

# SINUMERIK 840D/840Di/810D

Short Guide

Operation

02.01 Edition

User Documentation



# SINUMERIK 840D/840Di/810D

## Short Guide Operation

### Valid for

<i>Control</i>	<i>Software version</i>
SINUMERIK 840D	6
SINUMERIK 840DE (Export version)	6
SINUMERIK 840Di	1
SINUMERIK 810D	4
SINUMERIK 810DE (Export version)	4

### 02.01 Edition

# SINUMERIK® Documentation

## Printing history

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.

<b>Edition</b>	<b>Order No.</b>	<b>Remarks</b>
11.94	6FC5298-0AA10-0BP0	A
04.95	6FC5298-2AA10-0BP0	C
03.96	6FC5298-3AA10-0BP0	C
08.97	6FC5298-4AA10-0BP0	C
12.98	6FC5298-5AA10-0BP0	C
02.01	6FC5298-6AA10-0BP0	C

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

<b>Edition</b>	<b>Order No.</b>	<b>Remarks</b>
08.01	6FC5298-6CA00-0BG1	C

Further information is available on the Internet under:  
<http://www.ad.siemens.de/sinumerik>

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Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

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## Introduction



HMI  
Embedded



HMI  
Advanced

### Validity

Unless stated otherwise, this operator's guide applies to the SINUMERIK 840D/840Di/810D controls

### How to use this booklet

This booklet is an operator's guide describing all the main programming steps.

The aim is to provide the operator with some quick help and a memory aid especially for commands that are used infrequently or to offer a quick reference on various parameters.

This guide therefore has little text!

First familiarize yourself with the symbols below so that you understand them better whenever they occur on the following pages.

### The symbols



Gives you a tip or background information



Screen displays



Operation via softkeys



Input through the operator keyboard



Input through the machine control panel



## List of Sections

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# 1. Operator Control

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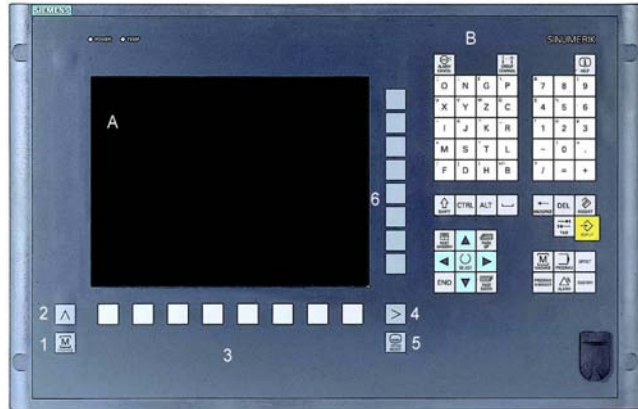
# 1.1 Key assignments slimline operator panel OP 010



HMI  
Embedded



HMI  
Advanced



- A Display
- B Alphanumeric keypads  
Correction/cursor keys
- 1 Machine area key
- 2 Recall
- 3 Soft bar (horizontal)
- 4 ETC key (menu extension)
- 5 Area changeover key
- 6 Soft bar (vertical)

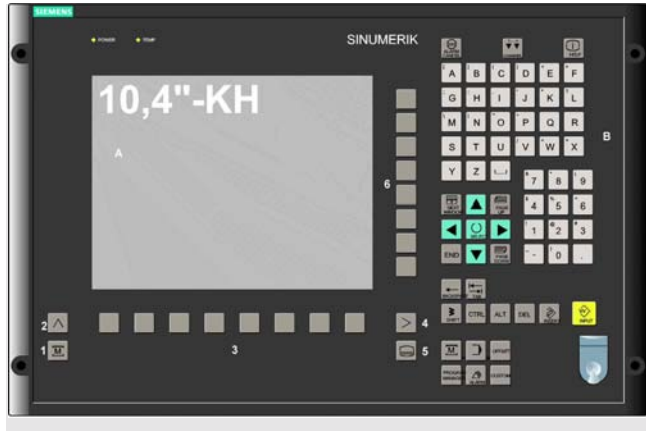
# 1.2 Key assignments slimline operator panel OP 010C



HMI Embedded



HMI Advanced



- A Display
- B Alphanumeric keypads  
Correction/cursor keys
- 2 Machine area key
- 2 Recall
- 3 Soft bar (horizontal)
- 4 ETC key (menu extension)
- 5 Area changeover key
- 6 Soft bar (vertical)

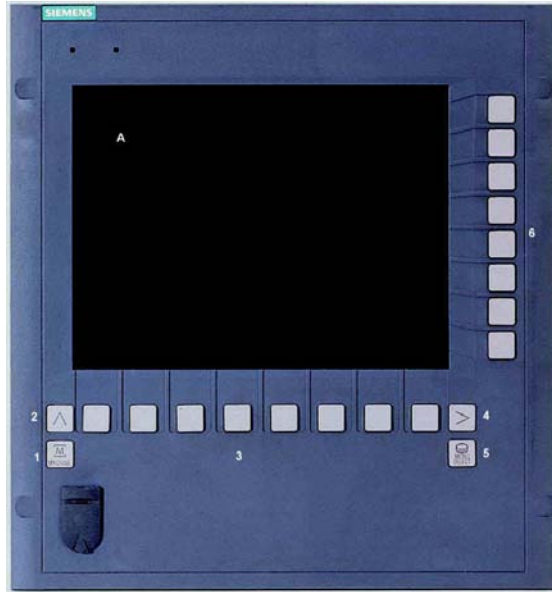
# 1.3 Key assignments slimline operator panel OP 010S



