

MOVITRAC® 31C Frequency Inverters

Manual
MC_SHELL

Edition 09/98



08/198/96



SEW EURODRIVE

0921 1411 / 0998

Notes

Representation of functions

Key names in pointed brackets:
 <RETURN>, <F1>, <ESC> etc.

Buttons in windows within square brackets:
 [ESC], [F1], [INS] etc.

Menu titles/menu commands in italics:
 “*Environment/Exit*” or “*Options/Language*” etc.

Mouse operation

Select menu titles and menu commands with the left mouse button.
 Select the parameter to be processed by double-clicking.

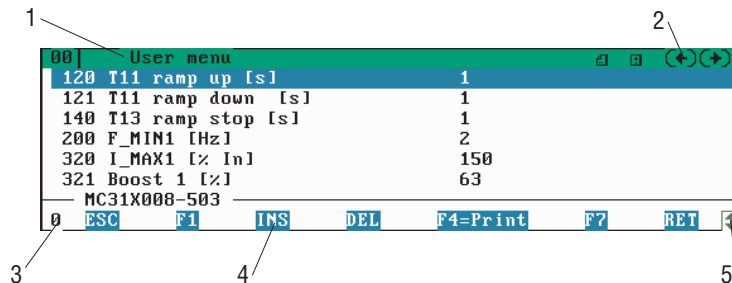
Keyboard operation

Selecting menu titles: <ALT> + first letter.

Selecting menu commands: with the marked letters; press <RETURN> when the cursor bar is on the menu item.

Selecting parameters: Move the cursor bar onto the parameter and press <RETURN>.

General window structure



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- | | |
|--|-----------------------------------|
| 1 Window name | 4 Button |
| 2 Data which can be changed using the arrow keys | 5 Height of window can be altered |
| 3 Window number | |

Supplementary documents:

Title	Order no.
Operating instructions MOVITRAC® 31C	0922 9019
Fieldbus documentation package, consisting of: “Fieldbus Unit Profile” manual, “Fieldbus Interface PROFIBUS FFP31C” manual, “Fieldbus Interface INTERBUS FFI31C” manual, „Parameter List MC31C“ manual, diskette and description of GSD and type files.	0922 7210
“MOVITRAC® 31.. IPOS Positioning Control” manual	0922 9469

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1 Introduction

The MC_SHELL program makes it easy to set the parameters for and start up MOVITRAC® 31C frequency inverters. The context-sensitive help menus provide assistance in all startup steps as well as documentation for all settings which have been made.

Characteristics of the program

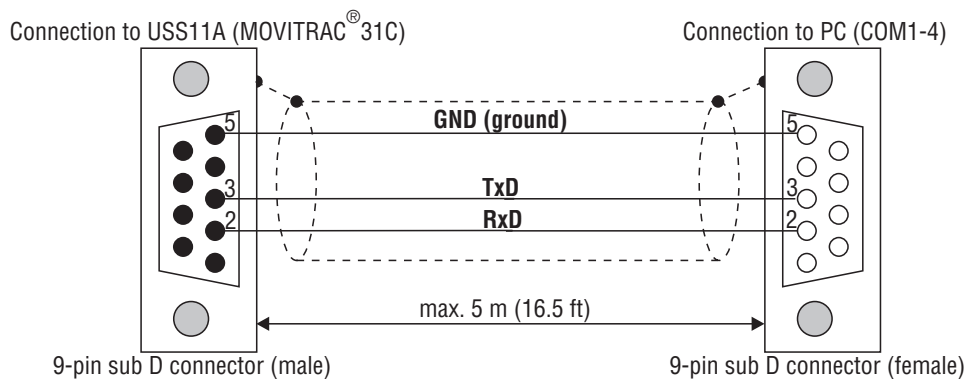
- Startup, testing and diagnosis of all unit variants and associated options.
- Loading and saving parameter sets between the inverter and the PC.
- Creating or changing parameter sets on the PC without having the inverter connected.
- Integrated function modules for
 - manual control and setpoint entry via PC (“manual mode”),
 - fieldbus diagnosis (“fieldbus monitor”),
 - programming and diagnosis of the integrated IPOS positioning control.

