

SIEMENS

SIMODRIVE 611 analog

Description

10.2000 Edition

Start-up Software for Main Spindle and Induction Motor Modules Version 3.20

Overview of Documentation for SIMODRIVE 611 analog

General Documentation

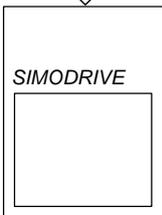


Catalog
Order Document NC 60

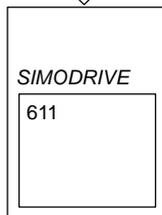


Catalog
Accessories and Equip-
ment for Special-Purpose
Machines
Order Document NC Z

Manufacturer/Service Documentation



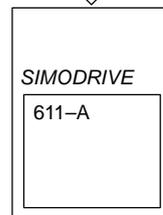
Planning Guide
Motors
AC Motors for
Feed and Main
Spindle Drives



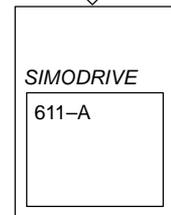
Planning Guide
Transistor PWM
Inverters for AC Feed
Drives and AC Main
Spindle Drives



EMV Guidelines
for
SINUMERIK
and
SIROTEC
Controls



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Main Spindle and
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Start-up Guide
SIMODRIVE 611 analog
Transistor PWM
Inverters for AC Feed
Drives and AC Main
Spindle Drives

Electronic Documentation



DOC ON CD
The SINUMERIK System

SIEMENS

SIMODRIVE 611 analog

Start-up Software for Main Spindle and Induction Motor Modules Version 3.20

Description

Valid for

Drive system

SIMODRIVE 611 analog

Main Spindle Control

6SN1121-0BA1□-0AA□

Induction Motor Control

6SN1122-0BA1□-0AA□

10.00 Edition

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SIMODRIVE® documentation

Edition coding

Brief details of this Edition and previous editions are listed below.

The status of each Edition is shown by the code in the "Remarks" column.

Status code in the "Remarks" column:

A New documentation.

B Unrevised reprint with new Order No.

C Revised Edition with new status.

If factual changes have been made on the page since the last edition, this is indicated by a new Edition coding in the header on that page.

Edition	Order No.	Remarks
12.93	6SN1197-0AA30-0BP0	C
10.00	6SN1197-0AA30-0BP1	C

This Manual is also included in the documentation on CD-ROM (**DOCONCD**)

Edition	Order No.	Remarks
10.00	6FC5298-6CA00-0BG0	C

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You will find additional information in the Internet under:
<http://www.ad.siemens.de/simodrive>

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Functions may be executable in the control but are not described in this documentation. No claims can be made on these functions if included with a new shipment or when involved with service.

We have checked the contents of this document to ensure that they coincide with the described hardware and software. The information in this document is regularly checked and necessary corrections are included in reprints. We are thankful for any recommendations for improvement.

Subject to change without prior notice.

Foreword

This document is part of the documentation developed for SIMODRIVE. All documents are available individually.

The documentation list, which includes all advertising Brochures, Catalogs, Overviews, Short Descriptions, User Manuals and Technical Descriptions can be obtained from your local Siemens office with Order No., location and price.

This Manual does not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired or should particular problems arise, which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Siemens sales office.

The contents of this Guide shall not become part of nor modify any prior or existing agreement, commitment or relationship.

The sales contract contains the entire obligation of Siemens. Any statements contained herein neither create new warranties nor modify the existing warranty.

Definitions

Qualified personnel

For the purpose of this documentation and product labels, a “qualified person” is someone who is familiar with the installation, mounting, start-up and operation of the equipment and the hazards involved. He or she must have the following qualifications:

- Trained and authorized to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety procedures.
- Trained in the proper care and use of protective equipment in accordance with established safety procedures.
- Trained in rendering first aid



Danger

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



Warning

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



Caution

This warning (with warning triangle) indicates that minor personal injury **can** result if proper precautions are not taken.

Caution

This warning (without warning triangle) indicates that material damage **can** result if proper precautions are not taken.

Notice

This warning indicates that an undesirable situation or condition **can** occur if the appropriate instructions/information are not observed.



Important

This symbol appears in the documentation if a particular issue is significant.

Note

For the purpose of this documentation, "Note" indicates information about the product or the respective part of the document which is essential to highlight.



Warning

Operational electrical equipment has parts and components which are at hazardous voltage levels.

Incorrect handling of these units, i.e. not observing the warning information, can therefore lead to death, severe bodily injury or significant material damage.

Only appropriately qualified personnel may commission/start-up this equipment.

This personnel must have in-depth knowledge regarding all of the warning information and service measures according to this Description.

Perfect, safe and reliable operation of this equipment assumes that it has been professionally transported, stored, mounted and installed as well as careful operator control and service.

Hazardous axis motion can occur when working with the equipment.

Note

It is not permissible to connect SIMODRIVE equipment to a supply system with ELCBs (this restriction is permitted acc. to DIN VDE 0160/05.88, Section 6.5). When operational, protection against direct contact is provided in a form to allow the unit to be used in enclosed electrical equipment rooms (DIN VDE 0558 Part 1/07.87, Section 5.4.3.2.4).

In compliance with DIN VDE 0160/05.88, all SIMODRIVE units are subject to a high-voltage test at the time of routine testing. If the electrical equipment of industrial tools is subject to a high-voltage test, all connections must be disconnected so that sensitive electronic components in the SIMODRIVE converter are not damaged (permissible acc. to DIN VDE 0113/06.93, Part 1, Section 20.4).



Warning

Start-up/commissioning is absolutely prohibited until it has been ensured that the machine in which the components described here are to be installed, fulfills the regulations/specifications of the Directive 89/392/EWG.



Warning

The information and instructions in all of the documentation supplied and any other instructions must always be observed to eliminate hazardous situations and damage.

- For special versions of the machines and equipment, the information in the associated catalogs and quotations applies.
- Further, all of the relevant national, local and plant/system-specific regulations and specifications must be taken into account.
- All work should be undertaken with the system in a no-voltage condition!

ESDS information

Electro-static discharge sensitive devices



Components which can be destroyed by electrostatic discharge are individual components, integrated circuits, or boards, which when handled, tested or transported, could be destroyed by electrostatic fields or electrostatic discharge. These components are designated as **ESDS (ElectroStatic Discharge Sensitive Devices)**.

Handling ESDS boards:

- The human body, working area and packing should be well grounded when handling ESDS components!
- Electronic boards should only be touched when absolutely necessary.
- Components may only be touched, if
 - you are continuously grounded through an ESDS bracelet,
 - you are wearing ESDS shoes or ESDS shoe grounding strips in conjunction with an ESDS floor surface.
- Boards may only be placed on conductive surfaces (desk with ESDS surface, conductive ESDS foam rubber, ESDS packing bag, ESDS transport containers).
- Boards may not be brought close to data terminals, monitors or television sets (a minimum of 10 cm should be kept between the board and the screen).
- Boards may not be brought into contact with materials which can be charged-up and which are highly insulating.
- Measuring work may only be carried out on the boards, if
 - the measuring equipment is grounded (e.g. via the protective conductor) or
 - for floating measuring equipment, the probe is briefly discharged before making measurements (e.g. a bare control housing is touched).
- Only touch the control boards at the front panel

Further information

Additional detailed information is provided in the Planning Guides and Start-up Guides of our products. ■

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Instructions for Use

1

Application

The start-up software IBS V3.x (6SN1153-2AX10-0A□□) is used to service and start-up (commission) the SIMODRIVE 611 analog main spindle drives (MSD) and induction motor modules (IMM).



Danger

When using this start-up software with a SIMODRIVE drive converter module, the operator control and warning information and instructions in the documentation (Start-up Guide, Planning Guide) of the associated drive converter module must be observed.

The user can process parameters online in the drive converter or offline in a file. The drive converter-specific parameters are displayed arranged according to logical groups; each parameter has a brief description. Data sets can be transferred, as required between the drive converter and start-up software. The saved parameter settings can be transferred from a file into the drive converter, which simplifies series start-up of drives.

Transferring old parameter sets

Parameter settings (sets), generated with the IBS V1.x program, can be transferred to IBS > V2.0 and further processed.

Firmware update

The firmware release of the drive converter can be updated by transferring special files. No changes have to be made to the drive converter hardware.



Danger

If enable signals have been output to the SIMODRIVE drive converter module, but the drive does not rotate, then the **Operating display** function should be used to check whether there is a fault.



