 0)
8	**01** **00**	= Bit number of the parameters in DW 7 (bit 1) = Irrelevant for parameter type BINARY

DW-no	DL DR	Significance	
9 to 14	**Message record for second message**		
9	**FF**	= Parameter type	= No parameter
	00	= Message status	= CLEARED
10	**0**	= Message type	= Fault message
	064	= Message number	= Message 100
11	**60**	= Time	: 10 milliseconds
	56	= Time	: seconds
12	**37**	= Time	: minutes
	15	= Time	: hours
13	**22**	= Date	: day
	05	= Date	: month
14	**87**	= Date	: year
	00	= reserved	
15 to xx irrelevant - only two messages			



Programming Process Control Messages with COM PMC

Contents

You can program process control messages with the programming package

COM PMC Process Monitoring and Control System.

Detailed information about operating COM PMC can be found in the COM PMC programming package instructions.

The function blocks required to program process control messages are supplied with the programming package COM PMC in one of the following files (the file you receive depends on your programmable controller):

MEL115ST.S5D
MEL135ST.S5D
MEL150ST.S5D
MEL155ST.S5D

You should first make a working copy of your MEL*ST.S5D file.

3.1 COM PMC and CP 552

When you use the programming package COM PMC along with the CP 552, you must note the following points:

- COM PMC must be designated as **LOCAL SYSTEM**
- the CP 552 must be linked with the **MASTER OPERATING SYSTEM** to allow the CPU to send it process control messages. The CP 552 then simulates a CP 535 under job number 63
- when you program messages with parameters, the parameters are not displayed on the PG.

Proceed as follows:

Call COM PMC in the SELECT PACKAGE screen form. Enter the file name of your MEL*ST.S5D file in the COM PMC screen form.

Now press **F1 local system**. This brings you to the selection screen form. Here, select **F1 link master**.

In the screen form LINK to the MASTER OPERATOR SYSTEM, enter the job number 63 for the CP 535/send:

	CP type	SSNR	A-NR for send	A-NR for receive	Numbers of DB K BUFFER	Signal
1	CP 535	0	63		20 - 23	YES

As the interface number SSNR you must enter the interface number set on your CP 552. Enter the values input with the enter key.

Return to the selection screen form and press **F4**. This brings you to the MESSAGES screen form. In the MESSAGES screen form, enter the message numbers.

In the MESSAGES screen form press **F1**. This calls the following screen form.

Message numbers: 1 - 16 Status messages: -
Messages with parameters: - System messages: -

No.	I/Q/F/D	DB no.	Word no.	Length	Message no.
1	I		IW 0	1	01 - 16
2					17 -
3					-
4					-
5					-
6					-
7					-
8					-
9					-
10					-

The message numbers are assigned to the bit addresses as follows:

Message number	Input word address
1	I 1.0
2	I 1.1
3	I 1.2
4	I 1.3
5	I 1.4
6	I 1.5
7	I 1.6
8	I 1.7
9	I 0.0
10	I 0.1
11	I 0.2
12	I 0.3
13	I 0.4
14	I 0.5
15	I 0.6
16	I 0.7

3.2 Transferring COM PMC Blocks

You now exit the programming package COM PMC and select the programming package LAD, CSF, STL. Here, you enter the name of your program file in the PRESETS screen form and transfer all generated blocks to the CPU with the transfer function.

SIEMENS

Warnhinweis

Gefahren beim Einsatz sogenannter SIMATIC-kompatibler Baugruppen fremder Hersteller

"Den Hersteller eines Produktes (hier SIMATIC) trifft die Produktbeobachtungspflicht, d.h. er muß generell vor Gefahren des Produktes warnen. Diese Produktbeobachtungspflicht wurde von der neueren Rechtsprechung auch auf fremde Zubehörteile erstreckt. Der Hersteller hat danach die Verpflichtung, auch solche Gefahren zu beobachten, die aus der Verbindung des Produktes mit Produkten anderer Hersteller entstehen.

Aus diesem Anlaß sehen wir uns verpflichtet, unsere Kunden, die SIMATIC-Produkte einsetzen, zu warnen, sogenannte SIMATIC-kompatible Baugruppen fremder Hersteller als Ersatz- oder Zusatzbaugruppen in das Automatisierungssystem SIMATIC einzusetzen.

