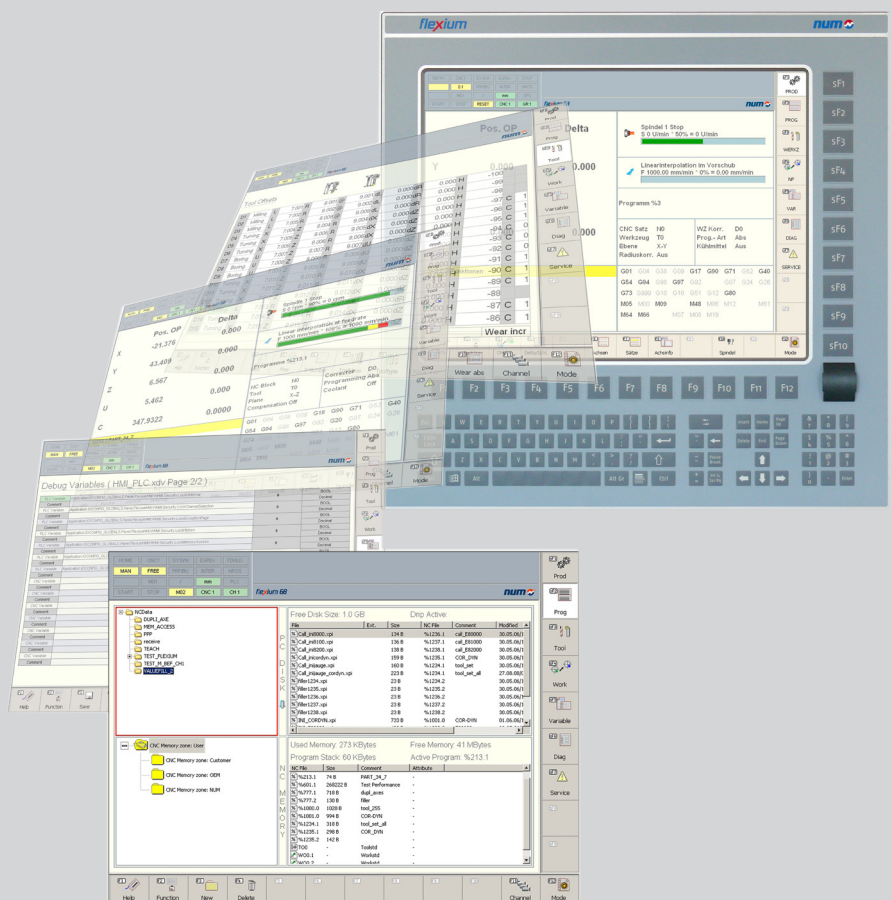


# Flexium HMI

## Operator Manual Additional Functions

M00016EN-02

Edition 05.2013



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The programming examples described in this manual are intended for guidance only. They must be specially adapted before they can be used in programs with an industrial application, according to the automated system used and the safety levels required.

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# 1 Foreword

This manual is an addition to the Basic Operator Manual (Reference: M00017) of the Flexium Human Machine Interface (HMI) for Flexium systems.

It describes the various additional functions which can be integrated in the Flexium HMI. These functions are activated by their respective licences.

**At the time, the following additional functions are available:**

| Designation                         | Description                                                                                                                                                                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Teach-in</b>                     | The editor in the context "Programming" (sF2) can be enhanced by teach-in functions.<br>This offers the possibility to transfer actual axes positions into the part programme.                                                                           |
| <b>Extended tool table</b>          | This function is an enhancement of the tool table in the context "Tools" (sF3). It is possible to give a name and a comment to any tool and to assign it to an axes channel.<br>These information are saved in a file together with the tool dimensions. |
| <b>Symbolic names</b>               | Allows to assign names to the axes and axes channels.<br>These are displayed instead of usual address numbers, for example on the axes position page or in the channel selection window.                                                                 |
| <b>Extensions for NUMROTOplus</b>   | These extensions adapt the HMI for tool grinding machines using NUMROTOplus®.                                                                                                                                                                            |
| <b>Integrated PLC visualization</b> | Display of CoDeSys visualization elements in the contexts sF1, sF8 or sF9                                                                                                                                                                                |

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## 1.1 Document revisions

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| Date      | Index | Reason for revision                                                                                                                 |
|-----------|-------|-------------------------------------------------------------------------------------------------------------------------------------|
| 09 - 2008 | 00    | Document creation                                                                                                                   |
| 05 - 2010 | 01    | Revised to conform to software version 3.1.0.10                                                                                     |
| 05 - 2013 | 02    | Revised to conform to software version 3.4.0.0<br>New chapters:<br>2.3 : Teach-in directly in NC memory<br>6.0 : PLC visualization. |

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## 1.2 Use of the symbology in the manual

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| Symbol                                                                             | Meaning of the symbol                                                       |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|   | Important notes on product use.                                             |
|  | You may find this symbol whenever a wrong operation may damage the product. |

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## 1.3 NUM Agency

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The list of NUM agencies is given click here <http://www.num.com>

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## 1.4 Index

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The general index at the end of the manual facilitates access to information by keywords.  
Please click here [index](#)

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## 2 Teach-in

This function offers the possibility to transfer and record actual axes positions into the part programme.

In addition to axes positions, CNC functions like G, M, F etc. may be entered in the programme. Teach-in is possible in part programmes (\*.xpi) as well as in usage files (\*.usi).

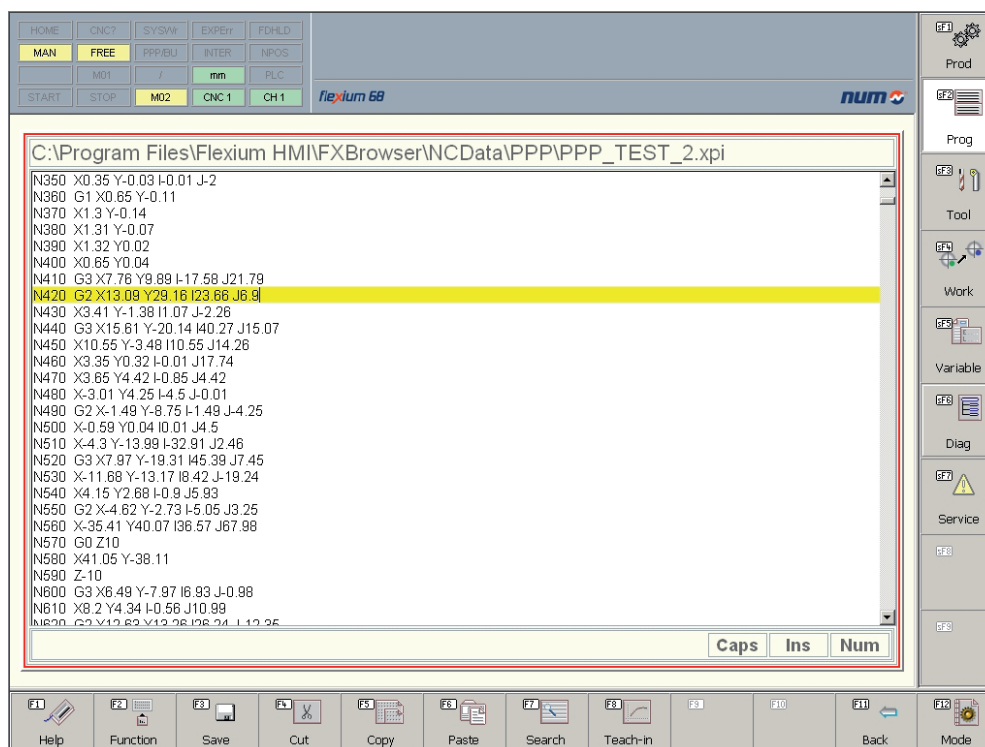


To activate this function, the CNC must be in “MANUAL” mode.

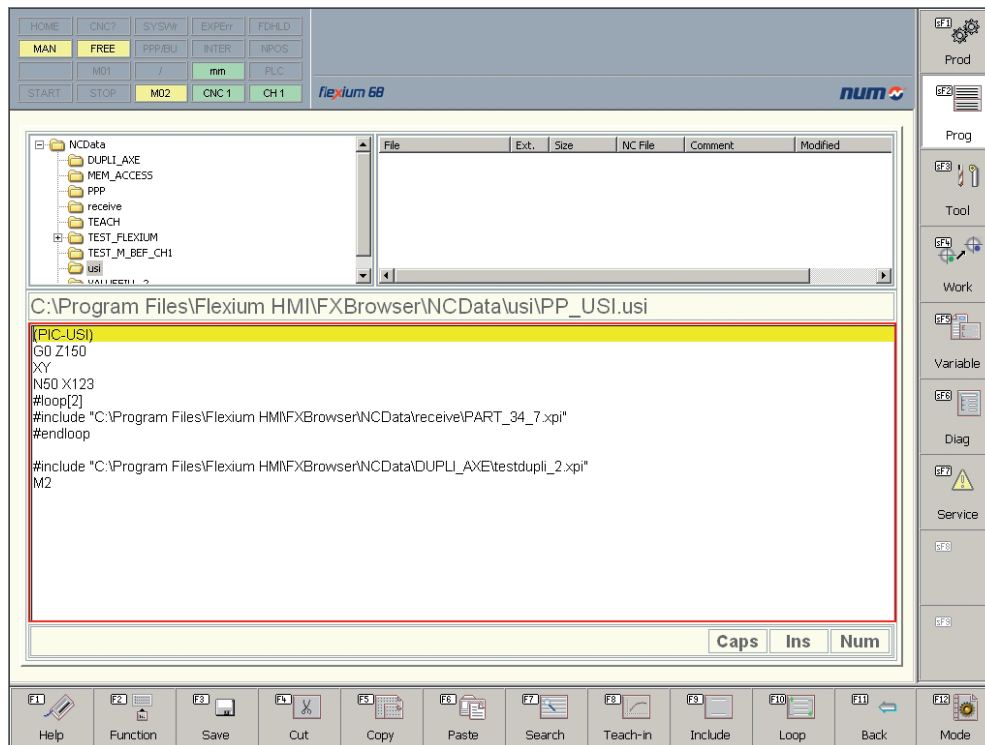
### 2.1 Access to the Teach-in function

|                                                       |     |
|-------------------------------------------------------|-----|
| Select the context “Programming                       | +   |
| Select the right hand window of PC Disk               | ... |
| Select the desired file                               | or  |
| To move the cursor one window at a time               | or  |
| To move directly to the top or the bottom of the list | or  |
| Press                                                 |     |

