SINUMERIK 840D/840Di/810D

Short Guide
Operation

Valid for

<table>
<thead>
<tr>
<th>Control</th>
<th>Software version</th>
</tr>
</thead>
<tbody>
<tr>
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<td>6</td>
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<tr>
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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.

<table>
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This manual is included in the documentation on CD-ROM (DOCONCD)

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<th>Remarks</th>
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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**

**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**

- ![HMI Embedded](Image)
- ![HMI Advanced](Image)

- **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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1.1 Key assignments slimline operator panel OP 010

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

- **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

- Display
- Machine area key
- Recall
- Soft bar (horizontal)
- ETC key (menu extension)
- Area changeover key
- Soft bar (vertical)
1.4 Key assignments slimline operator panel OP 012

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

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

Meaning of the key symbols:

- Operating area "Machine"
- Return jump
- Softkey expansion
- Area changeover
- Acknowledgement 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

<table>
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<th>Function</th>
</tr>
</thead>
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<td></td>
</tr>
<tr>
<td>Input (accept)</td>
<td></td>
</tr>
<tr>
<td>Overview alarms</td>
<td></td>
</tr>
<tr>
<td>Customers</td>
<td></td>
</tr>
<tr>
<td>Program</td>
<td></td>
</tr>
<tr>
<td>Tool offset</td>
<td></td>
</tr>
<tr>
<td>Program management</td>
<td></td>
</tr>
</tbody>
</table>

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

1. Emergency stop pushbutton
2. Mode and machine functions
   - Jog
   - MDA
   - Automatic
   - Teach In

Machine control panel for turning machines

Machine control panel for milling machines
1.7 Key assignments external machine control panel

- **HMI Embedded**
- **HMI Advanced**

### 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

<table>
<thead>
<tr>
<th></th>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td><strong>Spindle control</strong>&lt;br&gt;Spindle override&lt;br&gt;Spindle stop&lt;br&gt;Spindle start</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><strong>Feed control</strong>&lt;br&gt;Feed/rapid traverse override&lt;br&gt;Feed stop&lt;br&gt;Feed start</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><strong>Keyswitch</strong></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td><strong>Incremental keys</strong>&lt;br&gt;Variable incremental dimensions&lt;br&gt;Preset incremental dimensions</td>
<td></td>
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SINUMERIK 840D/840Di/810D Short Guide Operation (BAK) – 02.01 Edition
## 1.8 Graphical user interface

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

---

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<tr>
<th>Machine</th>
<th>Parameter</th>
<th>Program</th>
<th>Services</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCS</td>
<td>Position</td>
<td>Repos</td>
<td>offset</td>
<td></td>
</tr>
<tr>
<td>+ X 900.000 mm 0.000</td>
<td>- Y -156.000 mm 0.000</td>
<td>+ Z 230.000 mm 0.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Auxiliary functions</th>
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<tr>
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</tr>
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<td>H0.00000000</td>
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<td>H0.00000000</td>
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</tbody>
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<table>
<thead>
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<th>Tool</th>
</tr>
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<tbody>
<tr>
<td>C</td>
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<tr>
<td>C</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Feedrate</th>
<th>mm/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
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</tr>
<tr>
<td>Set</td>
<td>3000.00</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Auxiliary functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDA</td>
</tr>
<tr>
<td>JOG</td>
</tr>
<tr>
<td>REPOS</td>
</tr>
<tr>
<td>REF</td>
</tr>
</tbody>
</table>

---

1 Machine Jog
2 Channel reset
3 Program aborted
4 Auto

---

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SINUMERIK 840D/840Di/810D Short Guide Operation (BAK) – 02.01 Edition
# 1.8 Graphical user interface

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</thead>
<tbody>
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<td>HMI</td>
<td>HMI</td>
</tr>
<tr>
<td>Embedded</td>
<td>Advanced</td>
</tr>
</tbody>
</table>

<p>| | |</p>
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<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Mode</td>
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<tr>
<td>7</td>
<td>Program name</td>
</tr>
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<td>8</td>
<td>Channel operational messages</td>
</tr>
<tr>
<td>9</td>
<td>Channel status display</td>
</tr>
<tr>
<td>10</td>
<td>Information relating to the menu bar</td>
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<td>11</td>
<td>Work windows and NC displays</td>
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<td>Focus</td>
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<td>14</td>
<td>Horizontal softkey bar</td>
</tr>
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<td>15</td>
<td>Vertical softkey bar</td>
</tr>
<tr>
<td>16</td>
<td>Recall</td>
</tr>
<tr>
<td>17</td>
<td>etc.</td>
</tr>
</tbody>
</table>
1.9 Operating areas

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

- **MACHINE**
  - Execution of part program/manual control

- **PARAMETERS**
  - Editing data for programs/tool management

- **PROGRAM**
  - Development and adaptation of part programs

- **SERVICES**
  - Reading in/out programs and data

- **DIAGNOSIS**
  - Alarm displays, service displays

- **START-UP**
  - Adaptation of NC data to machine/system settings

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

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

#### 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

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:**
- **Neighboring files are selected when you hold down the "Cursor Up" or "Cursor Down" keys.**
### 1.10 Operating principle

**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

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

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

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

**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).

<table>
<thead>
<tr>
<th>Machine</th>
<th>Select “Machine” operating area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jog</td>
<td>Choose “Jog” or “MDA”.</td>
</tr>
<tr>
<td>MDA</td>
<td></td>
</tr>
</tbody>
</table>

Select “Ref” machine function.