Unsere Produkte werden einer anspruchsvollen Qualitätssicherung unterworfen. Uns ist nicht bekannt, ob die fremden Hersteller sogenannter SIMATIC-kompatibler Baugruppen überhaupt oder eine annähernd gleichwertige Qualitätssicherung durchführen. Diese sogenannten SIMATIC-kompatiblen Baugruppen kommen nicht im Einvernehmen mit uns auf den Markt; es gibt **keine** Empfehlung der Siemens-AG, sogenannte SIMATIC-kompatible Baugruppen fremder Hersteller einzusetzen. Die Werbung der fremden Hersteller sogenannter SIMATIC-kompatibler Baugruppen erweckt irrtümlich den Eindruck, als sei der Inhalt der Werbung in Fachzeitschriften, Katalogen oder Ausstellungen mit uns abgesprochen. Werden sogenannte SIMATIC-kompatible Baugruppen fremder Hersteller mit unserem SIMATIC-Automatisierungssystem verbunden, handelt es sich um einen empfehlungswidrigen Gebrauch unseres Produkts. Wegen der universellen Vielfalt der Einsatzmöglichkeiten unserer SIMATIC-Automatisierungssysteme und der hohen Zahl der weltweit vermarkteten Produkte, können wir die konkrete Gefahrenanalyse durch diese sogenannten SIMATIC-kompatiblen Baugruppen nicht konkret beschreiben.

Es geht über die tatsächlichen Möglichkeiten des Herstellers hinaus, alle diese sogenannten SIMATIC-kompatiblen Baugruppen in der Wirkung auf unser SIMATIC-Produkt überprüfen zu lassen. Treten Mängel bei der Verwendung von sogenannten SIMATIC-kompatiblen Baugruppen in einem SIMATIC-Automatisierungssystem auf, werden wir für solche Systeme jede Gewährleistung ablehnen.

Im Fall von Produkthaftpflichtschäden verursacht durch den Einsatz von sogenannten SIMATIC-kompatiblen Baugruppen sind wir nicht haftbar, da wir die Anwender rechtzeitig vor den potentiellen Gefahren der Benutzung sogenannter SIMATIC-kompatibler Baugruppen gewarnt haben."

Warning

Risks involved in the use of so-called SIMATIC-compatible modules of non-Siemens manufacture

"The manufacturer of a product (SIMATIC in this case) is under the general obligation to give warning of possible risks attached to this product. This obligation has been extented in recent court rulings to include parts supplied by other vendors. Accordingly, the manufacturer is obliged to observe and recognize such hazards as may arise when a product is combined with products of other manufacture.

For this reason, we feel obliged to warn our customers who use SIMATIC products not to install so-called SIMATIC-compatible modules of other manufacture in the form of replacement or add-on modules in SIMATIC systems.

Our products undergo a strict quality assurance procedure. We have no knowledge as to whether outside manufacturers of so-called SIMATIC-compatible modules have any quality assurance at all or one that is nearly equivalent to ours. These so-called SIMATIC-compatible modules are not marketed in agreement with Siemens; we have never recommended the use of so-called SIMATIC-compatible modules of other manufacture. The advertising of these other manufacturers for so-called SIMATIC-compatible modules wrongly creates the impression that the subject advertised in periodicals, catalogues or at exhibitions had been agreed with us. Where so-called SIMATIC-compatible modules of non-Siemens manufacture are combined with our SIMATIC automation systems, we have a case of our product being used contrary to recommendations. Because of the variety of applications of our SIMATIC automation systems and the large number of these products marketed wordwide, we cannot give a concrete description specifically analyzing the hazards created by these so-called SIMATIC-compatible modules.

It is beyond the manufacturer's capabilities to have all these so-called SIMATIC-compatible modules checked for their effect on our SIMATIC products. If the use of so-called SIMATIC-compatible modules leads to defects in a SIMATIC automation system, no warranty for such systems will be given by Siemens.

In the event of product liability damages due to the use of so-called SIMATIC-compatible modules, Siemens are not liable since we took timely action in warning users of the potential hazards involved in so-called SIMATIC-compatible modules."