This opens the usual editor for part programmes:



or for usage files:



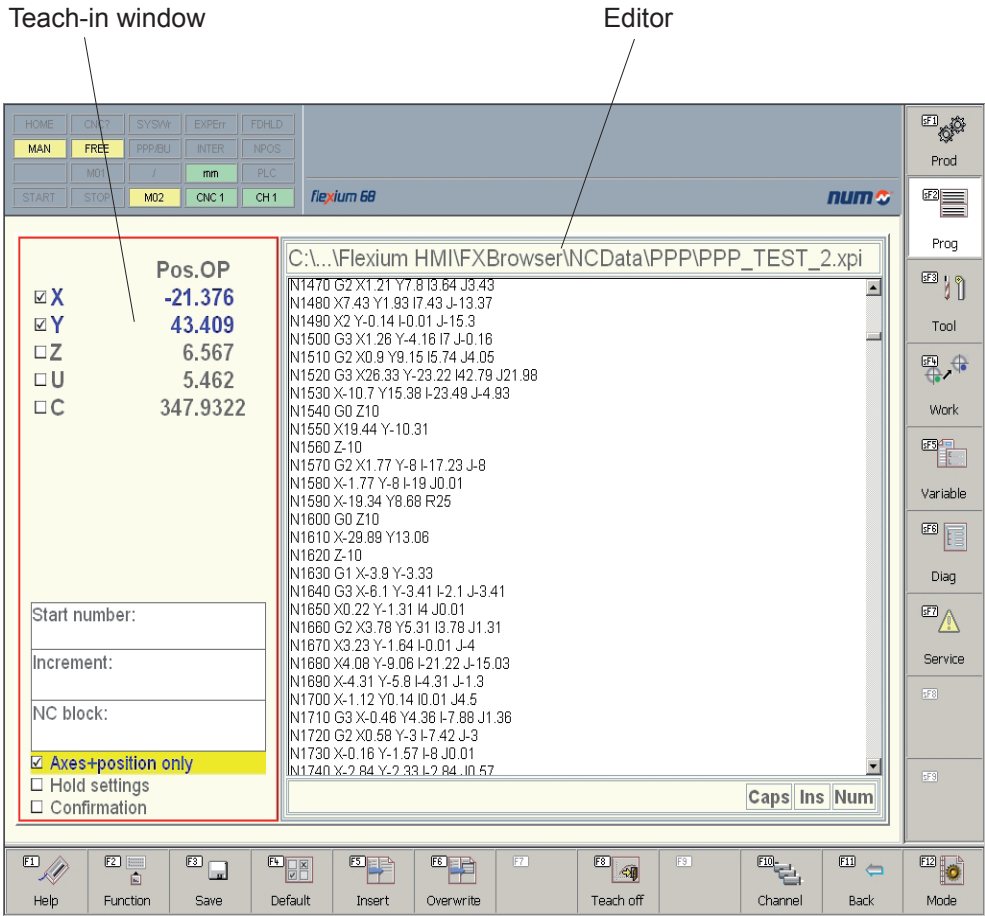
To activate the teach-in function



F8

### 2.1.1 The teach-in editor window for part programmes

The following description applies to the teach-in editor for part programmes (\*.xpi) as well as for usage files (\*.usi).



To toggle between teach-in window and editor



#### Possible actions

To toggle between teach-in window and editor

Press **F10** to select the axes channel (with multichannel only)

Press **F8** to quit teach-in and return to the editor

Press **F6** to overwrite data in a CNC block

Press **F5** to insert a CNC block



The function keys **F6** and **F5** are not active if the teach-in procedure is under PLC control.

|                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Press <b>F4</b> to activate the default settings                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                     | <p>The default settings are as follows</p> <ul style="list-style-type: none"> <li>- Axes selection: no axes selected</li> <li>- Field "Start number": empty</li> <li>- Field "Increment": empty</li> <li>- Field "NC block": empty</li> <li>- "Axes and positions only": not active</li> <li>- "Hold settings": not active</li> <li>- "Confirmation": not active</li> </ul> |
| Press <b>F3</b> to save the file                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                             |
| Press <b>F2</b> to access all existing functions. Select the function with <b>↑</b> or <b>↓</b> and <b>Enter</b>  |                                                                                                                                                                                                                                                                                                                                                                             |

### 2.1.2 Explanation of the fields and functions

|                       |                                                                  |
|-----------------------|------------------------------------------------------------------|
| <b>Axes addresses</b> | To select the desired axes for the recording of their positions. |
| <b>Start number</b>   | Number of the first block for the automatic block numbering.     |
| <b>Increment</b>      | Increment for the automatic block numbering.                     |



The automatic block numbering will become active as soon as the fields "Start number" and "Increment" contain a value.  
If one of these fields is empty, no automatic numbering will occur.  
The maximum allowed block number is N32767.

**NC block** Used to enter functions and values in the CNC block.

#### Axes and positions only

Is effective in overwrite mode only. Functions already present in the CNC block will not be modified. Moreover, the HMI will ask for a confirmation if the number of axes or the axes positions differ from the values already present in the block



The function "Axes and positions only" will be deactivated automatically after the recording of values. As a result, no further confirmation will be asked for at the following recording!  
To prevent this deactivation, check the box "Hold settings".

#### Hold settings

After every recording of values in the programme, the contents of the field "NC block" will be erased and the function "Axes and positions only" will be deactivated.  
Check this box to hold the settings for the following recordings.

#### Confirmation

If this box is checked, a confirmation will be required for every recording of values.

## 2.2 Teach-in procedure

### Insert or overwrite CNC block

|                                                               |                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Select the right hand editor window                           |                                                                                                                                                                                             |
| Move the cursor to the desired line                           |   or                                                                                                     |
| Select the left hand teach-in window                          |                                                                                                                                                                                             |
| Check the desired axes                                        |   or <br>and          |
| Select and open the field "Start number" if applicable        |   or <br>and          |
| Enter the desired block number and validate                   |                                                                                                                                                                                             |
| Select and open the field "Increment" if applicable           |   or <br>and          |
| Enter the desired block number increment and validate         |                                                                                                                                                                                             |
| Select and open the field "NC block" if applicable            |   or <br>and          |
| Enter the needed functions and values and validate            |                                                                                                                                                                                             |
| Activate the function "Axes and positions only" if applicable |   or <br>and          |
| Activate the function "Hold settings" if applicable           |   or <br>and  |
| Activate the function "Confirmation" if applicable            |   or <br>and  |
| Move the axes in the desired positions                        |                                                                                                                                                                                                                                                                                                                                                                   |
| Insert or overwrite a CNC block                               |   or                                                                                               |



Switching between teach-in and editor mode is possible at any time:

  .

To enter a tabulator in editor mode:  +  .

## 2.3 Teach-in directly in NC Memory

From the Flexium HMI 3.4.0.0 on, it is possible to edit a part program directly in NC memory, even during execution.



The access to the editor is only enabled if :

- the memory area "User" (area 0) is selected
- the selected file is a part program
- the editor is not protected by settings in the context "Service" or by the PLC.