2 Installation

2.1 Hardware requirements

- PC / AT with 80286-CPU or better
- DOS version 3.3 or later
- min. 640 kbyte memory
- 3.5" disk drive (1.44 MB)
- VGA-compatible graphics card (colour or monochrome, LCD)
- approx. 2 MB free disk space
- an RS-232 serial interface for connecting the inverter
- a serial interface for connecting the mouse

Connect the MOVITRAC[®] 31C and the PC together using a commercially available serial interface cable (shielded!).



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Fig. 1: Connection cable between MOVITRAC[®] 31C and PC

IMPORTANT:

Before you connect the PC and the frequency inverter together: Switch off the supply voltage, otherwise undefined states may be adopted!



2.2 Installing and starting the program

Start the installation program `install.bat` which is on the diskette. Follow the instructions given by the installation program.

Start the MC_SHELL program using the following command: `mc_shell.exe`.

The language selection window appears if MC_SHELL is started for the first time. The various program settings (language, colour set) are stored when you exit the program. They are reactivated when you start the program again.

2.3 Connection between the PC and the frequency inverter

Parameter values are replaced by dashes (---) if the connection is disrupted. In this case, check the following settings:

Selecting the interface

Set the appropriate connection under “*Interface / PC interface*”.

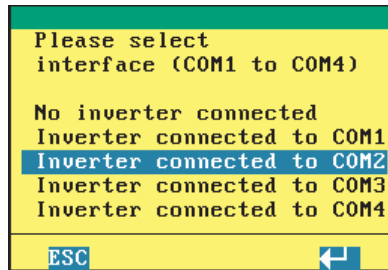


Fig. 2: Setting the correct PC interface

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Note:

The communication address of the MOVITRAC® for the serial RS-485/RS-232 interfaces is set using parameter 810 “*RS-485 address*”.

RS-485 connection

When using the RS-485 interface, check the polarity of the two RS-485 cables.


Windows 95

Under Window 95, the operating system makes a fixed assignment of the serial interfaces for an application. As a result, it is not possible to run the MC_SHELL and MC_SCOPE programs in parallel (in two DOS boxes). To change quickly between the applications, use the direct call functions integrated in the programs: “*Environment/MC_SCOPE*”, “*Environment/Start MC_SHELL*”.

3 Menu Functions

General description of the window properties

It is possible to open a maximum of 15 windows (10 application windows and 5 system windows) in MC_SHELL. Application windows have a window number at the bottom left.

Windows which can be altered in height have a zoom icon at the bottom right .

Inactive windows are activated as follows:

- by clicking with the mouse
- by pressing the <F6> key

Modifying numerical values, texts, parameter settings: Enter by pressing <RETURN>, edit by pressing the arrow keys (available keys: see the bottom edge of the window and the bottom row of the user interface).

Displayed process values are updated regularly. Process values relate to the allocated frequency inverter. The address of the allocated frequency inverter appears in the status bar along the bottom of the screen. Changing the address: Select using “Interface/Inverter address”.

The following table presents an overview of the menus:

3.1 Environment	3.2 Parameters	3.3 Lists	3.4 Interface	3.5 Options	3.6 Screen	3.7 IPOS	3.8 Help
Save parameter file	Commissioning	Parameter sets 1/2	PC interface	Language	Retrieve configuration		Menu structure
Load parameter file	Main menu	Editing box	Inverter address	Select colour set	Save configuration		Key assignment
Print parameter file	User menu			Beep on	Clear screen		Use of window
Delete parameter file	Panel			25 lines	Autoconfiguration		Information
MC_SCOPE	Unit status			Clock	Window list		
Exit	Bus monitor						

3.1 Environment

The “Environment” menu contains the following menu commands:

Environment	Parameters	Lists	Interface	Options	Screen	IPOS	Help
Save parameter file							
Load parameter file							
Print parameter file							
Delete parameter file							
MC_SCOPE							
Exit							

Fig. 3: Overview of menu commands in the “Environment” menu

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3.1.1 Environment / ... parameter file

The **Copy** window appears when:

“Save parameter file”, “Load parameter file”, “Print parameter file” or “Delete parameter file” is selected.