Avertissement

Risques liés à l'utilisation de modules de constructeurs tiers commercialisés sous la désignation de "modules compatibles SIMATIC"

"Le constructeur d'un produit (dans le cas présent SIMATIC) a l'obligation d'observer le produit, c'est-à-dire qu'il est obligé, d'une manière générale, d'attirer l'attention sur les dangers inhérents au produit. Ces derniers temps, la jurisprudence a étendu cette obligation d'observation du produit aux éléments accessoires issus de constructeurs tiers. En foi de quoi, le constructeur a aussi l'obligation d'observer son produit pour déceler les dangers susceptibles de survenir dans le cadre de l'association de son produit avec des produits de constructeurs tiers.

Pour cette raison, nous nous voyons obligés d'attirer l'attention de nos clients, utilisateurs de produits SIMATIC, sur les risques liés à l'utilisation de "modules compatibles SIMATIC" de constructeurs tiers à titre de modules de remplacement ou de complément dans les produits de notre système d'automatisation SIMATIC.

Nos produits font l'objet d'une assurance qualité très poussée. Il nous est impossible de savoir si les constructeurs tiers de "modules compatible SIMATIC" mettent en oeuvre un système qualité et, dans l'affirmative, si leurs dispositions d'assurance qualité permettent d'obtenir le niveau de qualité requis. Les "modules compatibles SIMATIC" ne sont pas commercialisés avec notre consentement; Siemens AG n'a émis **aucune** recommandation concernant l'utilisation de "modules compatibles SIMATIC" de constructeurs tiers. La publicité des constructeurs tiers de "modules compatibles SIMATIC" laisse penser à tort que les textes publicitaires dans les revues, les catalogues ou les expositions ont été convenus avec nous. L'utilisation conjointe de "modules compatibles SIMATIC" de constructeurs tiers et de produit de notre système d'automatisation SIMATIC constitue un cas d'utilisation de nos produits qui est contraire à nos recommandations. Considérant la grande diversité d'emploi de notre système d'automatisation SIMATIC ainsi que l'importance du parc mondial des produits installés, il nous est impossible de donner une description concrète de l'analyse des risques liés à l'emploi des "modules compatibles SIMATIC".

Nous n'avons pas la possibilité matérielle de procéder au contrôle de l'interaction de notre produit SIMATIC avec les "modules compatible SIMATIC" de constructeurs système tiers. Nous rejetons tout appel en garantie pour les vices survenant dans un système d'automatisation SIMATIC mettant aussi en oeuvre des "modules compatibles SIMATIC" de constructeurs tiers.

Nous déclinons toute responsabilité pour les sinistres relevant de la Responsabilité Civile Produits, étant donné que nous avons attiré à temps l'attention des utilisateurs sur les risques potentiels inhérents à l'utilisation de "modules compatibles SIMATIC" de constructeurs tiers.

Safety-Related Guidelines for the User

1 General

This manual provides the information required for the intended use of the particular product. The documentation is written for technically qualified personnel such as engineers, programmers or maintenance specialists who have been specially trained and who have the specialized knowledge required in the field of instrumentation and control.

A knowledge of the safety instructions and warnings contained in this manual and their appropriate application are prerequisites for safe installation and commissioning as well as safety in operation and maintenance of the product described. Only qualified personnel as defined in section 2 have the specialized knowledge that is necessary to correctly interpret the general guidelines relating to safety instructions and warnings and inplement them in each particular case.

This manual is an inherent part of the scope of supply even if, for logistic reasons, it has to be ordered separately. For the sake of clarity, not all details of all versions of the product are described in the documentation, nor can it cover all conceiveable cases regarding installation, operation and maintenance. Should you require further information or face special problems that have not been dealt with in sufficient detail in this documentation, please contact your local Siemens office.

We would also like to point out that the contents of this product documentation shall not become a part of or modify any prior or existing agreement, commitment or legal relationship. The Purchase Agreement contains the complete and exclusive obligations of Siemens. Any statements contained in this documentation do not create new warranties or restrict the existing warranty.

2 Qualified Personnel

Persons who are **not qualified** should not be allowed to handle the equipment/system. Non-compliance with the warnings contained in this manual or appearing on the equipment itself can result in severe personal injury or damage to property. Only **qualified personnel** should be allowed to work on this equipment/system.