### Procedure:

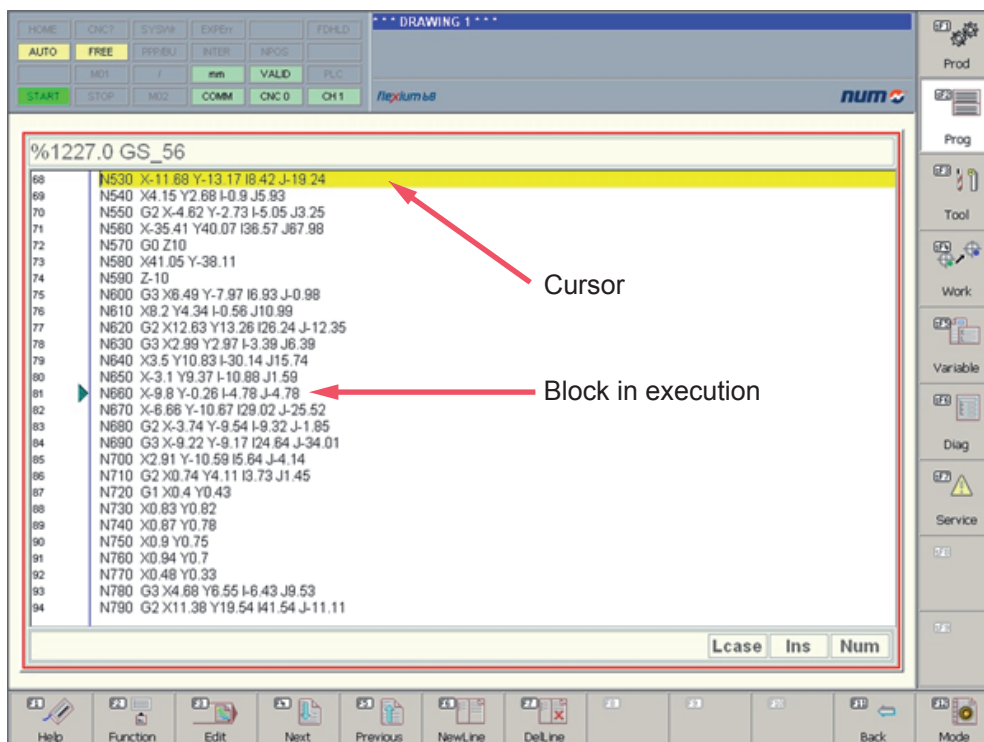
During part program execution, select the context "PROG" and memory area "User".

|                                                       |               |
|-------------------------------------------------------|---------------|
| Select the right hand window of NC memory             | Tab           |
| Select the desired file                               | ↑ or  ↓       |
| To move the cursor one window field at a time         | PgUp or  PgDn |
| To move directly to the top or the bottom of the list | Home or  End  |
| Press Edit                                            | F5            |



At this stage we do not switch yet to EDIT mode, but request access to the editor.

An editor will open with a pointer on the block in execution (if any)



## Possible actions

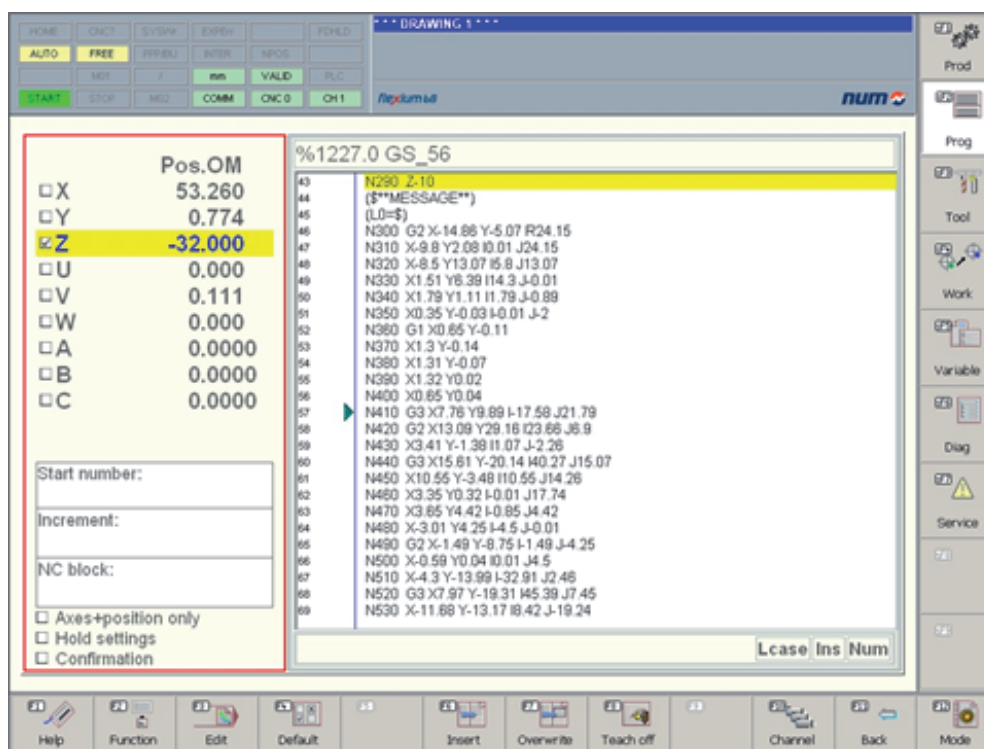
|                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|
| Press <b>F11</b> to leave the editor                                                                                |
| Press <b>F8</b> to access the Teach-in editor                                                                       |
| Press <b>F7</b> to delete the line on which the cursor is located                                                   |
| Press <b>F6</b> to insert a new line after the cursor location                                                      |
| Press <b>F5</b> to display the previous page of the list                                                            |
| Press <b>F4</b> to display the next page of the list                                                                |
| Press <b>F3</b> to access the editor functions                                                                      |
| Press <b>F2</b> to access all existing functions.<br>Select the function with <b>↑</b> or <b>↓</b> and <b>Enter</b> |



To enable an automatic scrolling between pages during program execution, the checkbox “CNC editor: autoscroll” in the context “sF7 Service, Management” must be activated.

To access the teach-in editor

**F8**



It is now possible to enter the EDIT mode

**F3**

---

The EDIT mode will be in standby until the current block is fully executed.



Once EDIT mode becomes active, you can browse through the program, Add, Remove or Change lines. The Teach-in functions are the same as in the normal Teach-in editor.



This is a line editor. Each modification on a line should be validated with . Pressing  does not create a new line, rather this is performed by the function key F6.

After editing, switch back to AUTO or SEQ mode and resume execution.

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### 3 Extended tool table

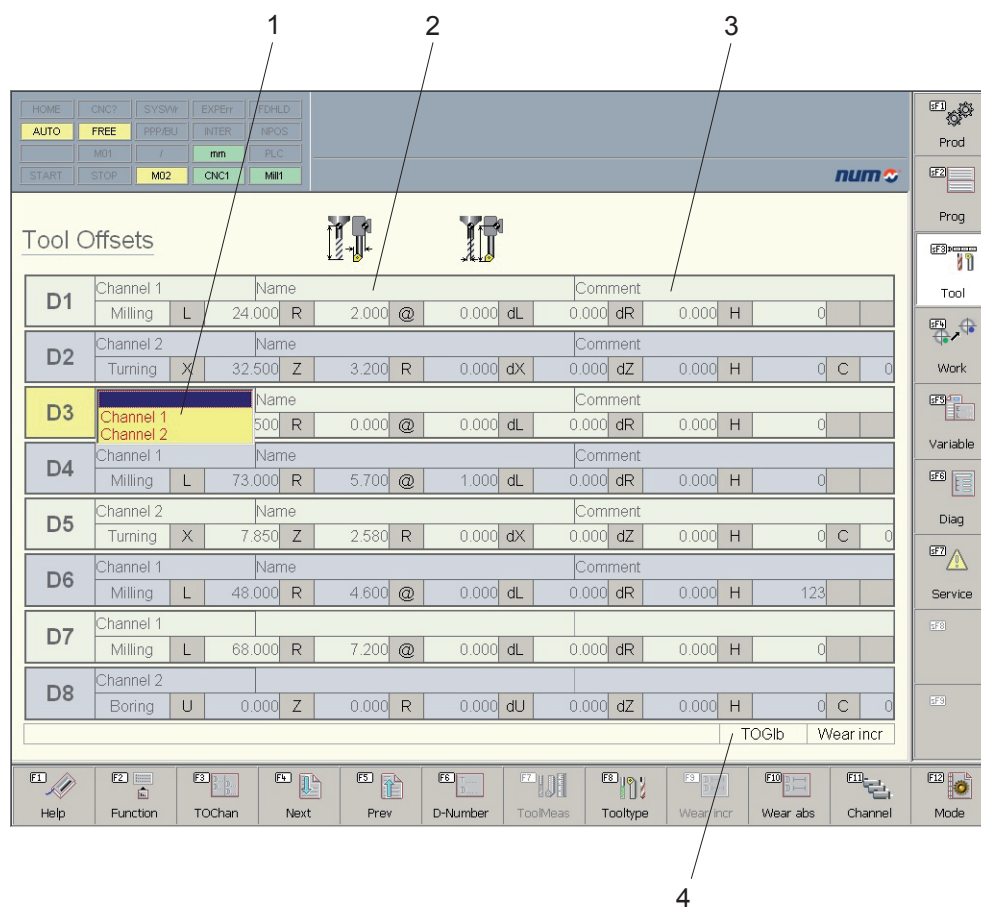
This function allows an extension of the tool descriptions.

Each tool can be assigned to an axes channel. If the function “Symbolic names” is active, this assignment will take place using the name “Channel long symbolic”.

Besides, a name and a comment may be assigned to each tool. Up to 23 letters and numbers may be used in the name and comment fields.

#### 3.1 Displays

There are two kinds of tool table display.



- 1 - Channel selection
- 2 - Name or comment field
- 3 - Name or comment field
- 4 - Kind of display

The global display shows all tools.

|                            |                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------|
| To toggle between displays |  F3 |
|----------------------------|----------------------------------------------------------------------------------------|

### 3.1.1 Channel display

This kind of display shows only the tools assigned to the currently selected channel.