Fig. 4: Copy window, taking the example of Environment/Save parameter file

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The **File selection** window:

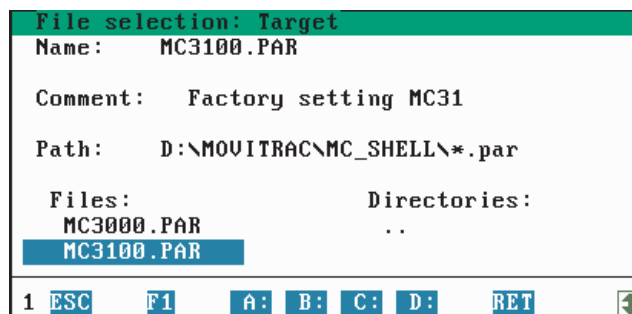


Fig. 5: File selection window after selecting (double-clicking) “File”

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Name: Specify the name of the file you want.

To change the file name: Press the <=> key or click with the mouse.

Path: Displays the current path.

Comment: Comment for the selected file.

To change the comment: Press the <<=> key or click with the mouse.

Files: List of all files in the current directory ending with *.par.

To select a file: Move the cursor bar up and down, then press the <RETURN> key.

Directories: List of the subdirectories of the current directory.

To select a subdirectory: Move the cursor bar up and down, then press the <RETURN> key.

To select the next higher directory: Select . . , then press the <RETURN> key.

To change between **Files:** and **Directories:** Tab (<TAB>) key.

Alternatives for changing to a different drive:

- Enter the required drive in the **Name** box.
- Enter the drive letter (A to D) directly.
- Click on the required drive in the footer row of the window.

3.1.2 Environment / MC_SCOPE

This menu item is used for exiting MC_SHELL and opening the corresponding program. MC_SHELL refers to the search path specified in the MC_SHELL.INI file to call up the program.

3.1.3 Environment / Exit

This menu item terminates the program and returns you to the DOS command line prompt.

3.2 Parameters

The “Parameters” menu contains the following menu commands.

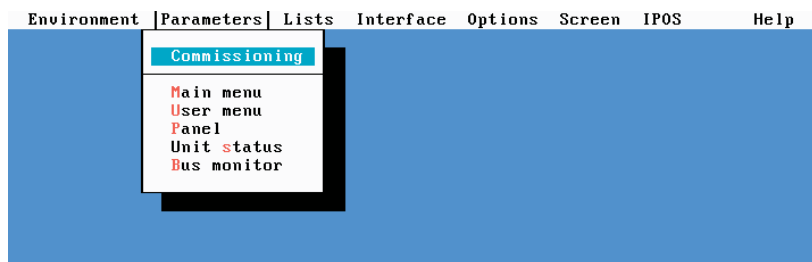


Fig. 6: Selection options in the “Parameters” menu

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3.2.1 Parameters / Commissioning

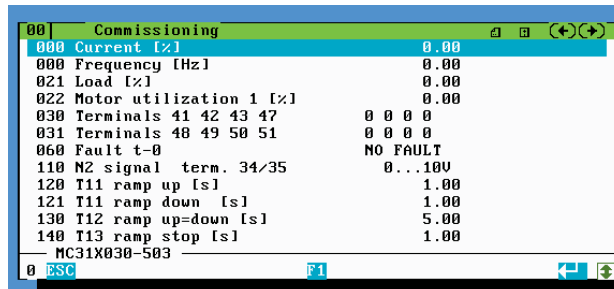


Fig. 7: Display the setting options in the “Commissioning” menu item

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The Commissioning window shows all important parameters of the inverter. These can be set here except for the first two parameters (Current and Frequency) which are only for checking purposes and consequently cannot be altered.

Please always refer to the MOVITRAC® 31C operating instructions for information about the precise commissioning procedure!



3.2.2 Parameters / Main menu



Fig. 8: Hierarchical arrangement of parameters and process values in the "Main menu"

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The main menu allows you to display and edit any parameters/process values.