2.1 System requirements

Hardware requirements

The start-up software Version 3.20 requires the following hardware platform:

- IBM® AT-compatible computer
- 640 kbyte main memory, of which, at least 400 kbyte of memory for programs
- Floppy disk drive
- Hard disk, with min. 2 Mbyte free memory
- Black and white monitor
- Keyboard
- Serial interface
- Connecting cable to establish a link from the drive converter to computer (refer to the Attachment)

Optional hardware

In addition to these minimum requirements, the following can be optionally used:

- Mouse
- Color monitor
- Printer

Software requirements

Software configuration for IBS V3.20

- MS-DOS® operating system, from version 3.0.
- Equipment driver ANSI.SYS (or an equivalent for the graphics card used).
- Codepage 437 must be set (refer to the MS-DOS Manual, using code pages)
- Mouse driver if a mouse is to be used (refer to the Mouse Manual).
- Interface driver, if interfaces COM3: and COM4: are to be used (refer to the Computer Manual, Manual on the Interface Module).
- We recommend a disk cache program (e. g. SMARTDRIVE) in order to accelerate the program processing (especially when displays are being built-up).

2.2 Installation

Proceed as follows to install the software:

Prerequisite

Please ensure that the ANSI.SYS driver is loaded (generally, the CONFIG.SYS file contains an entry with the following syntax:

under DOS: DEVICE = C:\DOS\ANSI.SYS

under Win 95/98: DEVICE = C:\WIN.95\COMMAND\ANSI.SYS

Calling

Insert the installation floppy disk and start the installation program. If the floppy disk is inserted in drive A: then the following must be entered:

C>A:

A>INSTALL language version

The installation program prompts you to enter all of the other entries in the user dialog box.

Operator control

The following applies for all screen masks:

RETURN all of the entries in the current mask are confirmed as being valid, installation is continued.

CTRL-C interrupts the installation program.

The program can be immediately started after it has been installed. The **Program settings** function, which is part of the start-up software, can be used to optimally adapt the software to the computer being used.

2.3 Starting the program

Program call To start the program, the required drive converter type is specified as parameter in the command line.

The call is as follows:

IBS 611HSA [/M] for the SIMODRIVE 611 analog MSD drive converter

IBS 611AMM [/M] for the SIMODRIVE 611 analog induction motor module drive converter

Mouse support can be selected using parameter /M. In this case, the associated mouse driver must be installed and activated (refer to the mouse documentation).

Selecting the drive converter firmware release The actual program settings are displayed in the basic display (refer to Section 3.2, Program structure). The firmware release for the drive converter data to be processed, must be selected here.

2.4 Exiting the program

The start-up program is exited and you return to the DOS level by pressing soft-key F7 in the basic display.



Operator Control

3.1 General operator control

Operator control philosophy

The IBS (start-up) program handling from V2.0, is, as far as possible, based on handling SINUMERIK 840C . This means that all of the functions are selected using softkeys.

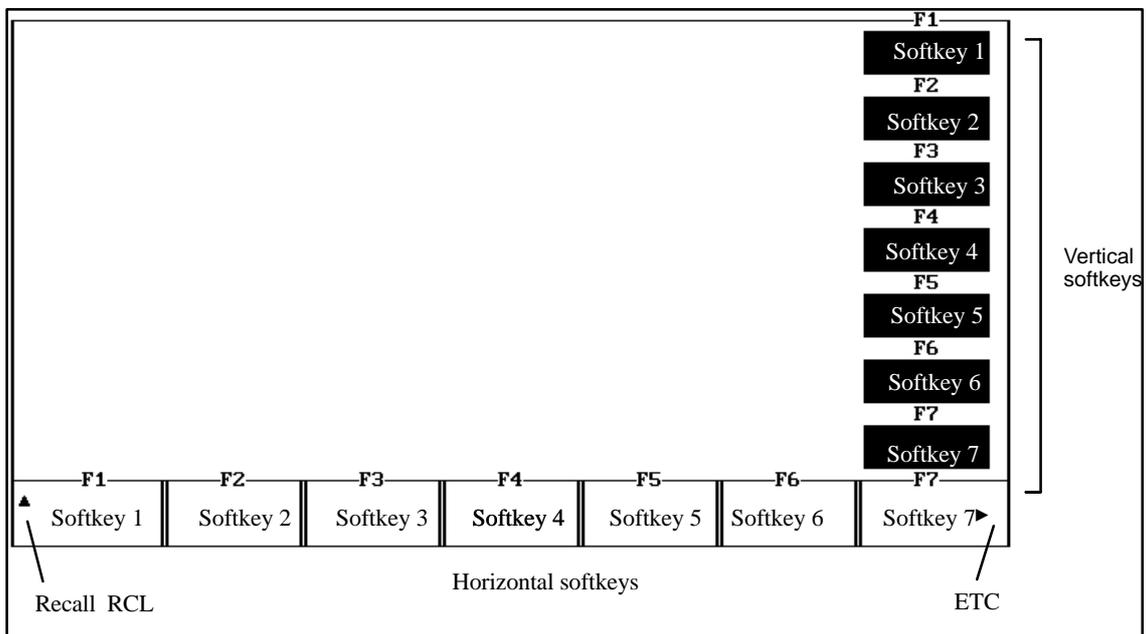


Fig. 3-1 General handling

You can return to the higher-level menus with RCL; the menu bar is, when required, extended horizontally using ETC.

Supplementary functions, which do not contain any menu branching, are located in the vertical menu bar.

3.1 General operator control

Keyboard

The softkeys are actuated using the following keys:

Table 3-1 Keyboard assignment

Key	Softkey horizontal	Key	Softkey vertical
ESC	RCL		
F1	Softkey 1	SHIFT + F1	Softkey 1
F2	Softkey 2	SHIFT + F2	Softkey 2
F3	Softkey 3	SHIFT + F3	Softkey 3
F4	Softkey 4	SHIFT + F4	Softkey 4
F5	Softkey 5	SHIFT + F5	Softkey 5
F6	Softkey 6	SHIFT + F6	Softkey 6
F7	Softkey 7	SHIFT + F7	Softkey 7
F8	ETC		

Help

A brief help text can be called in each menu using key F10.

Mouse

If the program was started with the /M option, the softkeys can be actuated using the mouse (lefthand mouse key).

Dialog boxes

Dialog boxes are used for additional entries as well as program messages.

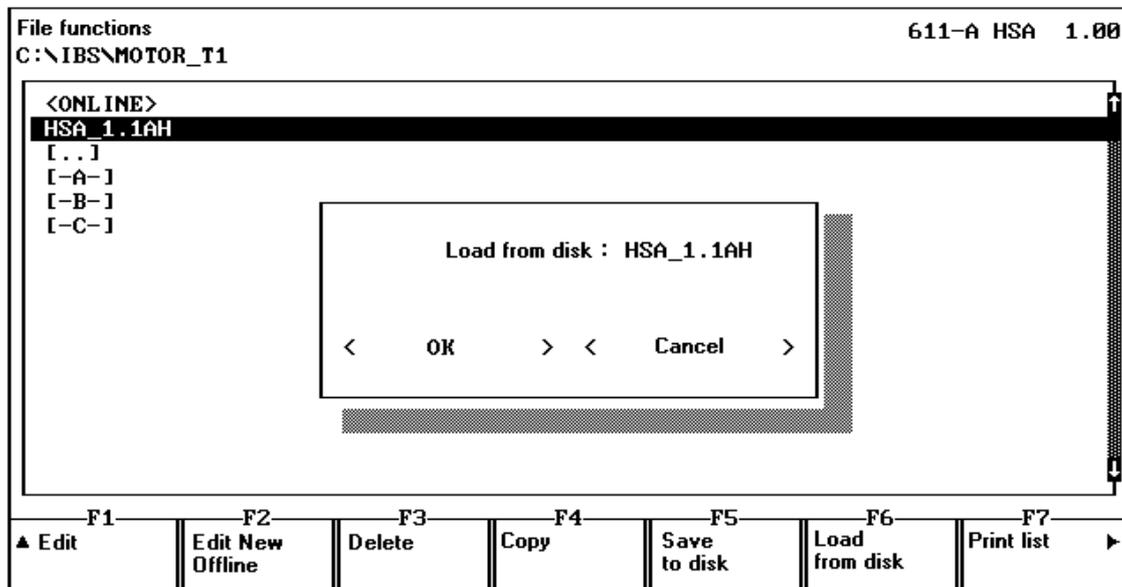


Fig. 3-2 Example of a dialog box

In this case, the following applies:

RETURN selects the **OK** button.

ESC selects the **Exit** button.

The buttons can be alternatively selected using the mouse.

As long as a dialog box is active, no other functions can be executed. If several input fields are available in a dialog box, then you can toggle between the individual fields using the TAB key.

Program disable

The IBS V2.0 program can be temporarily disabled. After you press the **CTRL-S** key combination, you will be prompted to enter the system password. After entering **1111**, the PC with start-up program is disabled for additional entries. The program can only be re-enabled by re-entering the system password.