The screenshot displays the 'Channel display' interface on a Flexium HMI. At the top, there is a control bar with buttons for HOME, CNC?, SYSMk, EXPEr, FDHLD, AUTO, FREE, PPPEU, INTER, NPOS, MDI, /, mm, PLC, START, STOP, M02, CNC1, and Mill1. The 'num' logo is visible on the right. Below the control bar, the main area is titled 'Tool Offsets' and shows a list of tool data for Channel 1. The tools listed are D1, D4, D6, and D7. Each tool entry includes fields for Name, Comment, Milling, L, R, and various offset values (dL, dR, H). The bottom of the screen features a navigation bar with buttons for Help, Function, TOGlb, Next, Prev, D-Number, ToolMeas, Tooltype, Wear incr, Wear abs, Channel, and Mode. On the right side, there is a vertical toolbar with buttons for Prod, Prog, Tool, Work, Variable, Diag, Service, and others.

| Tool | Channel   | Name | Comment | Milling | L | R      | dL    | dR    | H     |
|------|-----------|------|---------|---------|---|--------|-------|-------|-------|
| D1   | Channel 1 |      |         | Milling | L | 24.000 | 2.000 | 0.000 | 0.000 |
| D4   | Channel 1 |      |         | Milling | L | 73.000 | 5.700 | 1.000 | 0.000 |
| D6   | Channel 1 |      |         | Milling | L | 48.000 | 4.600 | 0.000 | 0.000 |
| D7   | Channel 1 |      |         | Milling | L | 68.000 | 7.200 | 0.000 | 0.000 |

TOChan Wear incr

## 3.2 Channel assignment and comments

For additional information on entering tool dimensions, refer to chapter “Context Tool” of the basic Flexium HMI operator manual.

### 3.2.1 Assigning a tool to a channel

|                                                                                                                                                 |                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Select the channel field                                                                                                                        |  ← or →; ↑ or ↓     |
| Open the channel list                                                                                                                           |  Enter ↵            |
|  The channel list opens only if the display is set to “Global” |                                                                                                      |
| Select a channel                                                                                                                                |  ↑ or ↓ and Enter ↵ |

### 3.2.2 Assigning a name and a comment

|                             |                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------|
| Select the field            |  ← or →; ↑ or ↓ |
| Open the field              |  Enter ↵       |
| Enter the name and validate |  Enter ↵       |

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## 4 Symbolic names

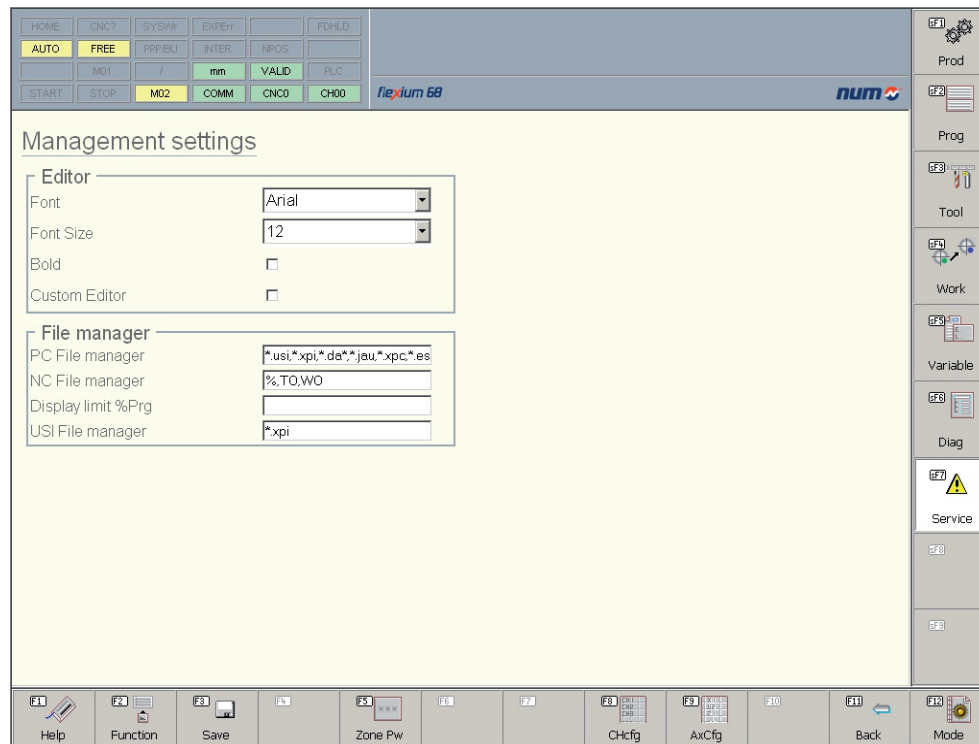
Gives the possibility to assign names to the axes, axes channels and CNC. These are displayed instead of usual address numbers

### 4.1 Set up of the symbolic names

Two pages are available for the set up of symbolic names

|                                 |   |
|---------------------------------|---|
| Select the context "Service"    | + |
| Enter the password and validate |   |
| Select the page "Management"    |   |

This opens the management settings page



#### Possible actions

|                                            |
|--------------------------------------------|
| Press  to access the axes configuration    |
| Press  to access the channel configuration |
| Press  to enter memory zone password       |

## 4.2 Axis configuration

HOME

CNC?

SYSTM

EXPER

FDHLD

AUTO

FREE

PPR/EU

INTER

NPOS

M01

/

mm

PLC

START

STOP

M02

CNC1

Min1

num

Axes name settings

|    | CNC physical | Channel physical | Axis physical | Axis symbolic | E7x005 Axis |
|----|--------------|------------------|---------------|---------------|-------------|
| 1  | 1            | 1                | X             | X1            |             |
| 2  | 1            | 1                | Y             | Y1            |             |
| 3  | 1            | 1                | Z             | Z1            |             |
| 4  | 1            | 1                | U             | U1            |             |
| 5  | 1            | 1                | W             | W2            | Active      |
| 6  | 1            | 1                | C             | C1            |             |
| 7  | 1            | 2                | X             | X2            |             |
| 8  | 1            | 2                | Z             | Z2            |             |
| 9  | 1            | 2                | C             | C2            |             |
| 10 | 2            | 1                | X             | X3            |             |
| 11 | 2            | 1                | Y             | Y3            |             |

☒ Display symbolic axis name

F1

F2

F3

F4

F5

F6

F7

F8

F9

F10

F11

F12

HelpFunctionSaveDelAxisAddAxisNewcfgBackMode

F1

F2

F3

F4

F5

F6

F7

F8

F9

F10

F11

F12

ProdProgToolWorkVariableDiagService

### Possible actions

Press **F7** to set default symbolic axes names

Press **F5** to give a symbolic name to an axis address assignment

Press **F4** to delete the name given to an axis address assignment

Press **F3** to save the settings

## 4.3 Entering axes names

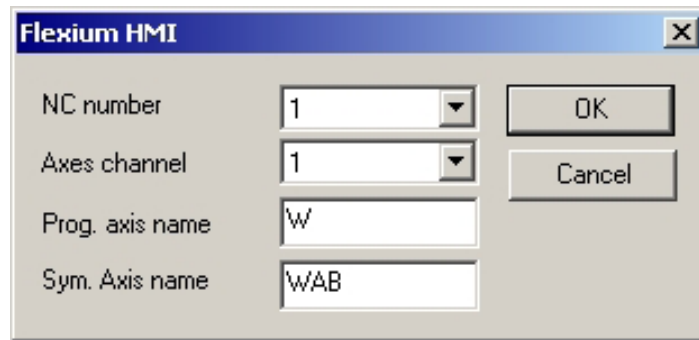
Up to 6 letters or numbers may be used for a symbolic axis name.

|                                  |                       |
|----------------------------------|-----------------------|
| Select the desired axis          | <b>↑</b> or <b>↓</b>  |
| Open the field                   | <b>Enter</b> <b>↵</b> |
| Enter the axis name and validate | <b>Enter</b> <b>↵</b> |

## 4.4 Giving a name to an axis address assignment

For additional information on axis address assignment, refer to the Flexium CNC programming manual M00018.

|                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| Select the function "Add axis" |  F5 |
|--------------------------------|--------------------------------------------------------------------------------------|



|                                                        |                                                                                               |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Move the cursor to the field "CNC number"              |  Tab       |
| Select the CNC                                         |  ↑ or ↓    |
| Move the cursor to the field "Axes channel"            |  Tab      |
| Select the channel                                     |  ↑ or ↓  |
| Move the cursor to the field "Programmed axis name"    |  Tab     |
| Enter a valid axis name and validate                   |  Enter ↵ |
| Move the cursor to the field "Symbolic axis name"      |  Tab     |
| Enter a symbolic name and validate (6 characters max.) |  Enter ↵ |

## 4.5 Deleting the name given to an axis address assignment

|                                           |                                                                                            |
|-------------------------------------------|--------------------------------------------------------------------------------------------|
| Move the cursor to the axis to be deleted |  ↑ or ↓ |
| Delete the assignment                     |  F4     |

## 4.6 Display of axis name of address

It is possible to toggle between axis address and symbolic name display at any moment.  
In the "Axes name settings" page:

|                                                              |                                                                                                                                                                                            |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Move the cursor to the checkbox "Display symbolic axis name" |  Tab                                                                                                    |
| Toggle the display mode                                      |  Space or  Enter ↵ |

## 4.7 Axes channel configuration

START STOP M02 AUTO CNC?