The specific menu item is selected in both the main and sub-menu by moving a cursor bar to the desired entry and then pressing the <RETURN> key.



General window functions: see **Notes**.

3.2.3 Parameters / User menu

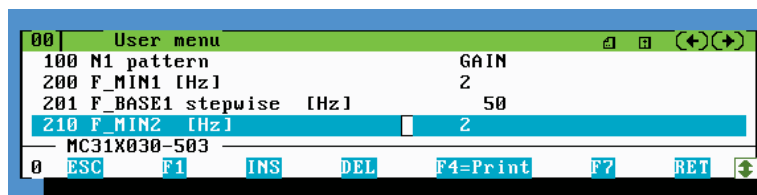


Fig. 9: Structure of the "User menu"

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It is possible to assemble your own selection of parameters in the user menu.

Adding parameters

Press the <Ins> key or click the <INS> button with the mouse. Enter the required parameter number into the editing window. Press the <RETURN> key. The new parameter is added.

The following reasons may be responsible if the new parameter does not appear:

- The parameter number does not exist.
- The parameter number is already contained in the user menu.
- The maximum number of entries has been reached (max. 100 entries).

Deleting parameters

Press the key. Alternatively, it is possible to click the button with the mouse. If the user menu only contains one parameter, that parameter cannot be deleted!

Printing the parameters contained in the user menu

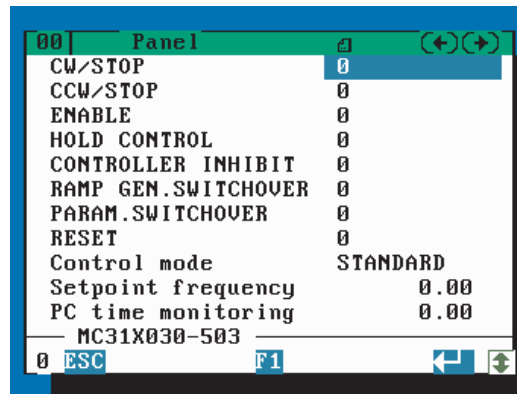
Press the <F4> key.

IMPORTANT:

Setting the standard user menu causes the existing user menu configuration to be written over.



3.2.4 Parameters / Panel



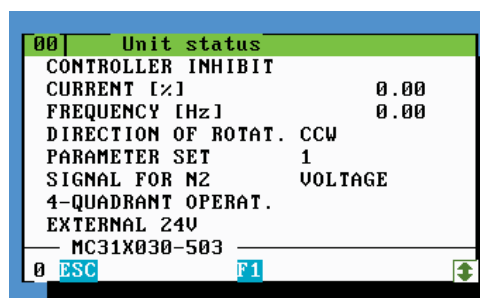
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Fig. 10: Panel window for a MC31 inverter

The “Panel” menu command enables you to control the inverter using MC_SHELL. The appearance of the panel window depends on which unit series is connected, because the corresponding functions have been implemented differently in the different units.

MC_SHELL automatically detects which type of unit has been connected.

3.2.5 Parameters / Unit status



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Fig. 11: Current unit status

The “Unit status” window is used for displaying the current unit status. It appears automatically if a connected unit generates a fault message, and displays this message (using colour for emphasis).