3.2 Program structure

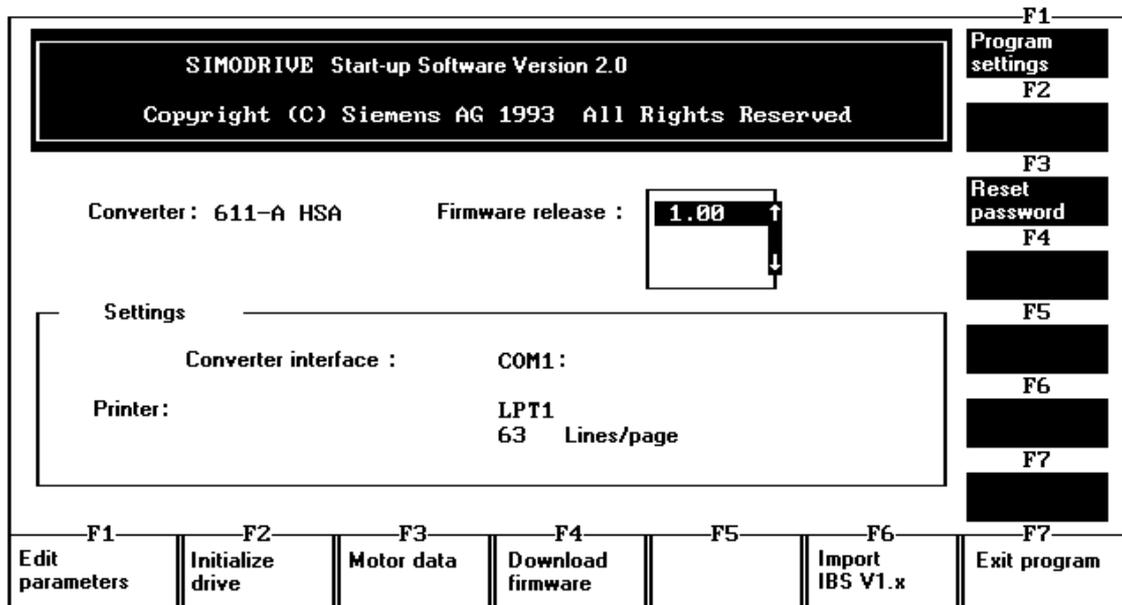


Fig. 3-3 Basic display

This display provides an approximate overview of the program structure. The individual functions are described in the following sections of these instructions.

3.3 Program settings

The start-up program settings are made here. All of the selected settings are saved and are re-activated the next time that the program is started.

Selecting the firm-ware release

Select the actual firmware release of your SIMODRIVE drive from the list.

IBS 611IMM supports the versions:	1.3
	2.0
	2.1
	3.1
IBS 611MSD supports the versions:	2.1
	2.2
	2.3
	2.4
	3.0
	3.1

Note

In order to be able to communicate with all firmware releases, you must use the latest start-up software.

Handling

You can toggle between the individual areas and possible settings using the TAB and SHIFT-TAB keys. A selection is made within a particular field using CURSOR-UP and CURSOR-DOWN. The required elements can also be directly selected using the mouse.

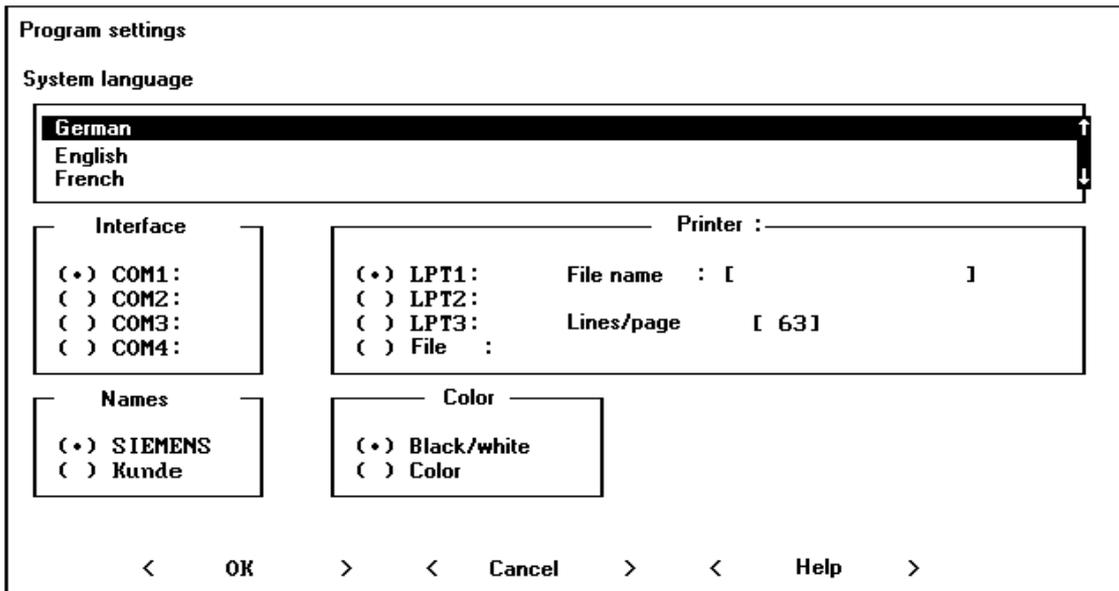


Fig. 3-4 Program settings

The individual fields mean:

System language

Language in which the start-up program runs.

Interface

Selects the interface for the link between the PC and drive converter. Generally, the COM3: and COM4: interfaces can only be used after the computer has additional hardware and software upgrades. A description of the cable to couple the PC to the drive converter is provided in the Attachment.

Printer

Selects the parallel interface to which the printer is connected. If the printer is routed to a file (a file is selected and any file name is entered, possibly with drive and directory), then only the last print task is saved in the specified file.

Lines/page

Defines the number of lines before a page feed is made.

Designations

The parameters are shown as standard with the parameter descriptions, specified by SIEMENS AG. If other names are required, an appropriate file must be generated (refer to the Attachment for the file format). After selecting "Customer", all of the parameter descriptions will appear with the required names. If you use your own description file, this means that the appropriate files for all drive converters and all software releases must be created. SIEMENS AG assumes no guarantee that the start-up software will correctly function with modified parameter descriptions (also refer to the Section, File formats).

Color

Selects whether the program has color or black and white displays. For portable computers with LCD screens, black and white generally makes the screen easier to read.

3.4 Resetting the password

Password protection, drive converter parameters



The system password must first be entered before parameters can be directly changed in the drive converter. To change a parameter in the drive converter for the first time in the online mode, the user must enter the system password (1111).

Warning

After the password has been entered, all of the drive converter parameters can be changed. The write protection in the drive converter module is disabled.

After having made the required changes, or when leaving the work station, we recommend that write protection is re-enabled by pressing the **Reset password** softkey.



Drive Initialization

4

Every drive converter module must be initialized when it is first started-up. All of the drive converter parameters are pre-assigned with factory standard values. This program branch requires that an ONLINE connection is established to the SIMODRIVE drive converter.

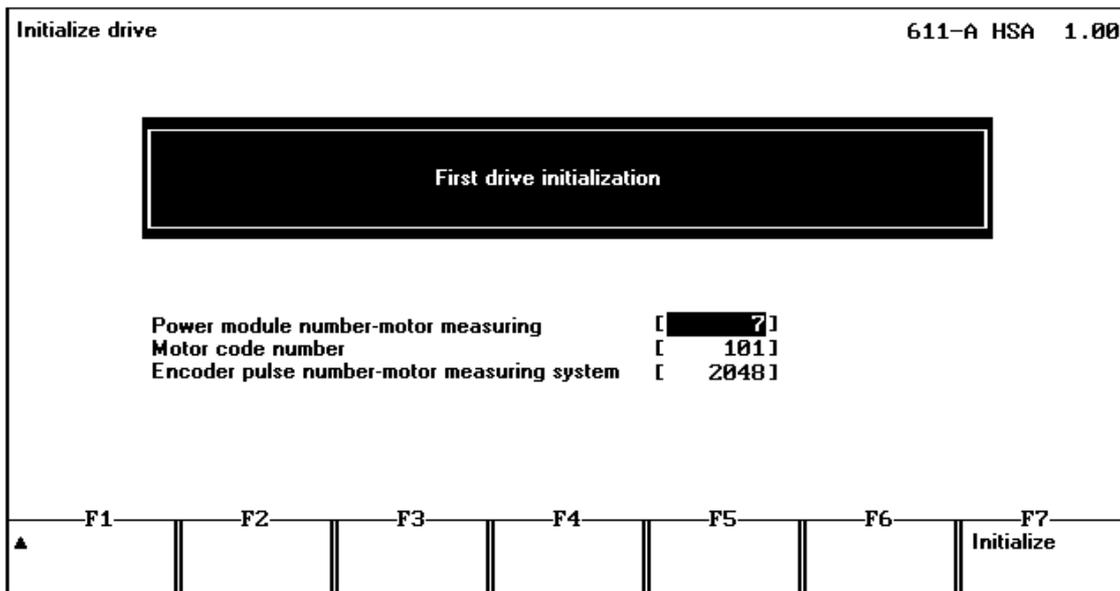


Fig. 4-1 Drive initialization

Data to be entered

Data must be entered to initialize the drive (also refer to the Start-up Instructions of the drive converter module involved)

For 611 analog MSD:

Power module code number¹⁾

Motor code number

Encoder pulse number – motor measuring system

For 611 analog IMM:

Power module code number¹⁾

Motor code number (4 sub-parameters) has presently not been implemented

1) Power modules with Order No. [MLFB] 6SN112□-1A□□□-□□A1, are automatically recognized from FW 3.00 onwards. In this case, it is not necessary to enter the power module code number.