HMI  
Embedded



HMI  
Advanced



- A Display
- 1 Machine area key
- 2 Recall
- 3 Soft bar (horizontal)
- 4 ETC key (menu extension)
- 5 Area changeover key
- 6 Soft bar (vertical)

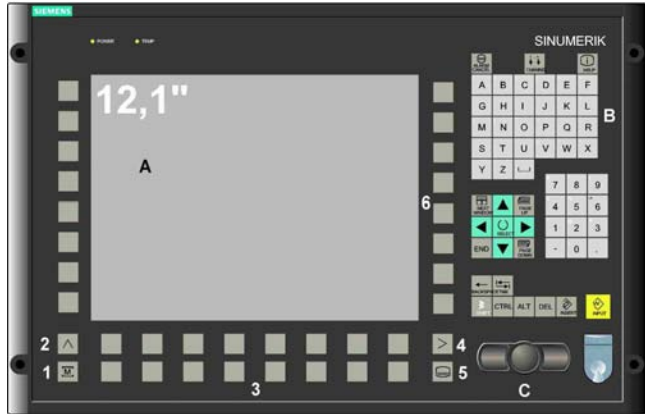
# 1.4 Key assignments slimline operator panel OP 012



HMI Embedded



HMI Advanced



- A Display
- B Alphanumeric keypads  
Correction/cursor keys
- C Mouse and mouse keys
- 1 Machine area key
- 2 Recall
- 3 Soft bar (horizontal)
- 4 ETC key (menu extension)
- 5 Area changeover key
- 6 Soft bar (vertical)

# 1.5 Key assignments slimline operator panel OP 015



HMI  
Embedded



HMI  
Advanced



- A Display
- 1 Machine area key
- 2 Recall
- 3 Soft bar (horizontal)
- 4 ETC key (menu extension)
- 5 Area changeover key
- 6 Soft bar (vertical)

# 1.6 Key assignments operator panel



HMI Embedded



HMI Advanced



## Meaning of the key symbols:

	Operating area "Machine"
	Return jump
	Softkey expansion
	Area changeover
	Acknowledge alarm
	Switch over channel
	Information
	Select window
	Move cursor
	Page up
	Delete character
	Blank
	Selection key
	Edit/Undo
	Shift
	End of line

# 1.6 Key assignments operator panel



HMI Embedded



HMI Advanced

	Page up
	Input (accept)
	Overview alarms
	Customers
	Program
	Tool offset
	Program management
	available soon
	available soon
	available soon



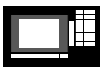
### For keys with double assignment:



Switchover with "Shift" key



Ctrl key



### Key combinations:



+



Jump to program start



+



Jump to program end



+



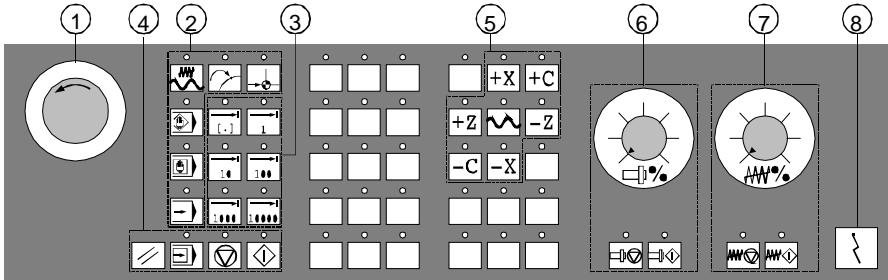
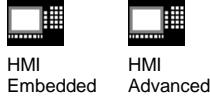
+



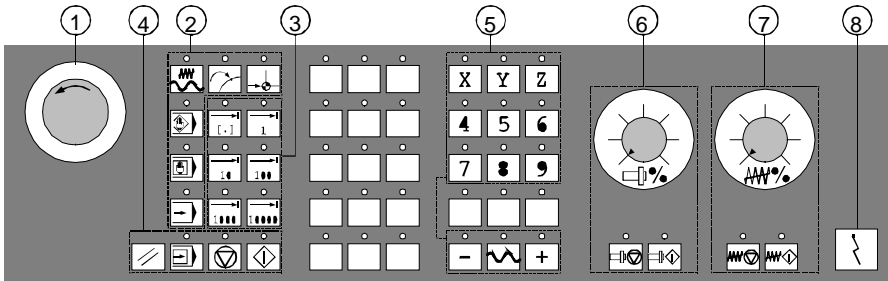
Start PCU reset



# 1.7 Key assignments external machine control panel



Machine control panel for turning machines



Machine control panel for milling machines



1	Emergency stop pushbutton								
2	Mode and machine functions								
	<table border="0"> <tr> <td></td> <td>Jog</td> </tr> <tr> <td></td> <td>MDA</td> </tr> <tr> <td></td> <td>Automatic</td> </tr> <tr> <td></td> <td>Teach In</td> </tr> </table>		Jog		MDA		Automatic		Teach In
	Jog								
	MDA								
	Automatic								
	Teach In								