3.2.6 Parameters / Bus monitor

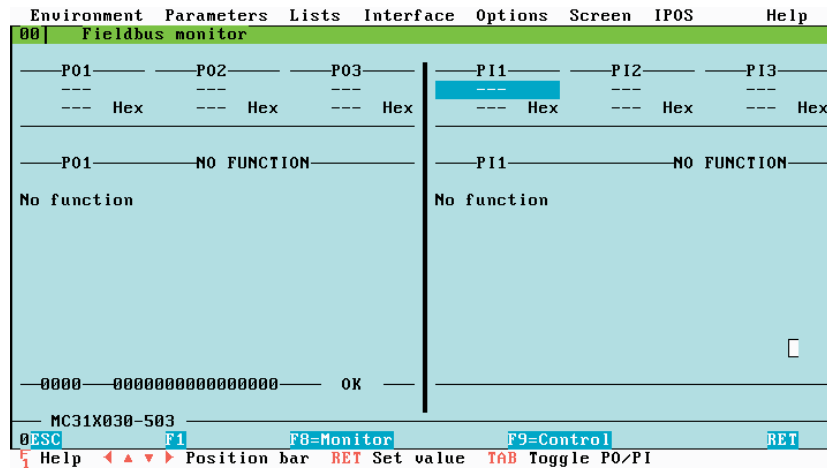


Fig. 12: The fieldbus monitor window

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The fieldbus monitor allows you to display (**Monitor mode**) or modify (**Control mode**) the fieldbus process data via the serial interface of the inverter.

This means the fieldbus monitor offers you a straightforward startup and diagnostic tool for using the inverter in conjunction with a fieldbus.

The bus monitor window cannot be opened if MC_SHELL is in offline mode (see Interface / PC interface) and the inverter is a type MC31C equipped with the FFP31C (PROFIBUS), FFI31C (INTERBUS) or FFD31C (DeviceNet) option.



Please refer to our fieldbus documentation for a detailed description of the fieldbus functions:

- Fieldbus Unit Profile
- Manuals for the interfaces: INTERBUS, PROFIBUS, DeviceNet

3.3 Lists

The “Lists” menu contains the following menu commands:

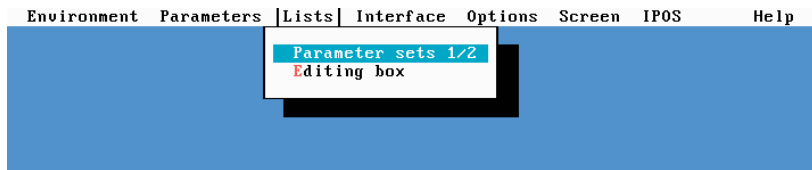


Fig. 13: “Lists” menu

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3.3.1 Lists / Parameter sets 1/2

PARAMETER SETS	# = 1		# = 2	
T#1 ramp up [s]	120	1.00	123	1.00
T#1 ramp down [s]	121	1.00	124	1.00
T#1 S pattern	122	0	125	0
T#2 ramp up=down [s]	130	5.00	131	5.00
T#3 ramp stop [s]	140	1.00	141	1.00
N#1 [Hz]	160	5.00	170	5.00
N#2 [Hz]	161	25.00	171	25.00
N#3 [Hz]	162	50.00	172	50.00
Mix: #nd set + external setp	163 NO		173 NO	
Setpoint Stop Function #	180 NO		183 NO	

Fig. 14: Displaying parameters

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MOVITRAC[®] 31C frequency inverters have two sets of parameters. These are parameters which are contained in the unit twice and can be selected by a programmable input terminal. This means you can use two motors with one unit for different drive tasks.

3.3.2 Lists / Editing box

N1 pattern	100	---	---
N1 gain factor	101	---	---
N1 offset factor	102	---	---
N2 signal term. 34/35	110	---	---
Setpoint Offset ImU1	111	---	---
T11 ramp up [s]	120	---	---
T11 ramp down [s]	121	---	---
T11 S pattern	122	---	---
T21 ramp up [s]	123	---	---
T21 ramp down [s]	124	---	---
T21 S pattern	125	---	---
T12 ramp up=down [s]	130	---	---
T22 ramp up=down [s]	131	---	---
T13 ramp stop [s]	140	---	---

Fig. 15: Editing box for editing parameter files

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The “Editing box” menu command is used for editing parameter files without a simultaneous change in the drive. This means you can adapt parameter files before they are loaded into the unit, saved on a hard or floppy disk or printed out.