If a complete file is to be downloaded into the drive converter after initialization, only the power module code number has to be entered (refer to **Loading from the hard disk**).

Initialize softkey

The actual initialization operation is started by pressing the **Initialize** softkey. If the drive converter has fault messages, these are immediately read-out and displayed after initialization has been completed. If the drive converter module has already been initialized, a warning note is displayed but initialization can be forced by acknowledging.



Warning

The **Initialize** function overwrites all of the parameters which have been changed in the drive converter module.



Motor Data

5.1 Motor data

When initializing, standard Siemens (Catalog) motors are parameterized by entering a code number (presently, only MSD). If other non-catalog motors are connected to the drive converter module to be parameterized, then the necessary parameters can be entered here. This program branch requires that an ONLINE connection has been established to the SIMODRIVE drive converter.

Configuration, 611 analog MSD

For 611 analog main spindle drive (MSD), the following configurations are possible:

- A third-party motor (key F1)
- A third-party motor with star-delta changeover (key F2 for the star data set, F3 for the delta data set)
- Two catalog motors (code number for motor 1 is specified when initializing, code number for motor 2, using key F4)
- Two third-party motors without star-delta changeover (key F1 for the 1st motor, F5 for the 2nd motor)

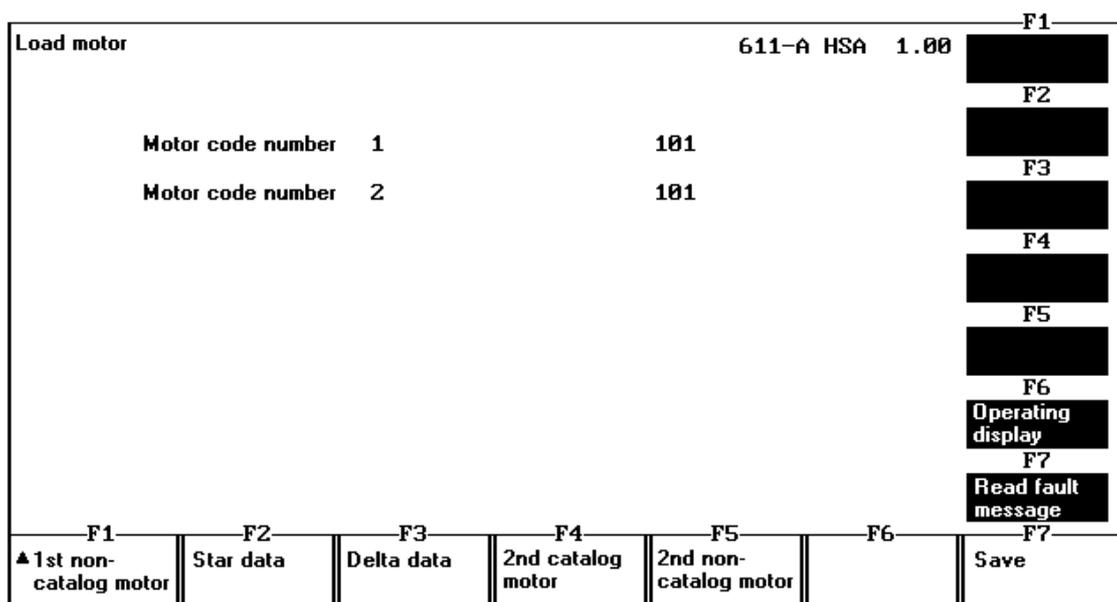


Fig. 5-1 Load motor, 611 analog MSD selection

The specified configurations cannot be mixed, as, in some cases access is made to the same parameters. Depending on the particular configuration, only the required data set has to be selected for editing.

5.1 Motor data

Stern-Daten		Rated motor output	611-A HSA	1.00	F1
		Rated motor current			F2
P159	Motor moment of inertia	#	0.011	kgm ²	F3
P160	Rated motor output	#	3.7	kW	F4
P161	Rated motor current	#	12.5	A	F5
P162	Rated motor voltage	#	268.0	V	F6
P163	Rated motor speed	#	1500	RPM	F7
P164	Rated motor frequency	#	53.0	Hz	Operating display
P165	No-load motor voltage	#	235.0	V	Read fault message
P166	No-load motor current	#	6.2	A	F1
P167	Stator resistance, cold	#	735	m0hm	F2
P168	Rotor resistance, cold	#	510	m0hm	F3
P169	Stator leakage reactance	#	1187	m0hm	F4
P170	Rotor leakage reactance	#	1608	m0hm	F5
P171	Magnetizing reactance	#	22870	m0hm	F6
P172	Upper speed Xh characteristic	#	3100	RPM	F7
P173	Speed at the start of field weakening	#	2375	RPM	Calculate data
P174	Max. motor speed	#	9000	RPM	

Fig. 5-2 Load motor, 611-A MSD star data

Handling

The parameters must then be supplied with the required values. The parameters are edited as described under **Edit parameters**. After all of the values have been entered as required, the necessary conversions are initiated by pressing the **Calculate data** softkey. The conversion only runs in the drive converter when the controller and pulses are inhibited.

Erroneous motor data

Calculation errors can occur for incorrectly selected values when converting (message: Fault messages present). In this case, parameterization and calculation must be repeated with corrected values.



Danger

The drive could be destroyed when attempting to commission it with erroneous motor data.

**Configuration,
611 analog IMM**

Up to four motors can be connected to the 611 analog IMM.

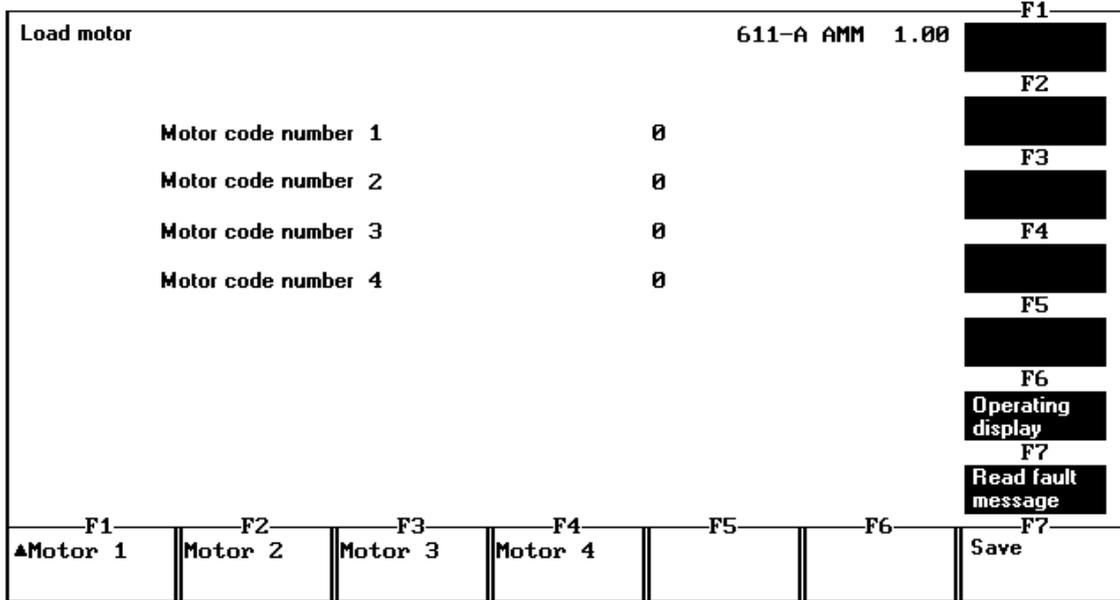


Fig. 5-3 Load motor, 611 analog IMM selection

In this case, the rating plate data and equivalent circuit diagram data must be specified for each connected motor. The equivalent diagram data can be alternatively calculated from the rating plate data. The calculations can only be made with the controller and pulses inhibited.

Note

Presently, motor code numbers are not implemented in the drive converter.