# 1.7 Key assignments external machine control panel



















HMI Embedded



HMI Advanced



		Repos
		Ref
3		Incremental travel
4		Program control
		Reset
		Single block
		NC Stop
		NC Start
5		Axis keys for turning machines
	 ... 	Axis keys (with direction)
		Rapid traverse override
		MCS/WCS
		Axis keys for milling machines
	 ... 	Axis keys
	 ... 	Direction keys
		Rapid traverse override
		MCS/WCS

# 1.7 Key assignments external machine control panel

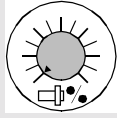


HMI Embedded



HMI Advanced

## 6 Spindle control



Spindle override

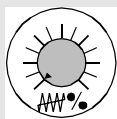


Spindle stop



Spindle start

## 7 Feed control



Feed/rapid traverse override



Feed stop



Feed start

## 8 Keyswitch

## 9 Incremental keys



Variable incremental dimensions



Preset incremental dimensions



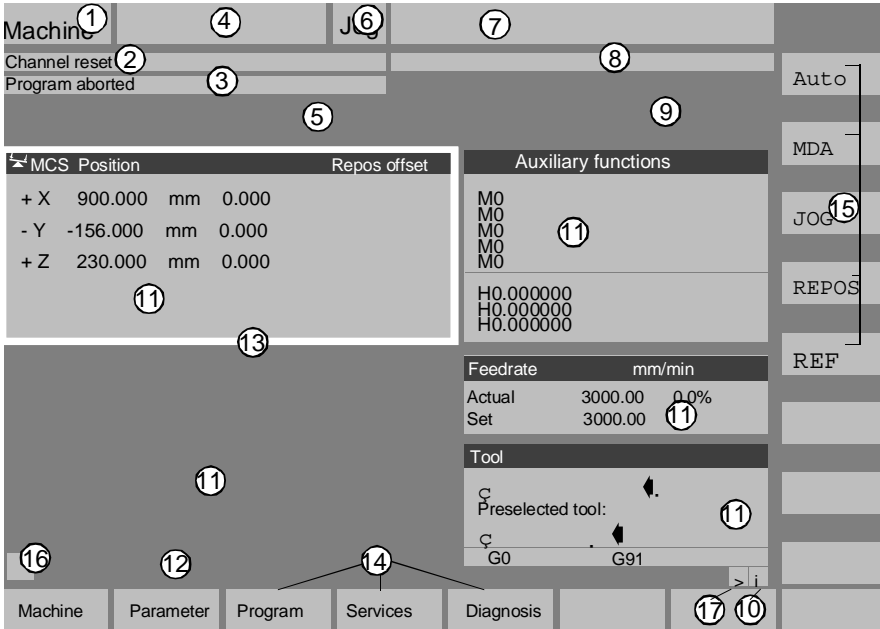
# 1.8 Graphical user interface



HMI Embedded



HMI Advanced



- 1 Operating area
- 2 Channel status
- 3 Program status
- 4 Channel and mode group
- 5 Alarm and message line

# 1.8 Graphical user interface



HMI  
Embedded



HMI  
Advanced



- 6 Mode
- 7 Program name
- 8 Channel operational messages
- 9 Channel status display
- 10 Information relating to the menu bar
- 11 Work windows and NC displays
- 12 Dialog line with notes for operator
- 13 Focus
- 14 Horizontal softkey bar
- 15 Vertical softkey bar
- 16 Recall
- 17 etc.

# 1.9 Operating areas

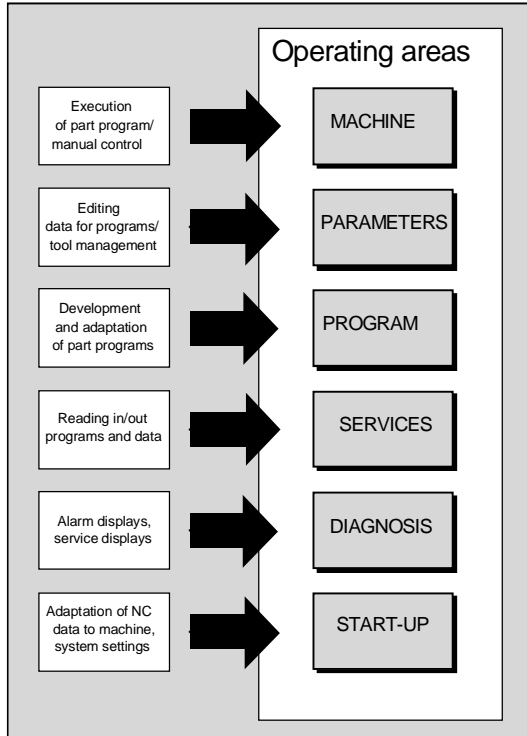


HMI  
Embedded



HMI  
Advanced

The standard functions in the control are organized into the following operating areas:



When you press the "Area changeover" key, the operating areas in the main menu appear in the horizontal softkey bar. You can use this key to switch from any menu to the main menu.

# 1.10 Operating principle



HMI Embedded



HMI Advanced

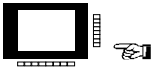
With HMI Embedded and HMI Advanced a range of key and softkey assignments is available with identical functions in all operating areas and menus (operating principle).



### Area changeover:



Switch back from any menu to the main menu of your control.



### Softkeys:



**Horizontal softkeys:**  
These keys subdivide each operating area into further menu levels. Each horizontal menu item has a vertical menu bar/softkey assignment.