Qualified persons as referred to in the safety guidelines in this manual as well as on the product itself are defined as follows:

- System planning and design engineers who are familiar with the safety concepts of automation equipment;
- Operating personnel who have been trained to work with automation equipment and are conversant with the contents of the manual in as far as it is connected with the actual operation of the plant;
- Commissioning and service personnel who are trained to repair such automation equipment and who are authorized to energize, deenergize, clear, ground and tag circuits, equipment and systems in accordance with established safety practices.

3 Danger Notices

The notices and guidelines that follow are intended to ensure personal safety, as well as protecting the product and connected equipment against damage.

The safety notices and warnings for protection against loss of life (the users or service personnel) or for protection against damage to property are highlighted in this manual by the terms and pictograms defined here. The terms used in this manual and marked on the equipment itself have the following significance:

Danger

indicates that death, severe personal injury or substantial property damage will result if proper precautions are not taken

Warning

indicates that death, severe personal injury or substantial property damage can result if proper precautions are not taken.

Caution

indicates that minor personal injury or property damage can result if proper precautions are not taken.

Note

is an important information about the product, its operation or a part of a manual to which special attention is drawn.

Important

If in this manual "Important" should appear in bold type, drawing attention to any particular information, the definition corresponds to that of "Warning", "Caution" or "Note".

4 Proper Usage

- The equipment system or the system components may only be used for the applications described in the catalog or the technical description, and only in combination with the equipment, components and devices of other manufacturers as far as this is recommended or permitted by Siemens.
- The product described has been developed, manufactured, tested and documentation compiled in keeping with the relevant safety standards. Consequently, if the described handling instructions and safety guidelines described for planning, installation, proper operation and maintenance are adhered to, the product, under normal conditions, will not be a source of danger to property or life.

Warning

- After opening the housing or protective cover or after opening the system cabinet, certain parts of this equipment/system will be accessible, which could have a dangerously high voltage level.
- Only suitably qualified personnel should be allowed access to this equipment/system.
- These persons must be fully conversant with any potential sources of danger and maintence measures as set out in this manual.
- It is assumed that this product be transported, stored and installed as intended and maintained and operated with care to ensure that the product functions correctly and safely.

5 Guidelines for Planning and Installing the Product

The product generally forms a part of larger systems or plants. These guidelines are intended to integrate the product into its environment without it constituting a source of danger.

The following facts require particular attention:

Note

Even when a high degree of safety has been designed into an item of automation equipment by means of multichannel configuration, it is still imperative that the instructions contained in this manual be exactly adhered to. Incorrect handling can render ineffective the preventive measures incorporated into the system to protect it against dangerous faults, and even create new sources of danger.

The following advice regarding installation and commissioning of the product should – in specific cases – also be noted.

Warning

- Follow strictly the safety and accident prevention rules that apply in each particular case.
- Units which are designed as built-in units may only be operated as such and table-mounted or portable equipment only with its casing closed.
- In the case of equipment with a permanent power connection which is not provided with an isolating switch and/or fuses which disconnect all poles, a suitable isolating switch or fuses must be provided in the building wiring system (distribution board). Furthermore, the equipment must be connected to a protective ground (PE) conductor.
- For equipment or systems with a fixed connection cable but no isolating switch which disconnects all poles, the power socket with the grounding pin must be installed close to the unit and must be easily accessible.
- Before switching on the equipment, make sure that the voltage range setting on the equipment corresponds to the local power system voltage.
- In the case of equipment operating on 24 V DC, make sure that proper electrical isolation is provided between the line supply and the 24 V supply. Only use power supply units to IEC 364–4–41 or HD 384–04–41 (VDE 0100 Part 410).
- Fluctuations or deviations of the power supply voltage from the rated value should not exceed the tolerances specified in the technical specifications. Otherwise, functional failures or dangerous conditions can occur in the electronic modules/equipment.
- Suitable measures must be taken to make sure that programs that are interrupted by a voltage dip or power supply failure resume proper operation when the power supply is restored. Care must be taken to ensure that dangerous operating conditions do not occur even momentarily. If necessary the equipment must be forced into "emergency off" state.
- Emergency tripping devices in accordance with EN 60204/EC 204 (VDE 0113) must be effective in all operating modes of the automation equipment. Resetting the emergency off device must not result in any uncontrolled or undefined restart of the equipment.