B4\_Z Mill1 Milling 1

Unit1 Cell 1

num

### Multi Channel settings

☐ Monolingual
 ☒ Multilingual
 English

|   | Grouping | Mch. Unit | NC phys. | NC symb. | Channel phys. | Channel type | Channel short symb. | Channel long symb. |
|---|----------|-----------|----------|----------|---------------|--------------|---------------------|--------------------|
| 1 | Cell 1   | Unit1     | 1        | B4_Z     | 1             | NC           | Mill1               | Milling 1          |
| 2 | Cell 2   | Unit1     | 1        | B4_Z     | 2             | NC           | Turn1               | Turning 1          |
| 3 | Cell 3   | Unit1     | 2        | B5_Z     | 1             | NC           | Drill               | Drilling           |
| 4 | Cell 4   | Unit1     | 2        | B5_Z     | 2             | NC           | Tap                 | Tapping            |

☒ Display symbolic NC + Axes channel
 ☐ Display physical NC + Axes channel

F1 Help F2 Function F3 Save F4 F5 F6 F7 NewCfg F8 F9 F10 F11 Back F12 Mode

F1 Prod F2 Prog F3 Tool F4 Work F5 Variable F6 Diag F7 Service F8 F9

### Possible actions

Press **F7** to set default symbolic axes channel names

Press **F3** to save the settings



The settings of the channel and axes configuration are stored in the configuration files Channel.cfg and Axis.cfg. These files are located in the folder c:\Program Files\NUM\Flexium RTS\FlexiumHMI

#### 4.7.1 Explanation of the setting options

- Monolingual:** If this box is activated, only the symbolic names of the English configuration file are used.
- Multilingual:** Activate this box to be able to use the long symbolic names of the various languages. The selection of the languages can be made in the field at the right.



The activation of the box “Multilingual” and the subsequent selection of the language allows the entry of names and assignments in the corresponding configuration file. This makes it possible to display the long symbolic names in the language chosen for the HMI in the various contexts.

The language selection in this page allows only to enter the names into the appropriate configuration file. The displayed symbolic names in the HMI will only be adapted to the language chosen after it is selected in the “General settings” of the context “Service”.



After entering, the names “CNC symbolic” and “Channel short symbolic” will be active for all languages. A subsequent modification in any language will thus be effective for all other languages. In such a case, it will not be possible to load already existing programmes in the CNC!

|                                             |                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grouping</b>                             | Allows to join together any axes channel under a common name. Up to 15 letters and numbers may be used.                                                                                                                                                                                                                                       |
| <b>Machine Unit</b>                         | Name of an entire machining unit. This designation is mainly used together with the function Multi-CNC.<br><br>It allows to join together all CNC of a machine under a common name. As a result, the management and assignment of part programmes common to all CNC is made possible in an easy way. Up to 5 letters and numbers may be used. |
| <b>NC physical</b>                          | Shows the physical number of the CNC.<br>This number is given automatically by the HMI.                                                                                                                                                                                                                                                       |
| <b>NC symbolic</b>                          | Allows to assign a symbolic name to each CNC.<br>Up to 5 letters and numbers may be used.                                                                                                                                                                                                                                                     |
| <b>Channel physical</b>                     | Shows the physical number of the axes channel.<br>This number is given automatically by the HMI.                                                                                                                                                                                                                                              |
| <b>Channel type</b>                         | Shows the type of the axes channel.<br>This description is given automatically by the HMI.                                                                                                                                                                                                                                                    |
| <b>Channel short symbolic</b>               | This field allows to assign a short symbolic name to the channel.<br>Up to 5 letters and numbers may be used.                                                                                                                                                                                                                                 |
| <b>Channel long symbolic</b>                | Entry field for the long symbolic name of the channel.<br>Up to 15 letters and numbers may be used.                                                                                                                                                                                                                                           |
| <b>Display symbolic NC and axes channel</b> | To display the symbolic names.                                                                                                                                                                                                                                                                                                                |
| <b>Display physical NC and axes channel</b> | To display the physical addresses.                                                                                                                                                                                                                                                                                                            |

---

## 4.7.2 Navigation and selection

|                                   |                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Select a setting                  |                                                                                                                                                                                 |
| Open a setting list               |                                                                                                                                                                                 |
| Select an entry in an open list   |   or  and  |
| Activate or deactivate a checkbox |   or                                                                                         |

## 4.7.3 Entering names

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Move the cursor to a description field |                                                                                                                                                                                                                                                                      |
| Select a field                         |   or  ;  or  |
| Open the field                         |                                                                                                                                                                                                                                                                      |
| Enter a name and validate              |                                                                                                                                                                                                                                                                      |

## 4.8 Display of symbolic names

Symbolic names are displayed in all contexts and pages where the usual physical addresses are normally shown.

As example, the main page of the context “Production”:

|    | Pos. OP | Delta  |
|----|---------|--------|
| X1 | -45.000 | 0.000  |
| Y1 | 23.000  | 0.000  |
| Z1 | 32.000  | 0.000  |
| U1 | -33.142 | 0.000  |
| C1 | 15.2909 | 0.0000 |

**Spindle 1 Stop**  
Address 24  
S 0 rpm \* 100% ≈ 0 rpm

**Linear interpolation at feedrate**  
F 1000.000 mm/min \* 120% = 1200.000 mm/min

Programme %877.1

|              |     |                 |     |
|--------------|-----|-----------------|-----|
| NC Block     | N0  | Corrector       | D0  |
| Tool         | T0  | Programming Abs |     |
| Plane        | X-Y | Coolant         | Off |
| Compensation | Off |                 |     |

**%877.1 test\_G4**

|     |      |     |     |     |     |     |     |     |
|-----|------|-----|-----|-----|-----|-----|-----|-----|
| G01 | G04  | G38 | G09 | G17 | G90 | G71 | G52 | G40 |
| G54 | G94  |     | G97 | G92 |     |     | G24 | G26 |
| G73 | G999 | G10 | G16 | G51 | G12 | G80 |     |     |
| M05 | M00  | M09 |     | M48 | M06 | M12 |     | M61 |
| M64 | M66  |     | M07 | M08 | M19 |     |     |     |

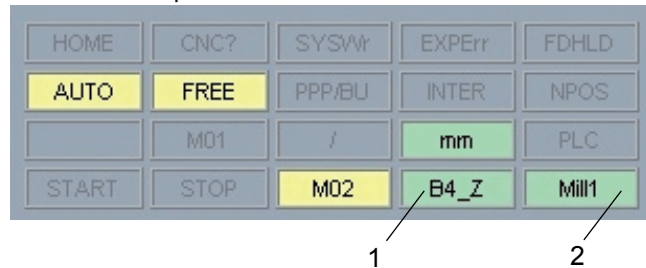
Help Function OM/OP/R Delta/Lag Axes Blocks Axisinfo DuplAxis Spindle Channel Mode

## 4.9 Display in the status window

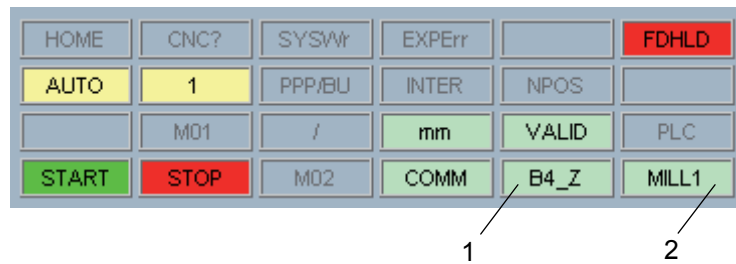
The status window can be displayed in two different ways.