**Vertical softkeys:**  
Assigned with functions for the currently selected horizontal softkeys.

# 1.10 Operating principle



HMI  
Embedded



HMI  
Advanced



## Navigation in the menu window:



### Change menu windows:

Change the focus to the selected menu window.



### Scroll in the menu window:

Scroll one screen page down or up.



### Position cursor in the menu window:

Position the cursor at the desired point in the menu window.





## 1.10 Operating principle



HMI  
Embedded



HMI  
Advanced



### Navigation in the directory tree:



#### Select directory/file:

Position the cursor on the desired directory/file.



#### Open/close directory:

Open or close the selected directory.



#### Close directory:

Close selected directory.



#### Open file:

Open the desired file, e.g. if you want to edit the file in the ASCII editor (in this case the editor is opened automatically).



#### Select file (HMI Advanced):

Select the desired file.

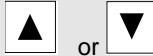


#### Select several files (HMI Advanced):

Hold down the "Shift" and "Cursor Down" keys.



Select start of block.



or

Neighboring files are selected when you hold down the "Cursor Up" or "Cursor Down" keys.

# 1.10 Operating principle



HMI Embedded



HMI Advanced



Deselect selected files.



Cancel all selections.



## Edit inputs/values:

If you want to edit inputs/values, the corresponding key is always displayed automatically on the right of the input field. The following input fields are available:



1. **Option fields** (radio buttons or check boxes): Activate or deactivate the option field.



2. **Input fields:** Switch to input mode.

Enter the value or word (e.g. file name, type, etc.) on the numeric keypad.



You automatically switch to input mode if you first position the cursor on the input field.



Always confirm your input with the "Input" key. The value is accepted.

## 1.10 Operating principle



HMI  
Embedded



HMI  
Advanced



You can use the "Toggle" key to select one of several default values.

### 3. Selection list (HMI Advanced):

Display the preselection of possible values.

Open selection list



Position the cursor on the desired values.



Always confirm your input with the "Input" key. The value is accepted.



Switch to the next value in the selection list without displaying the entire list.

# 1.10 Operating principle



HMI  
Embedded



HMI  
Advanced

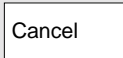


## Confirm/cancel input:



### Confirm input:

Save the inputs and exit the current menu (you automatically return to the calling menu).



### Cancel input:

Reject the inputs and quit the current menu (you automatically return to the calling menu).



Reject the inputs and quit the current menu (you automatically move up one level).



Clear the current input but remain in the current menu.

## 1.10 Operating principle



HMI  
Embedded



HMI  
Advanced

### Operation with the mouse:

If you have installed a mouse, operation is facilitated as follows:

#### 1 "click"

#### 1 click means:

- Activate the menu window.
- Position the cursor on the desired input field.
- Select directory.
- Activate softkey.
- Activate/deactivate radio button/check box.
- Activate input field.
- Open selection list.

#### 2 "clicks"

#### 2 clicks mean:

- Accept value/input.
- Open directory.



## 2. Set-up

2.1 Approach reference point	2-32
2.2 Enter tool offsets	2-33
2.3 Calculate tool offsets	2-34
2.4 Enter/alter zero offset	2-35
2.5 Scratching method/determine zero offset	2-37
2.6 Program the setting data	2-38

## 2.1 Approach reference point



HMI  
Embedded



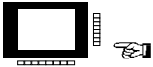
HMI  
Advanced



### Caution:

Position the axes if they are not already located at a safe position.

Always follow the axis movements directly on the machine. Ignore the actual value display as long as the axes are not referenced (the software limit switches are not effective).



Machine

Select "Machine" operating area.

Jog

or

MDA

Choose "Jog" or "MDA".



Ref Point

Select "Ref" machine function.



+X ... -Z

**Turning machine:**  
Traverse axes.

X ... 9  
9th Axis

**Milling machine:**  
Select axes and

+ ... -

traverse axes.



Feed Stop

Stop axis before reference point is reached.



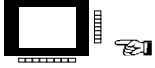
## 2.2 Enter tool offsets



HMI Embedded



HMI Advanced

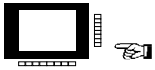


Parameter

Select "Parameter" operating area.

Tool offset

Select "Tool offset" menu.



T no.  
+

**Choose the desired function:**

Select tool (T no.).

T no.  
-

D no.  
+

Select tool edge (D no.).

D no.  
-

Delete

Delete tool/tool edge

Go to

Find tool

Overview...

List existing tools.

New...

Create new tool/tool edge.



Enter the new values.

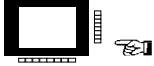
## 2.3 Calculate tool offsets



HMI  
Embedded



HMI  
Advanced



Parameter

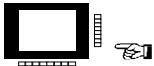
Select "Parameter" operating area.

Tool offset

Select "Tool offset" menu.



Position cursor on desired tool parameter.



Determine compensa.

Select axis and enter reference value.

Calculate

The current position and the reference value of the selected tool parameter are calculated automatically.

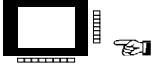
## 2.4 Enter/alter zero offset



HMI Embedded



HMI Advanced



Parameter

Select "Parameter" operating area.

Zero offset

Select "Overview of settable zero offsets" menu.



Axes +

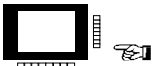
**Select zero offset:**  
Changes to the defined zero offsets of the next or previous axis.