Caution

- Install the power supply and signal cables in such a manner as to prevent inductive and capacitive interference voltages from affecting the automation functions.
- Automation equipment and its operating elements must be installed in such a manner as to prevent unintential operation.
- Automation equipment can assume an undefined state in the case of a wire break in the signal lines. To prevent this, suitable hardware and software measures must be taken when interfacing the inputs and outputs of the automation equipment.

6 Active and Passive Faults in Automation Equipment

- Depending on the particular task for which the electronic automation equipment is used, both **active** as well as **passive** faults can result in a **dangerous** situation. For example, in drive control, an active fault is generally dangerous because it can result in an unauthorized startup of the drive. On the other hand, a passive fault in a signalling function can result in a dangerous operating state not being reported to the operator.
- This differentiation of the possible faults and their classification into dangerous and non-dangerous faults, depending on the particular task, is important for all safety considerations in respect of the product supplied.

Warning

In all cases where a fault in an automation equipment can result in severe personal injury or substantial damage to property, i.e. where a dangerous fault can occur, additional external measures must be taken or equipment provided to ensure or force safe operating conditions even in the event of a fault (e.g. by means of independent limit monitors, mechanical interlocks etc.).

7 Procedure for Maintenance and Repair

If measurement or testing work is to be carried out on an active unit, the rules and regulations contained in the "VBG 4.0 Accident prevention regulations" of the German employers liability assurance association (Berufsgenossenschaften) must be observed. Particular attention is drawn to paragraph 8 "Permissible exceptions when working on live parts". Use only suitable electrical tools.

Warning

- Repairs to an item of automation equipment may only be carried out by **Siemens service personnel** or an **authorized Siemens repair center.** For replacement purposes, use only parts or components that are contained in the spare parts list or are listed in the "Spare parts" section in this manual.
  Unauthorized opening of equipment and proper repairs can result in loss of life or severe personal injury as well as substantial property damage.
- Before opening the equipment, always remove the power plug or open the disconnecting switch.
- Only use the fuse types specified in the technical specifications or the maintenance instructions of this manual.
- Do not throw batteries into an open fire and do not carry out any soldering work on batteries (danger of explosion). Maximum ambient temperature 100 °C. Lithium batteries or batteries containing mercury should not be opened or recharged. Make sure that the same type is used when replacing batteries.
- Batteries and accumulators must be disposed of as classified waste.
- The following points require attention when using monitors:
  Improper handling, especially the readjustment of the high voltage or fitting of another tube type can result in excessive X-ray radiation from the unit. The licence to operate such a modified unit automatically lapses and the unit must not be operated at all.

Guidelines for Handling Electrostatically Sensitive Devices (ESD)

1 What is ESD?

VSLI chips (MOS technology) are used in practically all SIMATIC S5 and TELEPERM M modules. These VLSI components are, by their nature, very sensitive to overvoltage and thus to electrostatic discharge:

They are therefore defined as
"Electrostatically Sensitive Devices".

"ESD" is the abbreviation used internationally.

The following warning label on the cabinets, subracks and packing indicates that electrostatically sensitive components have been used and that the modules concerned are susceptible to touch:

ESDs can be destroyed by voltage and energy levels which are far below the level perceptible to human beings. Such voltages already occur when a component or a module is touched by a person who has not been electrostatically discharged. Components which have been subjected to such overvoltages cannot, in most cases, be immediately detected as faulty; the fault occurs only after a long period in operation.

An electrostatic discharge
- of 3500 V can be felt
- of 4500 V can be heard
- must take place at a minimum of 5000 V to be seen.

But just a fraction of this voltage can already damage or destroy an electronic component.

The typical data of a component can suffer due to damage, overstressing or weakening caused by electrostatic discharge; this can result in temporary fault behavior, e.g. in the case of

- temperature variations,
- mechanical shocks,
- vibrations,
- change of load.

Only the consequent use of protective equipment and careful observance of the precautions for handling such components can effectively prevent functional disturbances and failures of ESD modules.

2 When is a Static Charge Formed?

One can never be sure that the human body or the material and tools which one is using are not electrostatically charged.

Small charges up to 100 V are very common; these can, however, very quickly rise up to 35 000 V!