**Turning machine:**
Traverse axes.

**Milling machine:**
Select axes and traverse axes.

Stop axis before reference point is reached.
2.2 Enter tool offsets

Choose the desired function:
- Select tool (T no.).
- Select tool edge (D no.).
- Delete tool/tool edge
- Find tool
- List existing tools.
- Create new tool/tool edge.

Parameter
Select "Parameter" operating area.

Tool offset
Select "Tool offset" menu.

Enter the new values.
2.3 Calculate tool offsets

Select "Parameter" operating area.

Select "Tool offset" menu.

Position cursor on desired tool parameter.

Select axis and enter reference value.

The current position and the reference value of the selected tool parameter are calculated automatically.
## 2.4 Enter/alter zero offset

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
<td>Select “Parameter” operating area.</td>
</tr>
<tr>
<td><strong>Zero offset</strong></td>
<td>Select “Overview of settable zero offsets” menu.</td>
</tr>
<tr>
<td><strong>Axes +</strong></td>
<td><strong>Axes –</strong></td>
</tr>
<tr>
<td><strong>Offsets</strong></td>
<td><strong>Rotation, scal., mirr.</strong></td>
</tr>
</tbody>
</table>

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

**Enter/change zero offset:**
Display all the defined basic zero offsets.
Display all the defined settable zero offsets.
2.5 Enter/alter zero offset

Please note:
Changes in the zero offset are updated at entry.
## 2.5 Scratching method/determine zero offset

Select "Machine" operating area.

Select "Jog" mode.

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.

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

Select “Parameter” operating area.

Select the “Setting data” menu.

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.
2.6 Program the setting data

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
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3.3 Teach In mode 3-45
### 3.1 Jog/Jog Inc mode

Select "Machine" operating area.

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

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

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
</table>

- **Select "Machine" operating area.**
- **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.**

- **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

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

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delete block</strong></td>
<td>Delete the current block.</td>
</tr>
<tr>
<td><strong>Insert block</strong></td>
<td>Insert an empty line before the current block.</td>
</tr>
<tr>
<td><strong>Save block</strong></td>
<td>Save new axis positions and additional functions.</td>
</tr>
<tr>
<td><strong>Cycle Start</strong></td>
<td>Executed the entered program blocks and display them in the current block window.</td>
</tr>
</tbody>
</table>

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

- **HMI Advanced**
  - Enter and delete blocks via keyboard.
  - Positions are automatically saved at entry.
4. Parts Programming

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4.1 Select/enable workpiece/parts program

- **HMI Embedded**
- **HMI Advanced**

### Select "Program" operating area.

### Select workpiece/parts program:

- **Workpieces**
  - Workpieces

- **Parts programs**
  - Parts programs

- **Subroutines**
  - Subroutines

- **Standard cycles (HMI Advanced)**
  - Standard cycles (HMI Advanced)

- **User cycles**
  - User cycles

- **Clipboard**
  - Clipboard

### Position the cursor on the desired file in the directory tree.
4.2 Open/edit parts program

**Open parts program:**

- Position the cursor on the desired file in the directory tree.
- Open program in ASCII editor:
  - Press the "Input" key.
- Call up free contour programming:
  - Press softkeys "Support" and "New contour".

Select "Program" operating area.
### 4.2 Open/edit parts program

#### Edits parts program:

- **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

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
<td>Select &quot;Program&quot; operating area.</td>
</tr>
<tr>
<td><strong>Workpieces</strong></td>
<td>Select &quot;Workpieces&quot;, &quot;Parts programs&quot; or &quot;Subroutines&quot;.</td>
</tr>
<tr>
<td><strong>Parts programs</strong></td>
<td>Open directory.</td>
</tr>
<tr>
<td><strong>Subroutines</strong></td>
<td>Enter name of workpiece, main program or subroutine and</td>
</tr>
<tr>
<td><strong>New ...</strong></td>
<td>select &quot;File type&quot;.</td>
</tr>
<tr>
<td><strong>HMI Advanced:</strong></td>
<td>Select key</td>
</tr>
<tr>
<td></td>
<td>• text editor</td>
</tr>
<tr>
<td></td>
<td>• activate interactive programming.</td>
</tr>
</tbody>
</table>
4.4 Execute workpiece/parts program

Select "Program" operating area.

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

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

Start the workpiece/parts program.

You can also run parts programs directly from the clipboard.
4.5 Copy/paste, rename, delete, enable

**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/paste program:**

**Copy**
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 the program:**

**Rename**
Press the “Rename” softkey and enter new name.

**Use the “Toggle” key to select the file type.**
4.5 Copy/paste, rename, delete, enable

**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)

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)

Select "Services" operating area.

Read out data:
Select "Data out" menu.