Axes -

Offsets

Rotation, scal., mirr.

Change display mode of the currently displayed zero offset. The display shows either the absolute offsets or the proportional values of rotation, scaling or mirroring.



Basic ZO

**Enter/change zero offset:**

Display all the defined basic zero offsets.

Sett. ZO

Display all the defined settable zero offsets.

## 2.5 Enter/alter zero offset



HMI  
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HMI  
Advanced



Position the cursor on the desired field and enter/alter the value.



**Please note:**

Changes in the zero offset are updated at entry.

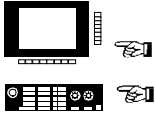
## 2.5 Scratching method/determine zero offset



HMI  
Embedded



HMI  
Advanced



Machine

Select "Machine" operating area.



Select "Jog" mode.

Scratching

Active level, active zero offset and active tool are selected.



Select axis which shall be traversed, with the cursor.



Traverse axis to the workpiece, enter desired set position and confirm with "Input". The offset is calculated.



OK

With "OK" all the values are entered into the selected zero offset.



### Please note:

The calculation of the offset always refers to the current workpiece coordinate system (WCS).



In order to take account of the tool geometry, position the cursor in the column "Geometry + wear" on the axis which shall be traversed and select with "Toggle" key, how the tool offset shall be calculated.

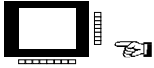
## 2.6 Program the setting data



HMI  
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HMI  
Advanced

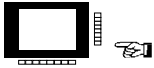


Parameter

Select "Parameter" operating area.

Setting data

Select the "Setting data" menu.



Work area limit.

### Define operating states using setting data:

- Change working area limitation.
- Change jog data.
- Change spindle data.
- Change dry run feedrate for DRY test mode.
- Change starting angle for thread cutting.
- Display miscellaneous setting data.
- Choose level for protection zone.

Jog data

Spindle data

Feedrate DRY

Starting angle

Misc.

Protection zones

## 2.6 Program the setting data



HMI  
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HMI  
Advanced



Position the cursor on the desired field and change the value, or



select a new value using the "Toggle" key.





## 3. Manually Controlled Operation

3.1 Jog/Jog Inc mode	3-42
3.2 MDA mode	3-44
3.3 Teach In mode	3-45

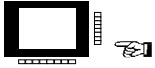
### 3.1 Jog/Jog Inc mode



HMI Embedded



HMI Advanced



Machine

Select "Machine" operating area.

Jog

Select "Jog" mode.



"Reference point approach" is deactivated.



**Turning machine:**  
Traverse axes.



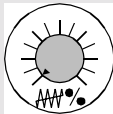
**Milling machine:**  
Select axis and



traverse.



The traversing velocity is stored in the "setting data".



If necessary, use the override to set the velocity.



If necessary, move axes with rapid traverse.

### 3.1 Jog/Jog Inc mode



HMI Embedded



HMI Advanced

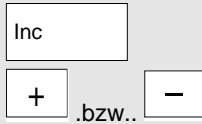


Select/enter increment value for traversing position ("Inc"):

Traverse axes in defined increments, or



Traverse axis in selected increment value.



Enter desired increment.

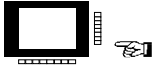
### 3.2 MDA mode



HMI  
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Machine

Select "Machine" operating area.

MDA

Select "MDA" mode.



In "Teach In" mode, it is only possible to insert blocks at points in the program which have not yet been executed.



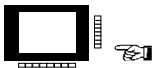
Enter NC block (one or several consecutive program blocks).



Confirm input.



Execute NC block.



MDA-Prog.  
sichern

Save program in MDA buffer.



If no program name is entered, the program is automatically stored in the MDA buffer with the name OSTORE.MPF (HMI Embedded) or MDAX.MPF (HMI Advanced).

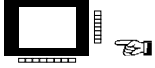
### 3.3 Teach In mode



HMI Embedded



HMI Advanced



Machine

Select "Machine" operating area.

MDA

Select "MDA" mode.



Select "Teach In" submodule.



In "Teach In" mode, it is only possible to insert blocks at points in the program which have not yet been executed.



#### 1. Manual positioning:



**Turning machine:**  
Traverse axes.



**Milling machine:**  
Select axis and



traverse.



Save position values



The axis name and the traversed path are displayed in the "Teach In program" window.

### 3.3 Teach In mode



HMI Embedded



HMI Advanced



#### 2. Manual input of coordinates:

- Enter coordinates of traversing positions and
- enter additional functions (preparatory conditions, miscellaneous functions, etc.) in the "MDA program" window.



Delete block

#### HMI Embedded

Delete the current block.

Insert block

Insert an empty line before the current block.

Save block

Save new axis positions and additional functions.



Executed the entered program blocks and display them in the current block window.

#### HMI Advanced

Enter and delete blocks via keyboard. Positions are automatically saved at entry.

## 4. Parts Programming

4.1 Select/enable workpiece/parts program	4-48
4.2 Open/edit parts program	4-49
4.3 Create new workpiece/parts program	4-51
4.4 Execute workpiece/parts program	4-52
4.5 Copy/paste, rename, delete, enable	4-53
4.6 Load/unload program (HMI Advanced)	4-55

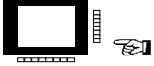
# 4.1 Select/enable workpiece/parts program



HMI Embedded

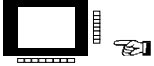


HMI Advanced



Program

Select "Program" operating area.