5.1 Motor data

Rating plate data		611-A AMM 1.00	F1
P158:1	Inductance of the series reactor	0.000 mH	F2
P160:1	Rated motor output	0.00 kW	F3
P161:1	Rated motor current	0.00 A	F4
P162:1	Rated motor voltage	379 V	F5
P163:1	Rated motor speed	1500 RPM	F6
P164:1	Rated motor frequency	50.0 Hz	F7
P174:1	Max. motor speed	1500 RPM	Operating display
P178:1	Power factor cos (phi)	0.800	Read fault message
F1	F2	F3	F4
F5	F6	F7	
▲	Enter equiv. cct. diag. data		Calc. equiv. cct. diag. data

Fig. 5-4 Load motor, 611 analog IMM rating plate data

Equivalent circuit diagram data		611-A AMM 1.00	F1
P159:1	Moment of inertia, motor and external	0.0 gm ²	F2
P166:1	No-load motor current	0.00 A	F3
P167:1	Stator resistance, cold	0.000 Ohm	F4
P168:1	Rotor resistance, cold	0.000 Ohm	F5
P169:1	Stator leakage reactance	0.000 Ohm	F6
P170:1	Rotor leakage reactance	0.000 Ohm	F7
P171:1	Magnetizing reactance	0.00 Ohm	Calculate contr. data
F1	F2	F3	F4
F5	F6	F7	
▲			Calculate contr. data

Fig. 5-5 Load motor, 611 analog IMM equivalent circuit diagram data

Editing Parameters

6.1 File functions

All of the functions to edit drive converter parameters can be selected in this mask.

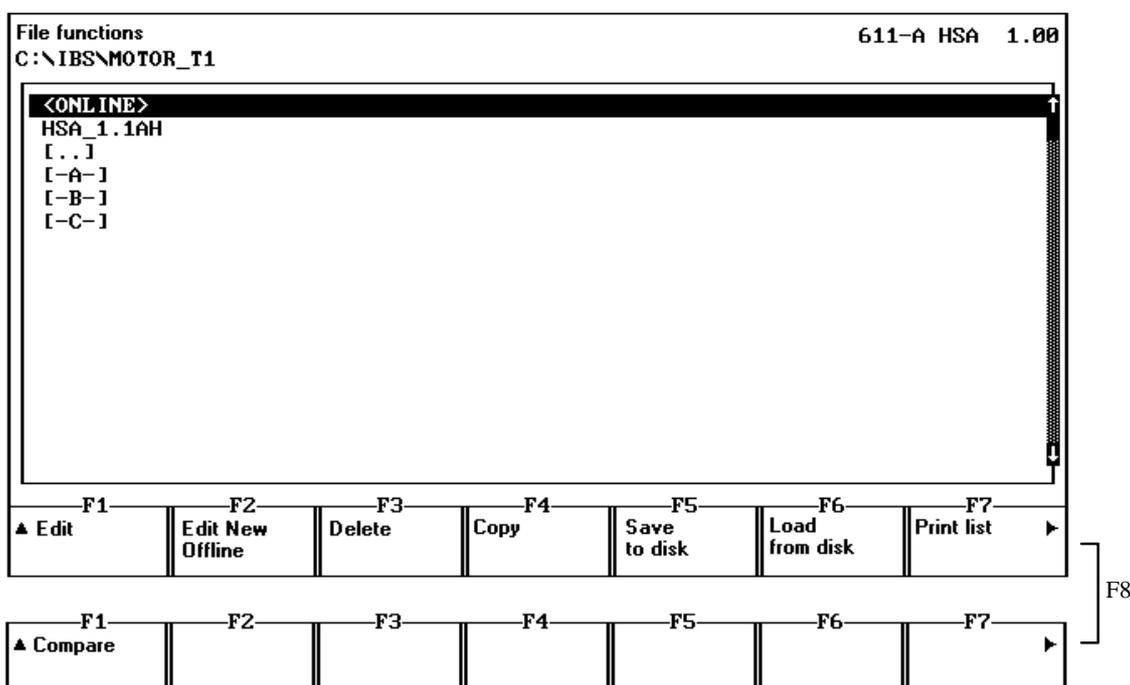


Fig. 6-1 File functions

File selection

All of the files, generated for the selected drive converter type and all of the directories and drives of the computer are displayed in the file list. In addition, the <ONLINE> entry appears where direct online editing is selected in the drive converter.

Items from the file list are selected using the cursor keys and the softkey of the required function (the RETURN key has the same significance as the **Edit** softkey). The required entries can be directly selected using the mouse (a double click corresponds to selecting using **Edit**). For directories and drives, the contents are displayed after RETURN or a double click.

6.1 File functions

Edit	Drive converter parameters are edited OFFLINE in the file or ONLINE in the drive converter.
Edit, new offline	A new file is created in the current directory.
Delete	The selected file is deleted.
Saving to hard disk	All of the parameters are read-out of the drive converter and saved under specified file names.
Load from hard disk	<p>The selected file is downloaded into the drive converter.</p> <p>If the file was generated for an older firmware release of the drive converter, a message is output. However, the selected file can still be downloaded after acknowledgement.</p> <p>A plausibility check is made while the data is being downloaded. Erroneous values can be immediately and inter-actively corrected. However, the correction is only made in the drive converter itself.</p> <p>In order to guarantee data consistency, after corrections have been made, or if the drive converter has a different firmware release, the Save to hard disk function must be executed.</p> <p>While a file is being downloaded, the drive converter pulses are inhibited. This inhibit can only be removed <i>after successful data transfer</i>. If data transfer is unintentionally interrupted, the drive converter has to be powered-down and up again before it goes into the ready condition.</p> <p>Parameter files can only be downloaded for drive converter which have already been initialized. For safety reasons, the power module code number P095 cannot be overwritten. This means, that this must have already been entered when initializing. The other parameters, selected when initializing – for main spindle drives, motor code number P096 and encoder pulse number motor – measuring system P098 – can be overwritten by the appropriate values in the parameter file.</p>
Print protocol	The selected file is printed. Service support is possible by calling the function for the <ONLINE> entry. In this case, the <i>actual drive converter status</i> (including the display parameters) is listed.
Comparison	<p>The selected file is compared with the data in the drive converter module.</p> <p>Different parameters are displayed. Only the parameters saved in the file are used for comparison.</p> <p>The function is exited if the comparison results in more than 300 differences.</p>

6.2 Editing data ONLINE

Parameter display The parameters are grouped according to functions. The first line contains the presently selected function group.

The parameter number is located to the left (Pxxx).

For gearbox stage or motor-dependent parameters, the sub-parameter number (:y) is additionally specified.

If only individual bits of a parameter are displayed, bit numbers (0 to15) are specified (.z). A brief description is provided next to the parameter number. Parameters, which can only be changed in specific statuses, are designated as follows:

- ! Parameter is write protected
- # Motor data parameters (only MSD). ¹⁾
- \$ Parameter can only be changed when initializing ²⁾

The particular parameter value and parameter units follow.

Status displays The status line (first line) of the display indicates which parameter group has presently been selected for editing. <ONLINE> is displayed in the second line, OFFLINE the file name or a reference to possible drive converter faults.

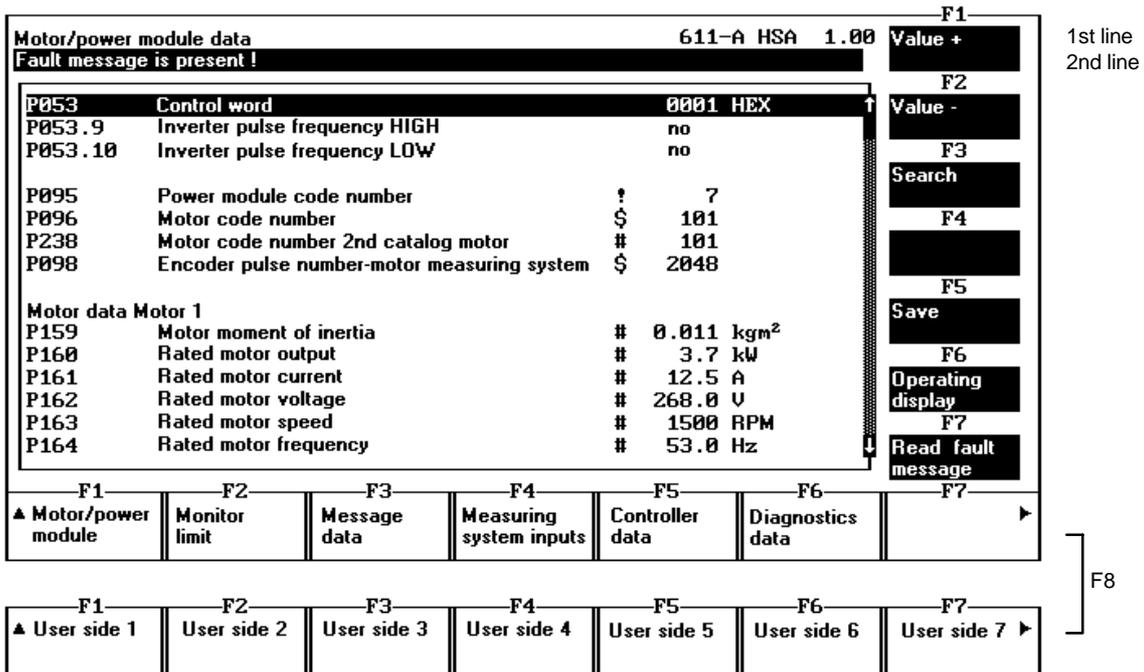


Fig. 6-2 Example, ONLINE editing

- 1) Changes made to these parameters only become effective after conversion in the drive converter. This conversion is started in the **Motor data** parameter group. Motor data should only be entered and changed there.
- 2) This parameter is entered in the **Initialize drive** parameter group.