Examples of static charge:

– Walking on a carpet	up to	35 000 V
– Walking on a PVC flooring	up to	12 000 V
– Sitting on a cushioned chair	up to	18 000 V
– Plastic desoldering unit	up to	8 000 V
– Books etc. with a plastic binding	up to	8 000 V
– Plastic bags	up to	5 000 V
– Plastic coffee cup	up to	5 000 V

3 Important Protective Measures against Static Charge

- Most plastic materials are highly susceptible to static charge and must therefore be kept as far away as possible from ESDs!
- Personnel who handle ESDs, the work table and the packing must all be carefully grounded!

4 Handling of ESD Modules

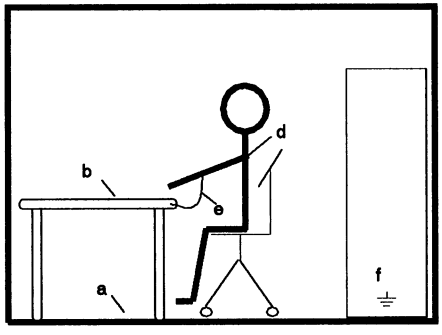
- One basic rule to be observed is that electronic modules should be touched by hand only if this is necessary for any work to be done on them. Do not touch the component pins or the conductors.
- Touch components only if
  - the person is grounded at all times by means of a wrist strap

  or
  - the person is wearing special anti-static shoes or shoes with a grounding strip.
- Before touching an electronic module, the person concerned must ensure that (s)he is not carrying any static charge. The simplest way is to touch a conductive, grounded item of equipment (e.g. a blank metallic cabinet part, water pipe, etc.) before touching the module.
- Modules should not be brought into contact with insulating materials or materials which take up a static charge, e.g. plastic foil, insulating table tops, synthetic clothing, etc.
- Modules should only be placed on conductive surfaces (table with anti-static table top, conductive foam material, anti-static plastic bag, anti-static transport container.)
- Modules should not be placed in the vicinity of visual display units, monitors or TV sets (minimum distance from screen > 10 cm).

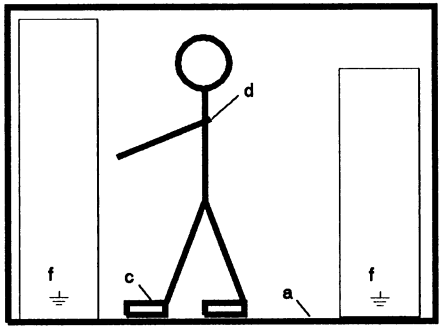
The diagram on the next page shows the required protective measures against elecrostatic discharge.

5 Measurements and Modification to ESD Modules

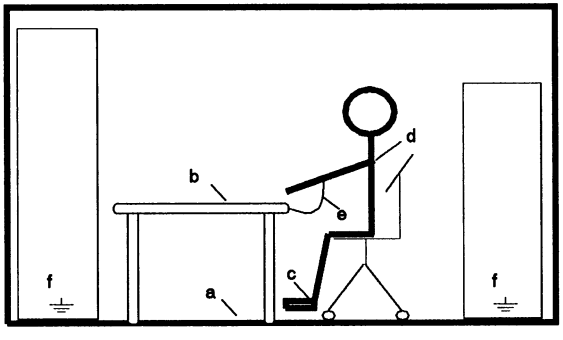
- Measurements on modules may only be carried out under the following conditions:
  - the measuring equipment is grounded (e.g. via the PE conductor of the power supply system) or
  - when electrically isolated measuring equipment is used, the probe must be discharged (e.g. by touching the metallic casing of the equipment) before beginning measurements.
- Only grounded soldering irons may be used.



Sitting position



Standing position



Standing/sitting position

a Conductive flooring
b Anti-static table
c Anti-static shoes
d Anti-static coat
e Grounding wrist strap
f Grounding connection of the cabinets

6 Shipping of ESD Modules

Anti-static packing material must always be used for modules and components, e.g. metalized plastic boxes, metal boxes, etc. for storing and dispatch of modules and components.

If the container itself is not conductive, the modules must be wrapped in a conductive material such as conductive foam, anti-static plastic bag, aluminium foil or paper. Normal plastic bags or foils should not be used under any circumstances.

For modules with built-in batteries ensure that the conductive packing does not touch or short-circuit the battery connections; if necessary cover the connections with insulating tape or material.