Workpieces

Parts programs

Sub-routines

Standard cycles

User cycles

Clipboard

## Select workpiece/parts program:

### Select the level:

- Workpieces
- Parts programs
- Subroutines
- Standard cycles (HMI Advanced)
- User cycles
- Clipboard



Position the cursor on the desired file in the directory tree.



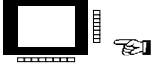
## 4.2 Open/edit parts program



HMI  
Embedded



HMI  
Advanced



Program

Select "Program" operating area.



**Open parts program:**

Position the cursor on the desired file in the directory tree.



Open program in ASCII editor:



Press the "Input" key.



Support

New  
contour

Call up free contour programming:

Press softkeys "Support" and "New contour".

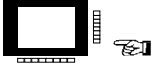
## 4.2 Open/edit parts program



HMI Embedded



HMI Advanced



<b>Edit parts program:</b>	
Overwrite	Toggle between insert and overwrite mode.
Mark block	Mark the beginning of block.
Copy block	Save the block in the clipboard.
Delete block	Delete block.
Insert block	Paste the block from the clipboard.
Search/go to ...	Position on block no., beginning of file, end of file or search string.
Search	Enter search string.
Substitute	Enter substitute.
Continue search	Next occurrence of search string.
Go to ...	Enter block no.
Save file	Save parts program.
Close editor	Close text editor.

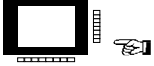
### 4.3 Create new workpiece/parts program



HMI Embedded

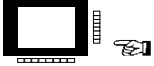


HMI Advanced



Program

Select "Program" operating area.



Work-pieces
Parts programs
Sub-routines

Select "Workpieces", "Parts programs" or "Subroutines".

Open directory.

New ...

Enter name of workpiece, main program or subroutine and



select "File type".



**HMI Advanced:**

Select key

- text editor
- activate interactive programming.

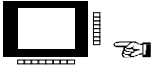
# 4.4 Execute workpiece/parts program



HMI  
Embedded

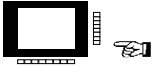


HMI  
Advanced



Program

Select "Program" operating area.



Work-  
pieces

### Select workpiece:

Mark the desired workpiece with the cursor in the workpiece overview.

Selection

Select the workpiece.

Parts  
programs

### Select parts program:

Mark the desired workpiece with the cursor in the parts program overview.

Selection

Select the parts program.



Start the workpiece/parts program.



Clip-  
board

You can also run parts programs directly from the clipboard.

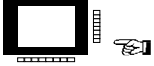
# 4.5 Copy/paste, rename, delete, enable



HMI Embedded



HMI Advanced



Program

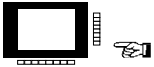
Select "Program" operating area.



Select the level and position the cursor on the desired file in the directory tree.

Manage programs

HMI Advanced:  
Select "Manage programs".



Copy

### Copy/paste program:

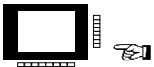
Select the source file.

Paste

Save the source file in the target directory.



If necessary, use the "Toggle" key to select the file type.



Rename

### Rename the program:

Press the "Rename" softkey and enter new name.



Use the "Toggle" key to select the file type.

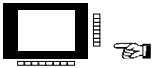
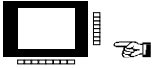
## 4.5 Copy/paste, rename, delete, enable



HMI  
Embedded



HMI  
Advanced



### Delete program:

Delete

Delete the program from the directory.



Select several files via the "Select" key.

### Change enable:

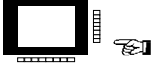
Change  
enable

Set (x) or cancel ( ) enable.

# 4.6 Load/unload program (HMI Advanced)



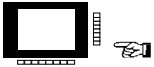
HMI  
Advanced



Program	Select "Program" operating area.
---------	----------------------------------



	Position the cursor on the desired file in the directory tree.
--	--



Load	Load the program into the NC memory.
Unload	Save the program to hard disk.



**Please note:**

When you activate "Load", the program is automatically deleted from the hard disk. When you activate "Unload", the program is automatically cleared from the NC memory.





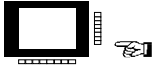
## 5. Manage Data

5.1 Transfer data (HMI Embedded)	5-58
5.2 Transfer data (HMI Advanced)	5-61
5.3 Create new file/directory (HMI Advanced)	5-63
5.4 Load/unload program (HMI Advanced)	5-64
5.5 Copy/paste, delete (HMI Advanced)	5-65
5.6 Directory/file/archive properties (HMI Advanced)	5-66

# 5.1 Transfer data (HMI Embedded)

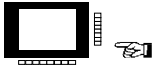


HMI Embedded



Services

Select "Services" operating area.



Data out

**Read out data:**

Select "Data out" menu.

RS-232-user

**Select interface:**

- RS-232 user
- RS-232 printer
- RS-232-PG/PC
- NC- Card

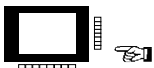
RS-232-printer

RS-232-PG/PC

NC-Card



Position the cursor on the desired file in the directory tree.



Start

Start "Data out".

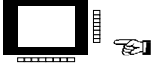
Stop

Interrupt "Data out".

# 5.1 Transfer data (HMI Embedded)



HMI Embedded



Data in

RS-232 user

RS-232-PG/PC

NC-Card

### Read in data:

Select " Data in" menu.