6.2 Editing data ONLINE

Change parameters

When editing drive converter parameters, a differentiation is made between a display and an edit mode. Depending on which mode is active, different operator actions are possible.

Table 6-1 Parameter editing mode

Display mode	Edit mode
The parameters are cyclically read-out of the drive converter you can scroll as required within the parameters	The selected parameter can be changed
Change-over into the edit mode (if the selected parameter is not write protected): Number: The old value is overwritten RETURN: The old value is kept, it can be edited ←,→: The value is changed-over for bit fields	Return to the display mode (if the entered value is correct): RETURN: The visible value is accepted and formatted ESC: The current parameter editing is cancelled, the old value is restored.

Operator control

Cursor keys can be used to scroll within the pages; softkeys can be used to change between the individual pages. For gearbox-stage dependent parameters (for IMM, also motor-dependent parameters), only the parameters of the first two stages or motors are displayed in the actual mask. All of the sub-parameters associated with the actual parameter are displayed by again pressing on the softkey to select the actual mask. If the softkey is pressed again, the original display is re-selected.

In addition, the following special functions are available in the online mode at the vertical softkeys:

Value +

Increments the selected parameter value.

Value –

Decrements the selected parameter value.

Search

Searches for a specific parameter number. A search is made from the current position up to the end of the page, from the beginning of the page up to the cursor position and in all pre-defined pages. The position is jumped-to when the parameter number is found.

Save

The actual parameter values are saved in an FEPROM in the drive converter.

Operating display

Displays the actual drive converter status.

Read fault message

Reads-out faults from the drive converter.

6.3 Editing data OFFLINE

Differences with respect to ONLINE editing

Editing parameters offline in a file corresponds to editing parameters online. The second line of the display shows the name of the file presently being worked-on.

Values, which have still not been entered, are designated by a * . Only the edited values are entered in the file (values with * are not saved).

When creating parameter files offline, the values which are entered are not checked to ensure that they are within a valid value range. This is only done when the file is downloaded into the drive converter. This means, that corrections may be necessary when downloading the file.

Parameters which were not saved, are not changed when they are transferred to the drive converter. This means that several files can be downloaded with parameter values.

The **Value +**, **Value -**, **Operating display** and **Read fault message** functions are not available when editing offline.

Entering motor data

When editing the motor data parameters, marked with # , offline (only 611-A MSD), the following should be observed:

- Parameter file for a catalog motor: The motor code number is specified in P096.
Motor data P159 to P175 and P219 to P235 are automatically determined in the drive converter, and do not have to be specified in the file. For a motor with star-delta changeover, the motor code number of the delta data set must also be saved in P238.
- Parameter file for a third-party motor: 99 must be entered as motor code into P096.
Motor data P159 to P175 must be entered in the file. For motors with star-delta changeover, the appropriate delta data set must be entered in P219 to P235 and P238 should be set to 99.

In both of these cases, parameter calculations which are necessary, are automatically carried-out after the data has been downloaded into the drive converter.

6.4 User pages

In addition to the permanently specified parameter segmentation on various pages, seven dedicated pages with any parameters can be defined. This means that you can define parameters which you require for service and commissioning purposes.

The page **User 1** is pre-assigned, as standard with a list of all of the parameters in an increasing consecutive order. Pages **Users 2 to 7** remain empty. All of the user pages can be modified using the **Edit user** function. The page definitions are saved on the hard disk, and can be re-used the next time that the program is started.

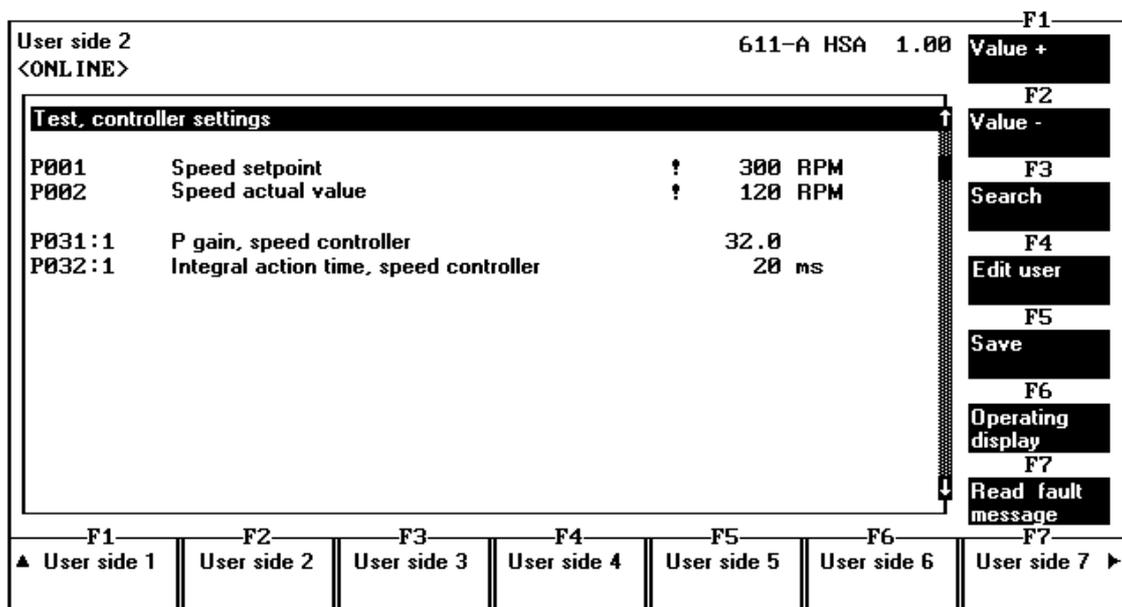


Fig. 6-3 Example, user page

User pages 2 to 7

When a user page is being generated, only the required parameter numbers have to be entered. The associated descriptive texts are automatically determined. Empty lines and titles can also be entered. Parameter numbers must be precisely specified as in the parameter description. This means that gearbox-stage-dependent parameters (for IMM, also motor-dependent parameters), must be entered with the required gearbox stage or motor.

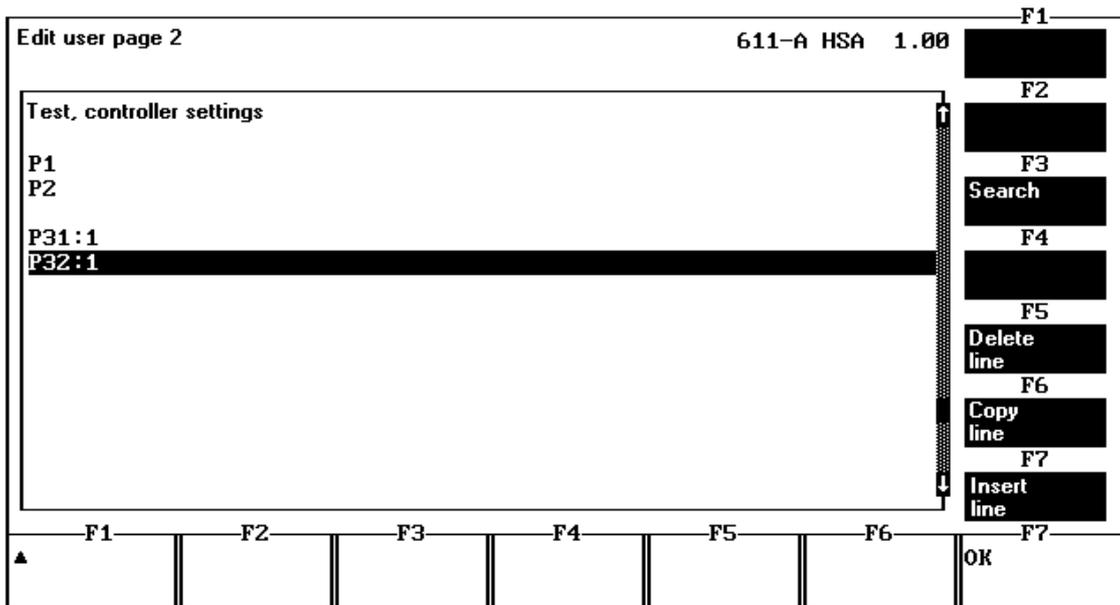


Fig. 6-4 Configuring for Fig. 6-3, example, user page

Displays

After re-selecting parameter editing (by pressing the **OK** softkey), the edited page is immediately filled with the current parameter values. When an attempt is made to access an unknown parameter, ??? is displayed for the parameter description. If the required parameter is signaled as being unknown, a check should be made as to whether the sub-parameters were correctly specified.