Select interface:
- RS-232 user
- RS-232 printer
- RS-232-PG/PC
- NC- Card

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

Start "Data out".

Interrupt "Data out".
5.1 Transfer data (HMI Embedded)

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)

**Start**

Organize data according to the existing path:

- Path/workpiece from archive file

Store all files in the directory, irrespective of archived path:

- Path/workpiece from archive file

Store all files in the clipboard, irrespective of archived path:

- Read into the clipboard

**OK**

Start "Data in".

**Stop**

Interrupt "Data in".
### 5.2 Transfer data (HMI Advanced)

#### Select "Services" operating area.

#### Read out data:

Select "Programs/data" menu.

#### Select data in the directory tree.

#### Select target area:

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

#### Start transfer:

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

Read in data:

Select "Programs/data" menu.

Select data in the directory tree.

Select source area:

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

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)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Services</strong></td>
<td>Select &quot;Services&quot; operating area.</td>
</tr>
<tr>
<td><strong>Manage data</strong></td>
<td>Select &quot;Manage data&quot; menu.</td>
</tr>
<tr>
<td><strong>New...</strong></td>
<td>Enter program name and select type of program.</td>
</tr>
<tr>
<td><strong>End</strong></td>
<td>By selecting the &quot;End&quot; softkey, you can switch between the areas &quot;Name&quot; and &quot;Type of file&quot;.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
<td>New file/directory will be created.</td>
</tr>
</tbody>
</table>
5.4 Load/unload program (HMI Advanced)

Select "Services" operating area.

Select "Manage data" menu.

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

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

Unload the file from the NC memory to the hard disk.
## 5.5 Copy/paste, delete (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)

<table>
<thead>
<tr>
<th>Services</th>
<th>Select “Services” operating area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage data</td>
<td>Select “Manage data” menu.</td>
</tr>
<tr>
<td>Properties</td>
<td>Select “Properties” menu.</td>
</tr>
</tbody>
</table>

- 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
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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

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine</td>
<td>Select &quot;Machine&quot; operating area.</td>
</tr>
<tr>
<td>AUTO</td>
<td>Select &quot;Automatic&quot; mode.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program overview</th>
<th>Select &quot;Program overview&quot; menu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work-pieces</td>
<td>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.</td>
</tr>
<tr>
<td>Parts programs</td>
<td></td>
</tr>
<tr>
<td>Sub-routines</td>
<td></td>
</tr>
<tr>
<td>Standard cycles</td>
<td></td>
</tr>
<tr>
<td>User cycles</td>
<td>Select workpiece/part program.</td>
</tr>
<tr>
<td>Selection</td>
<td></td>
</tr>
</tbody>
</table>

| Change enable    | Set (x) or cancel ( ) enable.    |
6.2 Start/stop/cancel program

Select "Machine" operating area.

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. Automatic Mode

6.3 Repos – Reposition after interruption

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.

- Select "Machine" operating area.
- 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

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machine</strong></td>
<td>Select &quot;Machine&quot; operating area.</td>
</tr>
<tr>
<td><strong>AUTO</strong></td>
<td>Select &quot;Automatic&quot; mode.</td>
</tr>
<tr>
<td></td>
<td>Continue machining.</td>
</tr>
</tbody>
</table>
6. Overstore

**Select “Machine” operating area.**

**Select “Automatic” mode.**

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

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

**Enter the values and functions to be executed.**

**Run the entered block.**
6.5 Display program level

<table>
<thead>
<tr>
<th>HMI Embedded</th>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machine</strong></td>
<td>Select &quot;Machine&quot; operating area.</td>
</tr>
<tr>
<td><strong>AUTO</strong></td>
<td>Select &quot;Automatic&quot; mode.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program level</th>
<th>Display block numbers for main programs and subroutines with the respective pass counts (P).</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current block</strong></td>
<td>Display the blocks of the current program.</td>
</tr>
</tbody>
</table>

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

Select "Machine" operating area.

Select "Automatic" mode.

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

Correct the program block with the error.

Continue machining.
### 6.7 Execution via RS-232 (HMI Embedded)

**HMI Embedded**

- **Select "Machine" operating area.**
- **Select "Program overview" menu.**
- **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)

Select "Machine" operating area.

Select "Program overview " menu.

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

Load the program into the NC memory.

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)

<table>
<thead>
<tr>
<th>HMI Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine</td>
</tr>
<tr>
<td>Program overview</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Cycle Start</td>
</tr>
<tr>
<td>Execution fr. hard disk</td>
</tr>
</tbody>
</table>

The program remains stored with "Execution from hard disk".
7. Alarms and Messages

7.1 Alarms/messages  

7-80
7.1 Alarms/messages

- **Select “Diagnosis” operating area.**

- **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

### 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 complete log of alarms and messages which have occurred.
- **Display new**: Update alarm log.

### HMI Advanced

- **Acknowledge HMI alarm**: Select and delete HMI alarm.
<table>
<thead>
<tr>
<th>Suggestions and/or corrections</th>
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email: motioncontrol.docu@erlf.siemens.de

User Documentation

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<th>From</th>
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| Telefax: | / |

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