### Select interface:

- RS-232 user
- RS-232-PG/PC
- NC- Card



Position the cursor on the desired file in the directory tree.

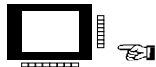
### Reading in/out data in the case of the NC card:

After "Start", the window "Create archive" is displayed. Enter new name and confirm with "OK". A new directory is created.

## 5.1 Transfer data (HMI Embedded)



HMI  
Embedded

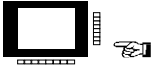


<input type="button" value="Start"/>	Organize data according to the existing path:
<input checked="" type="checkbox"/>	Path/workpiece from archive file
	Store all files in the directory, irrespective of archived path:
<input type="checkbox"/>	Path/workpiece from archive file
	Store all files in the clipboard, irrespective of archived path:
<input checked="" type="checkbox"/>	Read into the clipboard
<input type="button" value="OK"/>	Start "Data in".
<input type="button" value="Stop"/>	Interrupt "Data in".

# 5.2 Transfer data (HMI Advanced)



HMI  
Advanced



Services

Select "Services" operating area.



Data out

**Read out data:**

Select "Programs/data" menu.



Select data in the directory tree.



**Select target area:**

RS-232

- RS-232 interface

PG

- Programming device

Diskette...

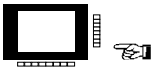
- Diskette drive

Archive...

- "Archive" on hard disk

NC Card

- NC Card



Start

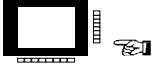
**Start transfer:**

Initiate data transfer on disk/archive (softkey label changes to "Stop").

## 5.2 Transfer data (HMI Advanced)



HMI  
Advanced



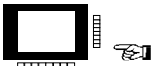
Data in

### Read in data:

Select "Programs/data" menu.



Select data in the directory tree.



RS-232

### Select source area:

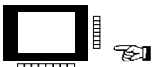
- RS-232 interface
- Programming device
- Diskette drive
- "Archive" on hard disk
- NC Card

PG

Diskette...

Archive...

NC Card



Start

### Start transfer:

Initiate data transfer on disk/archive (softkey label changes to "Stop").

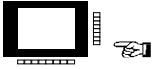


The data transfer is initiated automatically. You can interrupt data transfer at any time by pressing the softkey again.

### 5.3 Create new file/directory (HMI Advanced)



HMI  
Advanced

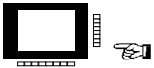


Services

Select "Services" operating area.

Manage data

Select "Manage data" menu.



New...

Enter program name and select type of program.



By selecting the "End" softkey, you can switch between the areas "Name" and "Type of file".

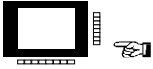
OK

New file/directory will be created.

## 5.4 Load/unload program (HMI Advanced)



HMI  
Advanced



Services

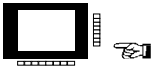
Select "Services"  
operating area.

Manage  
data

Select "Manage data"  
menu.



Position the cursor on the  
desired file in the directory  
tree.



Load

Load the file from the hard  
disk into the NC memory.

Unload

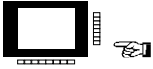
Unload the file from the NC  
memory to the hard disk.



# 5.5 Copy/paste, delete (HMI Advanced)



HMI  
Advanced



Services

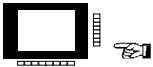
Select "Services" operating area.

Manage data

Select "Manage data" menu.



Position the cursor on the source file in the directory tree.



### Copy/paste program:

Copy

Select target directory.

Programs data

Close target window.

Paste

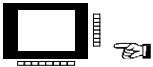
Copy source file to target directory.

Clipboard

Copy to or from clipboard.

Diskette

Copy to or from diskette.



### Delete program:

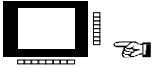
Delete

Delete selected file.

# 5.6 Directory/file/archive properties (HMI Advanced)



HMI  
Advanced



Services

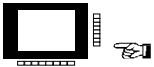
Select "Services" operating area.

Manage data

Select "Manage data" menu.



Position the cursor on the desired file in the directory tree.



Properties

Select "Properties" menu.



- Rename file
- Convert file type
- Change access rights for file/directory
- Display contents of all files



The access level can only be changed with the appropriate access rights.

## 6. Automatic Mode

6.1 Select workpiece/program	6-68
6.2 Start/stop/cancel program	6-69
6.3 Repos – Reposition after interruption	6-70
6.4 Overstore	6-72
6.5 Display program level	6-73
6.6 Program correction	6-74
6.7 Execution via RS-232 (HMI Embedded)	6-75
6.8 Load/unload program from hard disk (HMI Advanced)	6-76
6.9 Execution from hard disk (HMI Advanced)	6-77

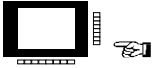
# 6.1 Select workpiece/program



HMI Embedded



HMI Advanced

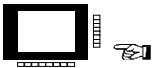


Machine

Select "Machine" operating area.

AUTO

Select "Automatic" mode.



Program overview

Select "Program overview" menu.

Work-pieces

Select desired workpiece/parts program/subroutine or desired cycles with the cursor in the workpiece/parts program/subroutine overview and the standard and user cycles.

Parts programs

Sub-routines

Standard cycles

User cycles

Selection

Select workpiece/part program.

Change enable

Set (x) or cancel ( ) enable.