Downloading the Firmware

Firmware retrofit

The SIMODRIVE 611 analog MSD and IMM drive converter modules are supplied from the factory with the current firmware release. If a user requires, e.g. an older firmware release, or if already supplied modules have to be upgraded to the current firmware release then this can be realized using the **Download firmware** function downloaded into the drive converter. The firmware is automatically saved in the drive converter in an FEPROM.

The firmware releases can be ordered from SIEMENS AG.

Note

Firmware FW3.□□ does not run on the 6SN1121-0BA1□-0AA0 or 6SN1122-0BA1□-0AA0 control.

Firmware FW2.□□ only conditionally, on the new hardware 6SN1121-0BA1□-0AA1 and 6SN1122-0BA1□-0AA1.

Preparation

The files which are supplied must be copied-over according to the attached instructions, refer to the Installation Guide, Section 2.2. The **Download firmware** function can then be started.



Warning

The **Download firmware** function deletes all of the data in the drive converter module.

Before the function is started, the user is prompted to acknowledge again. The current firmware release of the drive converter is displayed for checking purposes.



Warning

If the **Download firmware** function is interrupted (power off, the connection is disconnected), the drive converter module can be damaged.

Completing the download

After the new firmware release has been successfully downloaded, the system must be initialized. The drive converter module can then be parameterized. ■

Import, Start-up V1.x

The IBS V3.20 program allows old parameter files, generated with release 1.x, to be transferred. This allows parameter settings, which were generated for 611 MSD and IMM to also be used for 611 analog drive converters, MSD and IMM.

Conversions

The import function conditions the parameters so that the values can be directly downloaded into a 611 analog module with firmware release 1.1. If 611 parameters have to be converted to 611 analog, this is realized automatically.

Files required

This function requires the data file of the IBS V1.x program (*.P11/*.P1A) as well as the associated attribute file, in the same directory (*.ATT).

Replacing modules

When replacing a SIMODRIVE 611 module by a SIMODRIVE 611 analog module, proceed as follows:

- Save the actual parameter settings of the module to be replaced in a parameter file using the start-up software IBS V1.x. The parameter attributes must also be saved (IBS V1.x prompts you to do this when the program starts).
- Import the generated files using the IBS >V2.0 start-up program.
- Initialize the SIMODRIVE 611 analog module. Only the power module code number P095 must be entered (refer to **Downloading from the hard disk**).
- Download the newly generated parameter file into the SIMODRIVE 611 analog module (**Load from hard disk** function).
- For IMM, initiate the automatic offset adjustment of the power sensing for all motor data sets

Table 8-1 Restrictions for the imported files

611 MSD up to Version 4.0 from Version 5.0	None HPC axis function for 611 analog has still not been implemented
611 IMM	None



Attachment

A

A.1 File structure

File extensions

System files	611-A MSD:	*.1PH
	611-A IMM:	*.1PA

User files	611-A MSD:	*.1AH
	611-A IMM:	*.1AA

A

A.1 File structure

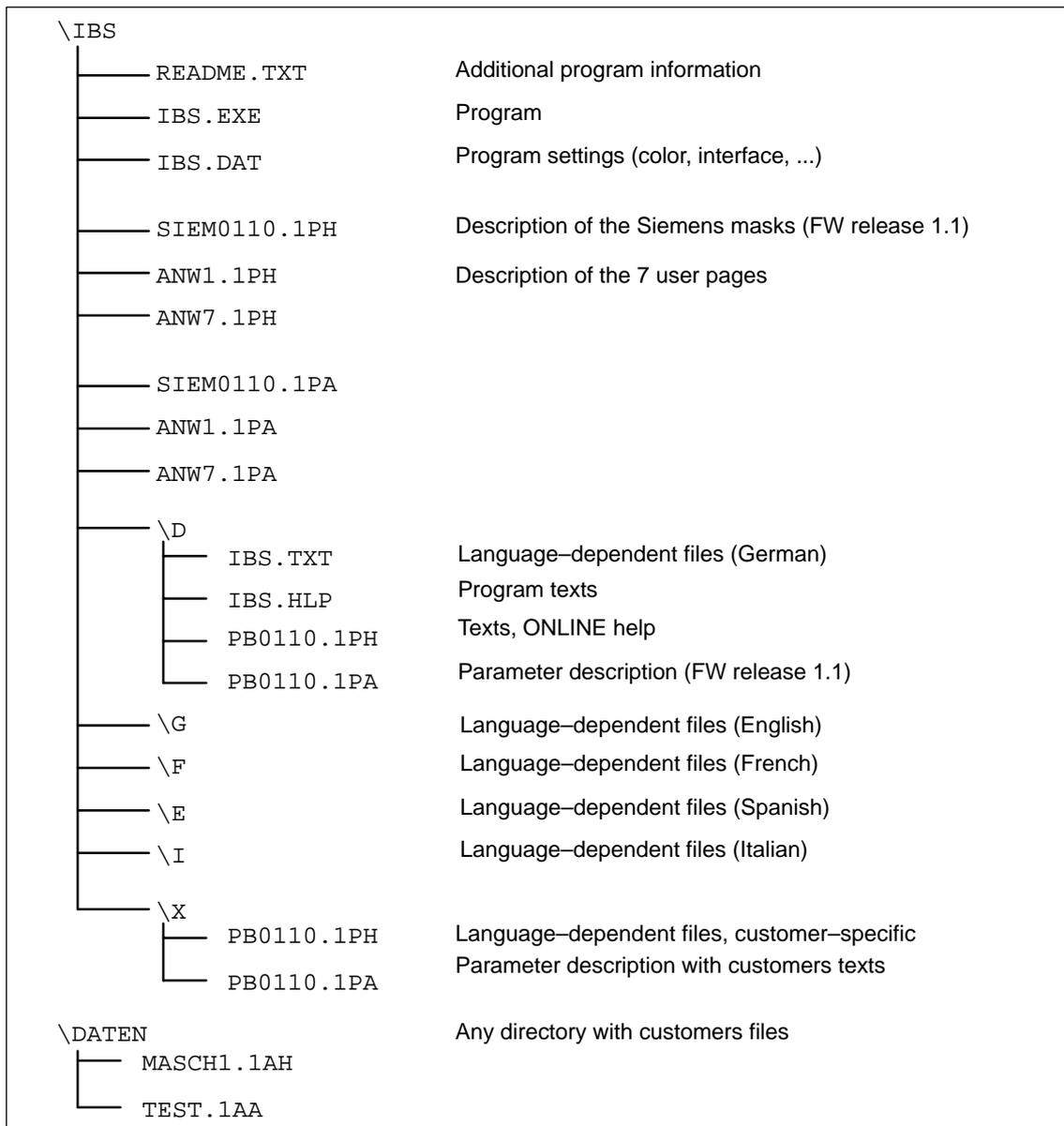


Fig. A-1 File structure

A.2 File formats



Warning

The following section describes the internal structure of the files which are used. Any manipulation could cause the start-up software to crash.

Parameter description (files: PB?????.1PH / PB?????.1PA)

Structure:

Pxxx[:y][.z] description, units active, format code supplement

Pxxx[:y][.z] Parameter number with optional sub-parameter and bit access. All of the parameter numbers must be sorted in an increasing sequence. When accessing bits, the parameters must be listed once with the full format

Description Descriptive text (max. 34 characters, in " ")

Units Units text (max. 9 characters, in " ")

Active ID when the parameter is active
 0 immediately
 1 after conversion
 2 when initializing
 16 write protection

Format key Coding for parameter format
 1 4-character word, hexadecimal
 5 unsigned word, decimal
 7 signed word, decimal
 11 signed float, 1 decimal place
 :
 13 signed float, 3 decimal places
 21 unsigned float, 1 decimal place
 :
 23 unsigned float, 3 decimal places
 50 bit toggle

Supplement Toggle codes for format key 5

In order to generate parameter descriptions with customer-specific texts, the files supplied must be copied from the required source language into Catalog X, and then modified as required.



Warning

SIEMENS AG accepts no liability for any damage arising due to modified files.