3.4 Interface

The “*Interface*” menu contains the following menu commands:

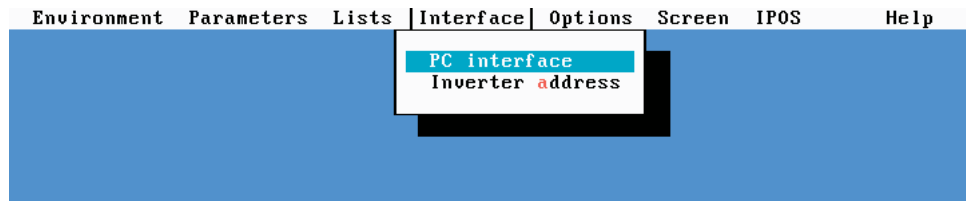


Fig. 16: The functions of the “*Interface*” menu

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3.4.1 Interface / PC interface

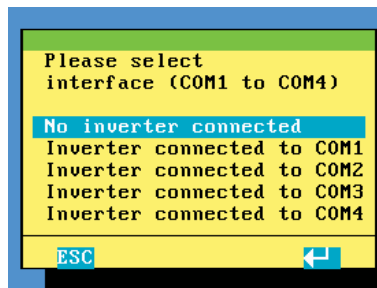


Fig. 17: Window for selecting the interface

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With this menu command, you can select the interface to which the inverter is connected. If the window fails to close after you have selected the interface and confirmed your selection, this indicates that the interface is not present or is occupied.

3.4.2 Interface / Inverter address

Provided you have a PC and inverters with an RS-485 interface, this menu item affords you the opportunity of networking up to 32 stations (involving 1 x MC_SHELL and max. 31 inverters).

3.5 Options

The “Options” menu contains the following menu commands:



Fig. 18: View of the “Options” menu

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3.5.1 Options / Language

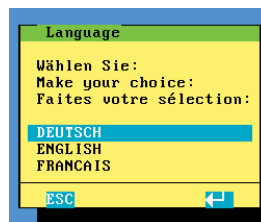


Fig. 19: Window for selecting the language

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The “Language” menu enables you to select the language in which the menu, the help texts, the status and fault messages should be displayed. The range of languages available for selection depends on the *.LNG files in the MC_SHELL path.

3.5.2 Options / Select colour set

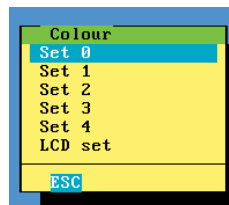


Fig. 20: The various colour sets in MC_SHELL

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It is possible to select one of 6 possible colour sets.

3.5.3 Options / Beep on

Selecting this menu command turns a beep on or off (a tick before the menu command means “on”). This beep sounds when a parameter is sent from the PC to the drive.

3.5.4 Options / 25 lines

For changing the screen display between 25 lines (a tick in front of the menu command) and 50 lines.

3.5.5 Options / Clock

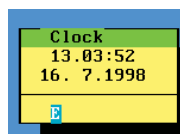


Fig. 21: Displaying the system time and system date

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3.6 Screen

The “Screen” menu contains the following menu commands:

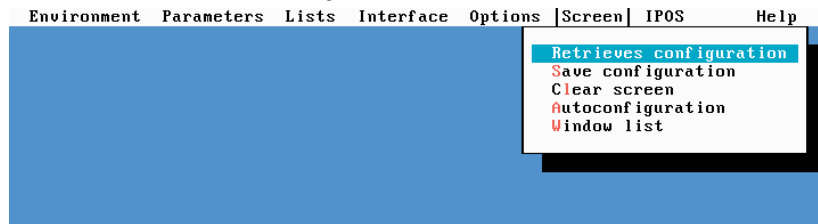


Fig. 22: Overview of the “Screen” menu

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3.6.1 Screen / Retrieves configuration

This menu command permits a previously saved screen configuration to be loaded. The user interface is blank if no configuration has been saved.

3.6.2 Screen / Save configuration

This menu command permits you to save the current window structure to the MC_SHELL.CFG file.

3.6.3 Screen / Clear screen

This function closes all windows on the user interface.

3.6.4 Screen / Autoconfiguration

When the autoconfiguration is active, the window structure in place when MC_SHELL is exited is saved and re-loaded the next time that MC_SHELL is started.