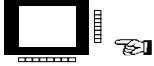
## 6.2 Start/stop/cancel program



HMI Embedded



HMI Advanced



Machine

Select "Machine" operating area.

AUTO

Select "Automatic" mode.



**Please check that:**  
No alarms are active.  
The program is selected.  
The feed enable is active.  
The spindle enable is active.



Start parts program.



Stop parts program.



Cancel parts program.



A parts program interrupted via "Cycle Stop" can be continued with "Cycle Start".

A parts program interrupted via "Reset" can be processed from the beginning if you press "Cycle Start".

# 6.3 Repos – Reposition after interruption



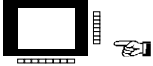
HMI Embedded



HMI Advanced



After a program interrupt ("Cycle-Stop") you can move the tool away from the contour in the manual mode. The control saves the coordinates of the interruption point. The traversed path differences of the axes are displayed.



Machine

Select "Machine" operating area.

Jog

Select "Jog" mode.



Reposition after program interruption.



**Turning machine:**

Traverse axes up to the point of interruption.



**Milling machine:**

Select axis and



traverse axes up to the interruption point.



**Caution:** Travel beyond the interruption point is inhibited. The feed override switches are active.

### 6.3 Repos – Reposition after interruption



HMI  
Embedded



HMI  
Advanced



Machine

Select "Machine"  
operating area.

AUTO

Select "Automatic" mode.



Continue machining.

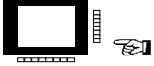
# 6.4 Overstore



HMI Embedded



HMI Advanced



Machine

Select "Machine" operating area.

AUTO

Select "Automatic" mode.



**Overstore with single block:**  
The program automatically stops at the next block boundary.



**Overstore without single block:**  
Stop parts program.



Overstore

Enter the values and functions to be executed.



Run the entered block.



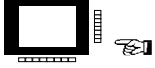
# 6.5 Display program level



HMI Embedded



HMI Advanced

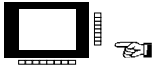


Machine

Select "Machine" operating area.

AUTO

Select "Automatic" mode.



Program level

Display block numbers for main programs and subroutines with the respective pass counts (P).

Current block

Display the blocks of the current program.



Pressing the "Program level" softkey automatically changes the level to and from "current block".

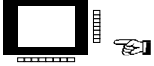
# 6.6 Program correction



HMI Embedded



HMI Advanced



Machine

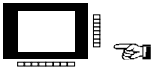
Select "Machine" operating area.

AUTO

Select "Automatic" mode.



The control has detected a system error in the part program. Execution of the part program is automatically interrupted.



Correct program

Correct the program block with the error.

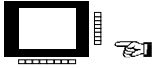


Continue machining.

# 6.7 Execution via RS-232 (HMI Embedded)



HMI Embedded



Machine

Select "Machine" operating area.

Program overview

Select "Program overview" menu.

Execution from extern.

Select "Execution from external source" menu.



Position the cursor on the desired file in the directory tree.



Start execution via RS-232.

Executed blocks appear in the current block window.

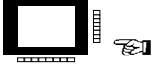


Alternatively, it is possible to start execution in the "Services" operating area. You can change the transfer parameters in the "Services" operating area. The transfer is recorded in the error log.

# 6.8 Load/unload program from hard disk (HMI Advanced)



HMI  
Advanced



Machine

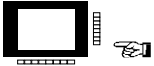
Select "Machine" operating area.

Program overview

Select "Program overview" menu.



Position the cursor on the desired file in the directory tree.



Load

Load the program into the NC memory.

Unload

Save the program on the hard disk.



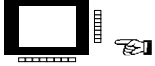
**Please note:**

When you activate "Load", the program is automatically deleted from the hard disk. When you activate "Unload", the program is automatically cleared from the NC memory.

# 6.9 Execution from hard disk (HMI Advanced)



HMI  
Advanced



Machine

Select "Machine" operating area.

Program overview

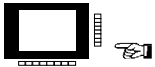
Select "Program overview" menu.



Position the cursor on the desired file in the directory tree.



Press the "Cycle Start" key.



Execution  
fr. hard disk

Start/cancel read-in and execution.



The program remains stored with "Execution from hard disk".



## 7. Alarms and Messages

7.1 Alarms/messages

7-80

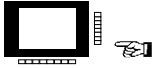
# 7.1 Alarms/messages



HMI  
Embedded

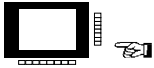


HMI  
Advanced



Diagnosis

Select "Diagnosis" operating area.



Alarms

### Display alarms:

Display alarms with "alarm number", "date", "explanation" and "cancel criterion".



### Delete alarm:

Switch the control off and on again.



Press "Reset".



Press "Acknowledge alarm".



Alarm is canceled with "Cycle-start".



Alarm is canceled with "Recall".



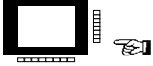
# 7.1 Alarms/messages



HMI Embedded



HMI Advanced



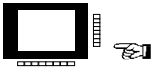
**Display messages:**

Messages

Display PLC error messages and PLC operational messages.



**Caution:**  
PLC error messages must always be acknowledged.

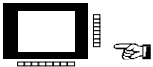


**Display alarm log:**

Alarm log

Display new

Display complete log of alarms and messages which have occurred.  
Update alarm log.



**HMI Advanced**

Acknowledge HMI alarm

Select and delete HMI alarm.



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**Suggestions and/or corrections**