### 4.9.1 Status window with short symbolic names

Flexium HMI up to version 3.1.0.10:

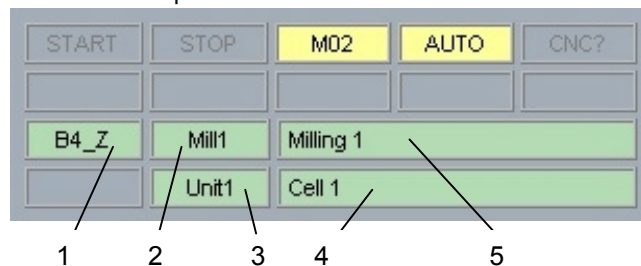


Flexium HMI from version 3.2.0.0 on:

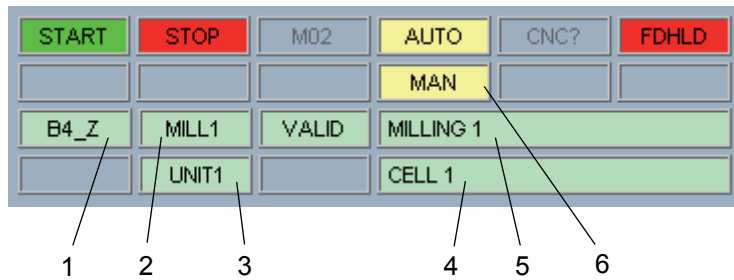


### 4.9.2 Status window with long symbolic names

Flexium HMI up to version 3.1.0.10:



Flexium HMI from version 3.2.0.0 on:



- 1 - Symbolic name of the CNC
- 2 - Short symbolic name of the channel
- 3 - Name of the machine unit
- 4 - Name of the grouping
- 5 - Long symbolic name of the channel
- 6 - Mode waiting (selected, but not yet active)

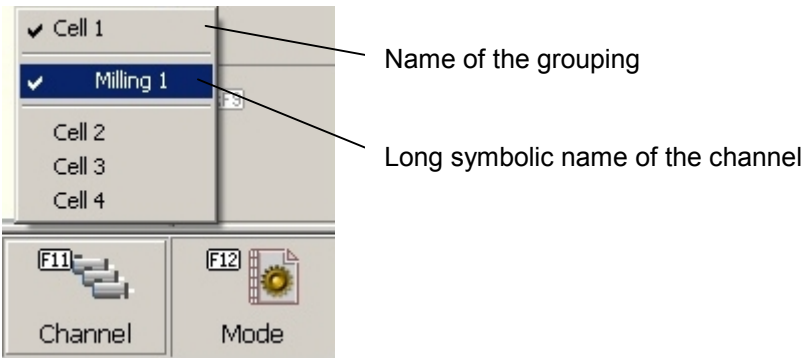
The other field have the same meaning as described in the chapter 'Status window' of the basic Flexium HMI operator manual.

#### 4.9.3 Selecting the status window display

|                                |                    |
|--------------------------------|--------------------|
| Open the function list         | F2                 |
| Select "Toggle status display" | ↑ or ↓ and Enter ↵ |
| or<br>Toggle with              | Ctrl + W           |

## 4.10 Channel selection

The channel selection is available on every relevant page of the HMI.  
The procedure is the same as with physical addresses.



### 4.10.1 Channel selection procedure

|                                         |                    |
|-----------------------------------------|--------------------|
| Open the channel selection              | F11                |
| Move the cursor to the desired grouping | ↑ or ↓ and Enter ↵ |
| Move the cursor to the desired channel  | ↑ or ↓ and Enter ↵ |

## 4.11 Particularities of the channel selection

When creating new programmes and files, an assignment to axes channels or CNC will be required. This can also be done at a later time with the function "Property".



A file whose assignment does not correspond to the settings of the channel configuration cannot be loaded in the CNC.

### 4.11.1 Example of creation of part programme

**Channel assignment:**

Assigns the file to the settings of the axes channel configuration. The file gets automatically the number of the corresponding channel. This assignment can be used to create so-called global programmes for the selected CNC.

**CNC assignment:**

These programmes can be used by any axes channel. When they are created, they are given a number of the type nnnn.0 or nnnn.9.

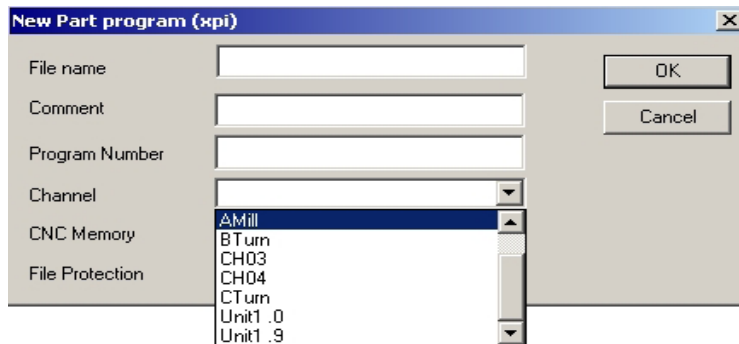
**Assignment to all CNC:**

Used to create global programmes for all CNC. They can be used by any axes channel of any CNC and are given a number of the type nnnn.0 or nnnn.9.

---

#### 4.11.2 Particularities with the function Multi-CNC

If the function Multi-CNC is activated in the system, an additional assignment to the Machine Units can be carried out. It is thus possible to load part programmes (\*.xpi) as well as compact part programmes (\*.xpc) automatically into all CNC belonging to a defined Machine Unit.



##### Assignment to Machine Units:

For part programmes (\*.xpi): They are given a number of the type nnnn.0 or nnnn.9.

For compact part programmes (\*.xpc): These programmes are assigned to a Machine Unit without specific number.

## 4.12 Specific features of the extended tool table

The function “Extended tool table” allows a precise specification of the tools.  
The names “Channel long symbolic” are used here to assign the tools to a specific channel.

**Tool Offsets**

| ID | Name      | Type    | L       | R     | @     | dL    | dR    | H     | Wear |
|----|-----------|---------|---------|-------|-------|-------|-------|-------|------|
| D1 | mill_long | Milling | 112.000 | 8.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0    |
| D3 | mill_long | Milling | 34.000  | 2.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0    |
| D5 | mill_long | Milling | 0.000   | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0    |
| D6 | mill_long | Milling | 0.000   | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0    |

TOChan Wear incr

GF1 Prod  
GF2 Prog  
GF3 Tool  
GF4 Work  
GF5 Variable  
GF6 Diag  
GF7 Service  
GF8  
GF9

F1 Help F2 Function F3 Tooltype F4 Next F5 Prev F6 D-Number F7 ToolMeas F8 TOGlb F9 Wear incr F10 Wear abs F11 Channel F12 Mode

---

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# Summary

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1

2

3

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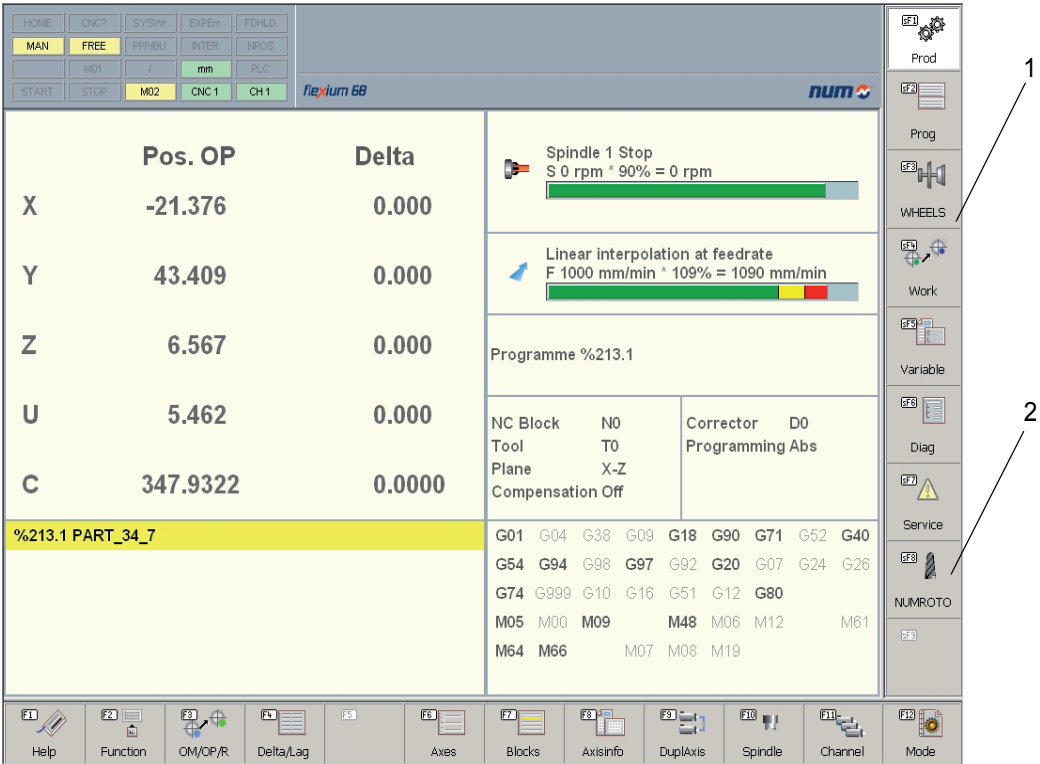
6

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5 Extensions for NUMROTOplus®

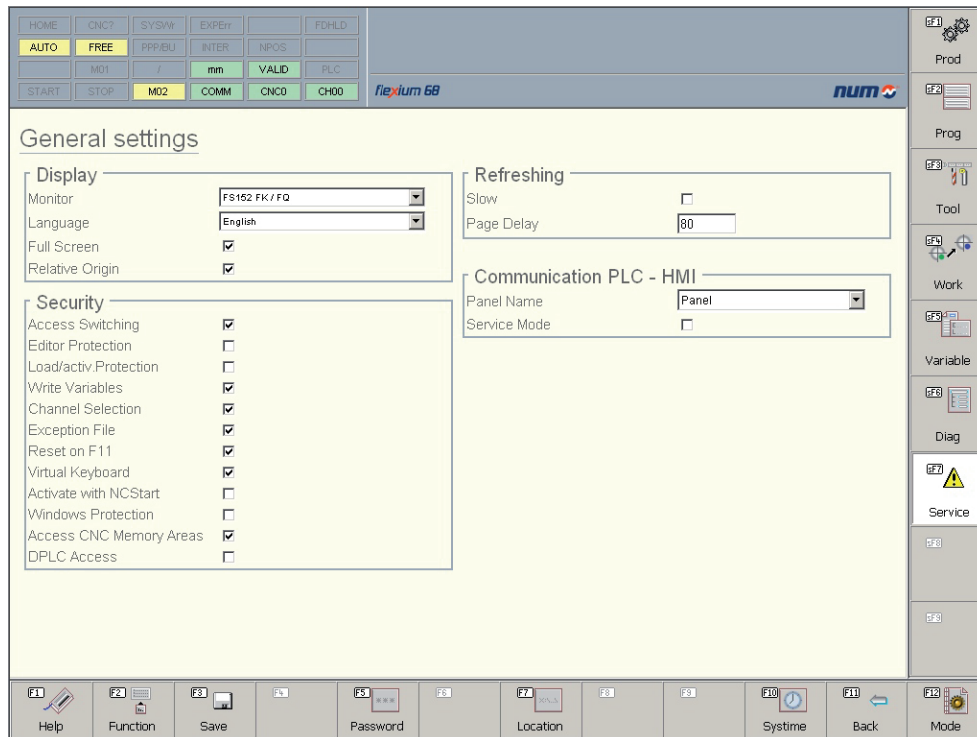
5.1 Particularities in the context bar



- 1 - Access to the context "Wheel compensation"
- 2 - Access to NUMROTOplus®.