Parameter values (files: *.1AH /*.1AA)

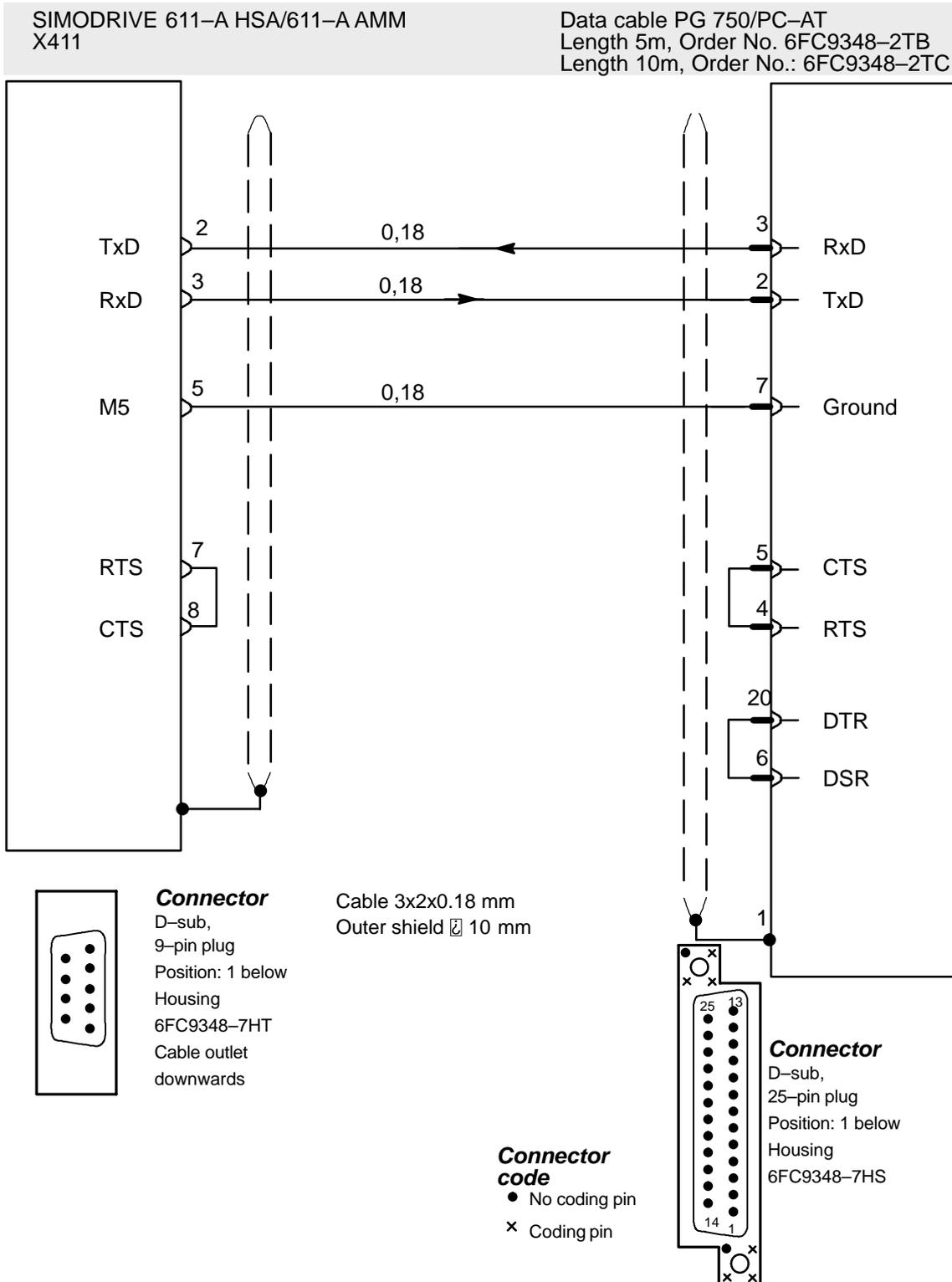
Structure:	UmTyp FW Pxxx[:y]=value
UmTyp	Coding, drive converter type (1 = 611-A MSD, 2 = 611-A IMM)
FW	Drive converter firmware release
Pxxx[:y]	Parameter number with optional sub-parameter If the same parameter number is used a multiple number of times, then there is an undefined behavior when processing
Value	Parameter value

Page description (files: SIEM?????.1PH/SIEM?????.1PA und ANW?.1PH/ANW?.1AH)

Structure:	Sx H#xxx H"text" Pxxx[:y][:z]
Sx	Page number (only for SIEMENS pages)
H#xxx	Title, text is specified coded
H"text"	Title, text is directly specified (user pages)
Pxxx[:y][:z]	Parameter number with optional sub-parameter and bit access which should be displayed

A.3 Connecting cable from the drive converter to computer

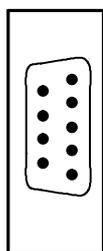
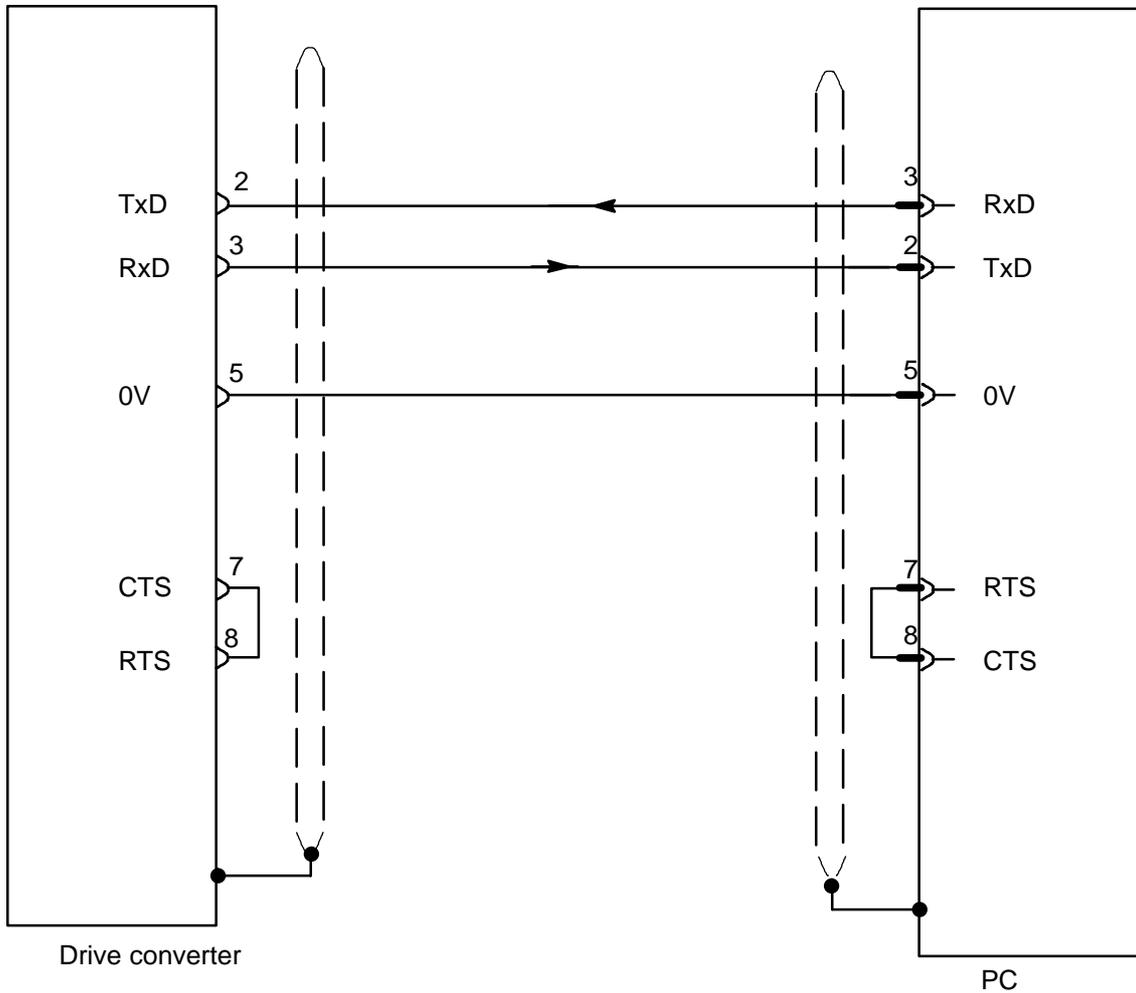
A.3.1 9/25 pin



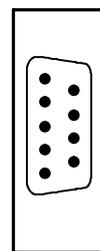
A

A.3 Connecting cable from the drive converter to computer

A.3.2 9/9 pin



Connector
 D-sub,
 9-pin plug
 Position: 1 below
 Housing
 6FC9348-7HT



Connector
 D-sub,
 9-pin socket
 Position: 1 below
 Housing
 6FC9348-7HT

A.4 Keyboard labeling at the PC

Table A-1 Keyboard labeling

The following key names are used in this description:	You might find these names on your keyboard:
RETURN	ENTER, NEXT 
BACKSPACE	BACK 
ESC	Esc, ESCAPE, input delete
INSERT	INS, Ins, line+
DELETE	DEL, Del, line-
SHIFT	
CTRL	Ctrl, CONT
TAB	← → 
HOME	Home, Pos 1
END	End
PGUP	Display ↑
PGDN	Display ↓
CURSOR-UP	↑
CURSOR-DOWN	↓
ALT	Alt, special characters

■

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Recommendations	
Corrections	
For documentation:	
SIMODRIVE 611 analog Start-up Software for Main Spindle and Induction Motor Modules Version 3.20	
Manufacturer/Service Documentation	
Description	
Order No.:	6SN1197-0AA30-0BP1
Edition:	10.00
If you come across printing errors in this document, please let us know using this form. We would also be grateful for any recommendations and suggestions.	

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