3.6.5 Screen / Window list

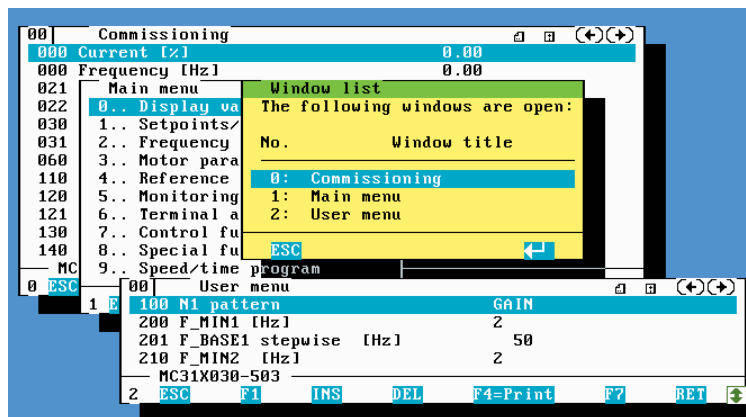


Fig. 23: Various windows with corresponding window list

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This function shows a list of all the windows which are currently open. It is possible to activate the required window with the help of the cursor bar.

3.7 IPOS

The “IPOS” menu contains the following menu commands:



Fig. 24: The functions of “IPOS”

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The “IPOS” positioning control enables you to perform straightforward point-to-point positioning with a MOVITRAC® 31 frequency inverter.

Refer to the “IPOS Positioning Control Type FPI 31..” manual for a description of how to operate IPOS in conjunction with MC_SHELL.



3.8 Help

The “Help” menu contains the following menu commands:

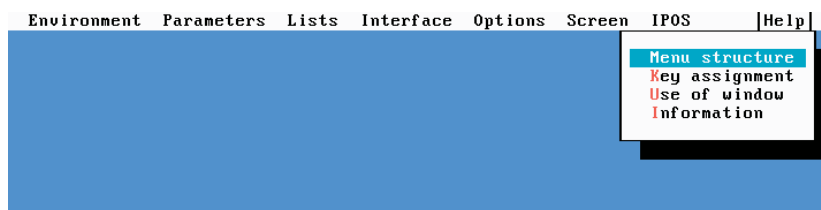


Fig. 25: The “Help” menu

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3.8.1 Help / Menu structure

This menu command provides you with an overview of the structure of the menu bar and the possibilities for selecting menu functions.

3.8.2 Help / Key assignment

This function is used for explaining the functions of all keys and buttons in the window which is active at the time. Use the <Tab> key to select the required window and then press the <Return> key to display the associated help text.

3.8.3 Help / Use of Window

Provides information about the most important possibilities of using the currently active MC_SHELL window.

3.8.4 Help / Information

Selecting this menu item calls up information about the version number of MC_SHELL and a telephone number which you can call to obtain further information about the program.

4 Expanded program start settings

The MC_SHELL program requires a range of other files if it is to run correctly. These other files contain important program settings. These files are read in when the program starts, processed and in some cases saved again.



NOTE:

All the files listed below are automatically created by MC_SHELL and generally do not require modification. You should only edit these files under exceptional circumstances (e.g. if the MC_SHELL program crashes) or if required by a specific application.

4.1 The MC_SHELL.INI file

This file contains settings which you make whilst the program is running. The files is saved in ASCII format, and so can be edited using most text editors. The data are loaded when the program starts and are saved again when it finishes.

The following parameters can be set:

MC_SCOPE='Path'

The 'Path' parameter specifies the folder on your hard disk in which the MC_SCOPE program is installed. Selecting the "*Environment/MC_SCOPE*" menu item causes the MC_SHELL program to be exited. The MC_SCOPE program is started from the folder named 'Path'. MC_SHELL is exited in the normal way if 'Path' and/or MC_SCOPE do not exist.

4.2 The MC_WIN.DAT file

The colour information for the user interface is stored in this file. For example, if you change the blue background colour in the program, this alteration is stored in the MC_WIN.DAT file.

4.3 The MC_USER.MNU file

The set user menu is stored in this file, which means it is retained even after the MC_SHELL program has been exited.

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