## 5.2 Setting in the context “Service”

### The page “General settings” in the context “Service”



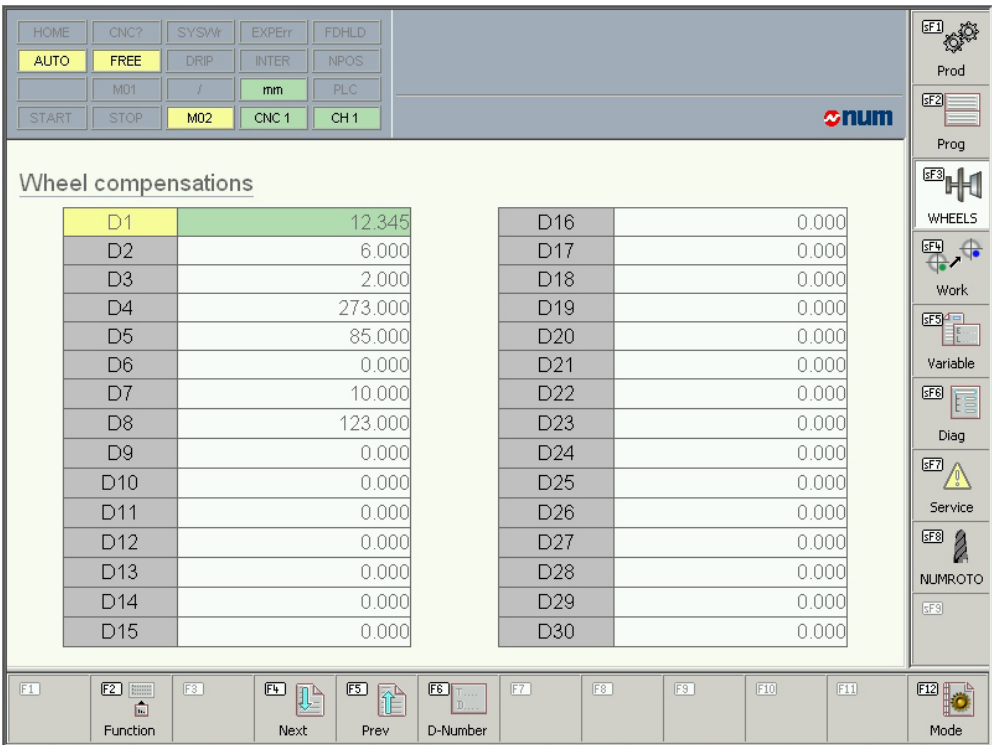
### 5.2.1 Explanation of the setting options in the field “Display”

**HMI for NUMROTO.** If this box is checked, Flexium will be used as the standard HMI in the NUMROTOplus® environment.

Activating the function key F12 on the main page of NUMROTOplus® will switch over to Flexium HMI.

### 5.3 Wheel compensation

This context allows to enter and modify wheel compensations.  
255 compensation values are available.



#### Possible actions

|                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------|
| Press <b>F6</b> to position the cursor directly on the desired compensation number                               |
| Press <b>F5</b> to select the previous page of the list                                                          |
| Press <b>F4</b> to select the next page of the list                                                              |
| Press <b>F2</b> to access all existing functions. Select the function with <b>↑</b> or <b>↓</b> and <b>Enter</b> |

#### 5.3.1 Entering compensation values

|                                                                                                                            |                                                                                |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Select a compensation using number D, enter the appropriate number and validate or<br>Select a compensation using the list | <b>F6</b> ,<br><b>Enter</b><br><br><b>F4</b> , <b>F5</b> , <b>↑</b> , <b>↓</b> |
| Open the field                                                                                                             | <b>Enter</b>                                                                   |
| Enter the desired value and validate                                                                                       | <b>Enter</b>                                                                   |

---

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# Summary

|          |                                    |           |
|----------|------------------------------------|-----------|
| <b>6</b> | <b>PLC visualization.....</b>      | <b>53</b> |
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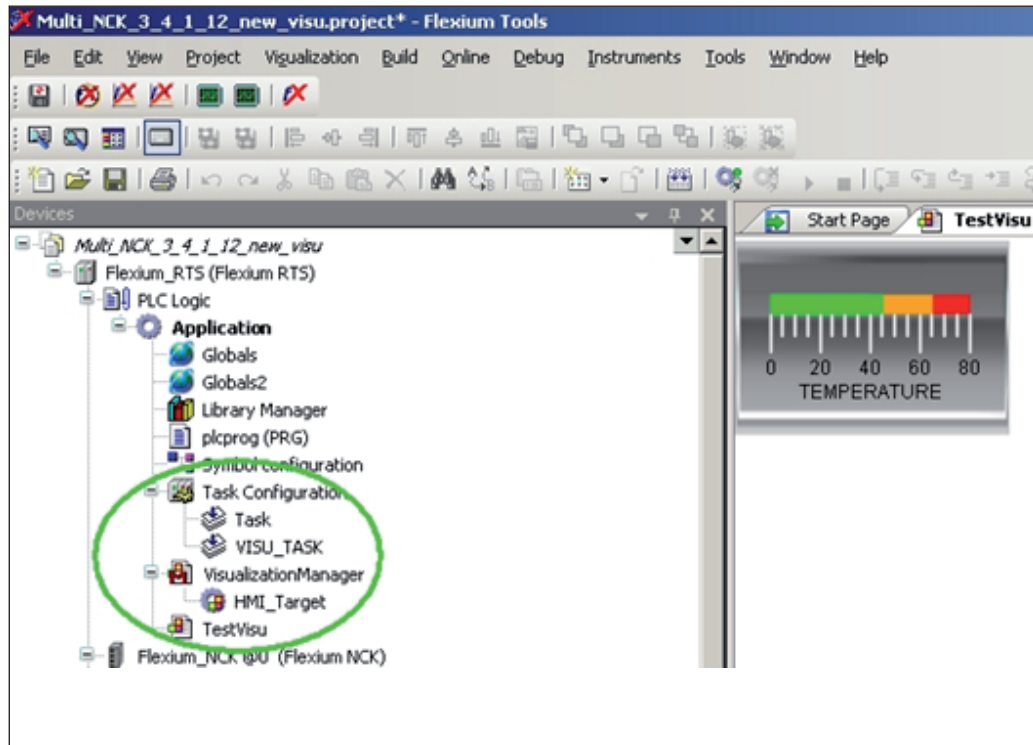
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## 6 PLC visualization

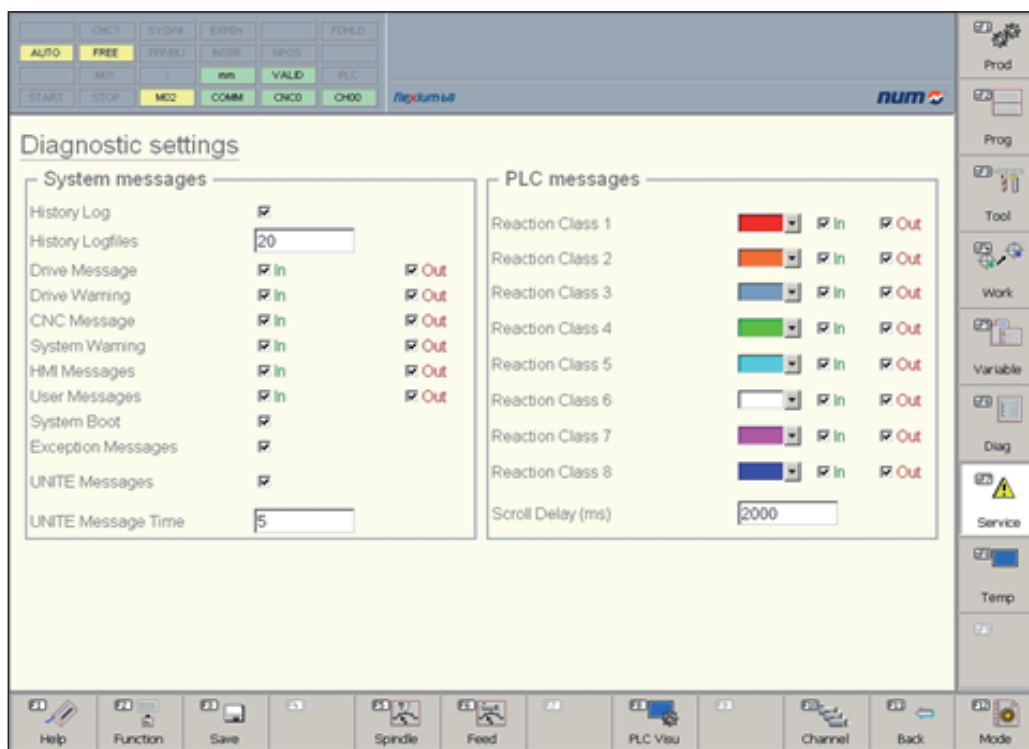
### 6.1 Integrated PLC visualization

From the Flexium HMI 3.4.0.0 on, it is possible to display CoDeSys visualization elements in the contexts sF1 "Production", sF8 or sF9.

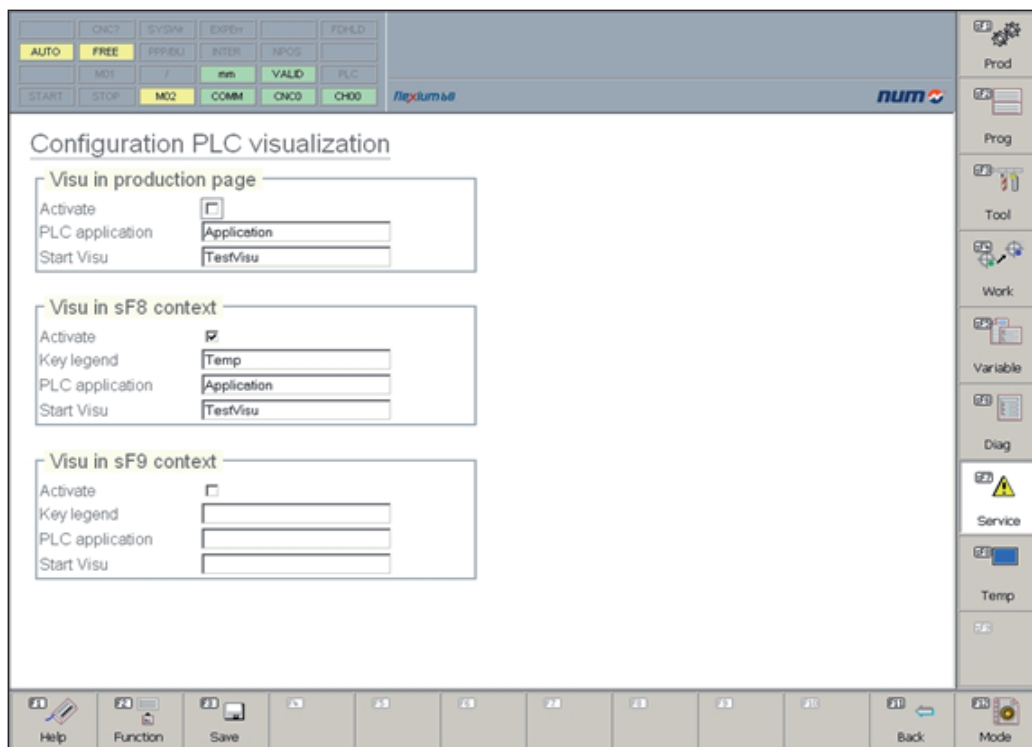


## Settings

|                                     |                                                                                                                                                                                                                                                           |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Select the context "Service"        |   +  |
| Enter your password                 |                                                                                                                                                                                                                                                           |
| Open the page "Diagnostic settings" |                                                                                         |



|                                                                                                                                                                         |                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
|   | to access the visualization settings page |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|



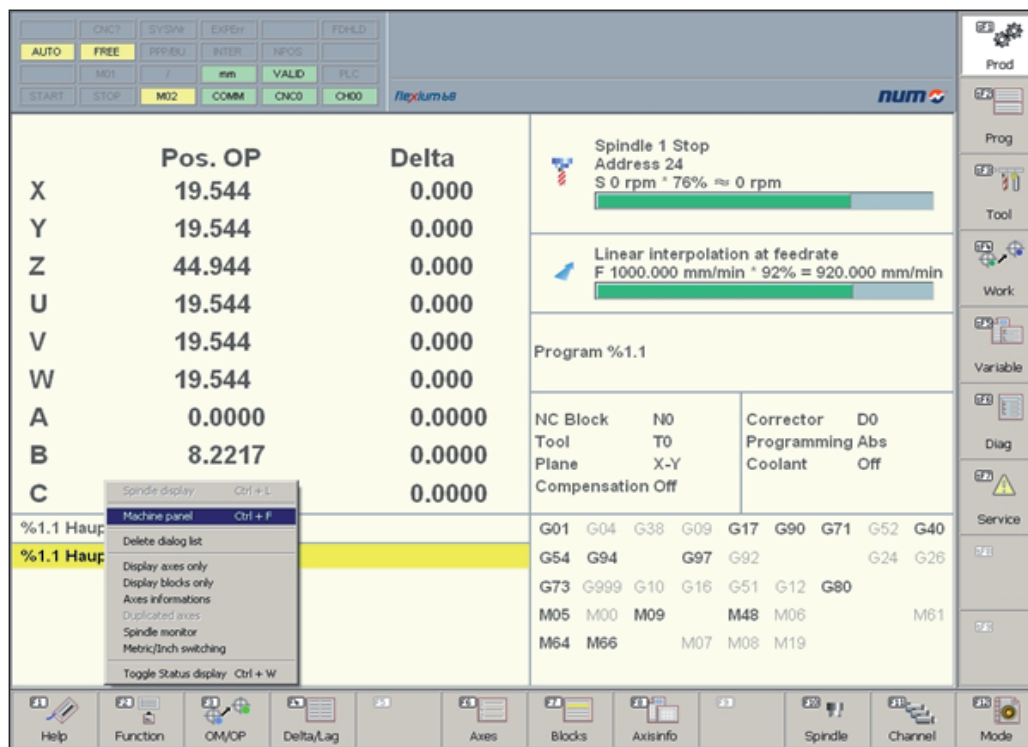
You may now select the desired location for your visualization display. Enter a key legend, the PLC application and the visualization names. To activate the display, check the appropriate box.



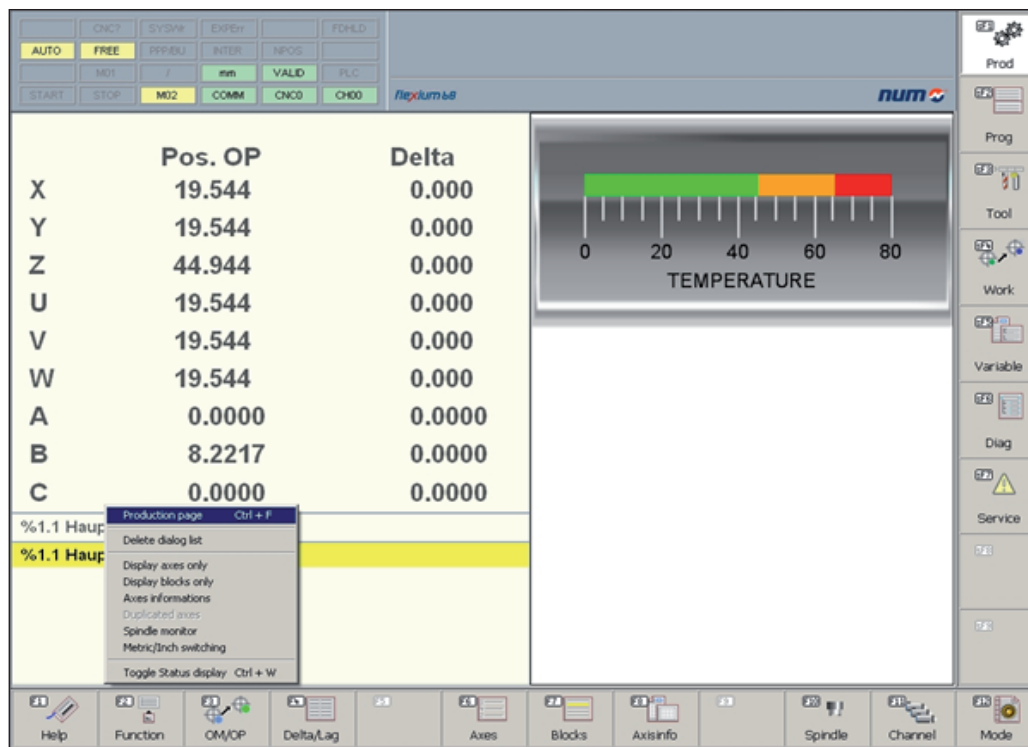
You have to close and restart Flexium HMI for the changes to take effect.

The visualization displays are now ready to be used.

## Particularity of the display in the context “Production”



Press (F2) and “Machine panel” or (Ctrl) + F to activate the display



Press (F2) and “Production page or (Ctrl) + F to activate the display

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