

Lenze

Manual



Global Drive
HMI Designer



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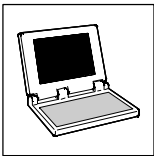
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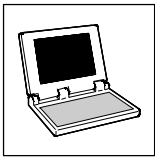
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Version 1.5 08/2003



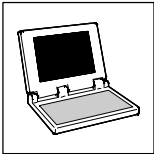
1	Preface and general information	1-1
1.1	About this Manual	1-1
1.1.1	Terminology used	1-1
1.1.2	What's new?	1-1
1.2	Conventions used	1-2
1.3	First steps	1-2
2	Project Manager	2-1
2.1	User interface	2-1
2.2	Menu reference	2-4
3	Project Editor	3-1
3.1	User interface	3-1
3.2	Menu reference	3-3
3.3	Dialog boxes	3-7
3.3.1	Standard radio buttons	3-7
3.3.2	Compilations	3-7
3.3.3	Special characters	3-8
3.3.4	Remarks	3-9
3.3.5	Colors	3-9
3.4	Project components	3-10
3.4.1	Variables	3-12
3.4.1.1	Access to codes	3-15
3.4.2	Pages	3-17
3.4.3	Sequences	3-19
3.4.4	Device memory areas	3-21
3.4.5	Data exchange areas	3-22
3.4.6	Information messages	3-24
3.4.7	Alarm messages	3-27
3.4.8	TouchKeys	3-30
3.4.9	Direct commands	3-36
3.4.10	Text lists	3-37
3.4.11	Picture lists	3-39
3.4.12	Pictures	3-41
3.4.13	Macros	3-42
3.4.14	Print pages	3-44
3.4.15	Reports	3-46
3.4.16	Head line/foot line	3-48
3.4.17	Trend buffer	3-50
3.4.18	Equations	3-52
3.4.19	Automatic operations	3-53
3.5	Fields	3-57
3.5.1	Label	3-57
3.5.2	Number	3-58
3.5.3	Text	3-63
3.5.4	Text list	3-66
3.5.5	Bar chart	3-69



HMI Designer

Contents

3.5.6	Picture list	3-74
3.5.7	Mobile symbolic	3-78
3.5.8	Date	3-81
3.5.9	Trend	3-83
3.5.10	Indicator (analog display)	3-85
3.5.11	Slide switch	3-89
3.5.12	Slide potentiometer	3-93
3.5.13	Rotary switch	3-97
3.5.14	Rotary potentiometer	3-101
3.5.15	TouchKey	3-105
3.5.16	Touch area	3-107
3.6	Configuration	3-109
3.6.1	Project information	3-109
3.6.2	Access rights	3-109
3.6.3	Timer	3-111
3.6.4	Function key assignment	3-112
3.6.5	System messages	3-113
3.6.6	Field keypad	3-114
3.6.7	Bitmap memory area	3-115
3.6.8	Supported languages	3-116
3.6.8.1	Define font for supported languages	3-117
3.6.9	Project settings	3-119
3.6.10	Print parameters	3-122
3.6.11	Import/Export	3-123
3.6.12	Data memory structure	3-124
3.7	Tools	3-128
3.7.1	Save/Restor	3-128
3.7.2	Import/export of translations	3-130
3.7.2.1	Export translations	3-130
3.7.2.2	Import translations	3-131
4	Font Editor	4-1
4.1	Menu reference	4-1
4.2	Create a new font	4-2
4.3	Edit an existing font	4-3
5	Appendix	5-1
5.1	Communication via the System bus (CAN)	5-1
5.1.1	CAN communication settings	5-2
5.1.2	Application example: Communication via process data channel CAN-IN/OUT 2	5-6
5.2	Application example: Programming Function keys	5-10
5.3	Memory and data exchange areas	5-13
5.3.1	Example: input area	5-14
5.3.2	Example: Status area	5-16
5.3.3	Example: Command area	5-18
5.3.4	Command list	5-20
5.4	Printers and interfaces to be used	5-21
6	Index	6-1



1 Preface and general information

1.1 About this Manual

This Manual contains information about **HMI Designer**, the high-performance development environment for **Lenze keypads**, also known as HMIs (Human Machine Interfaces).

1.1.1 Terminology used

Project

The HMI Designer provides you with a tool that you can use for the convenient creation of **Projects** that involve the configuration of a keypad.

- When a configuration has been completed within a project, you can use HMI Designer to convert (compile) it into the data format that is specific to the keypad, and transfer it to that keypad.

Project Manager/Project Editor

HMI Designer provides you with two modules for handling projects: the **Project Manager** and the **Project Editor**:

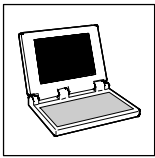
- In the **Project Manager** you determine the type of keypad and the the corresponding peripherals, and define which interfaces are used for communication between the keypad and the attached devices.
- In the **Project Editor** you then carry out the configuration of the corresponding keypad, and transfer the compiled data to this unit.

HMI Font Editor

The **HMI Font Editor** for comfortable creation and editing of typefaces (fonts) for keypads with graphical displays, to implement country- or company-specific characters.

1.1.2 What's new?

Version	ID-No.	Changes
1.0 06/2000	-	First edition
1.1 08/2000	-	Revised edition
1.2 11/2000	-	Revised edition
1.4 01/2002	-	Revised edition for program software 1.4
1.5 08/2003	-	Revised Edition for Program Software 1.6



HMI Designer

Preface and general information

1.2

Conventions used

This manual uses the following conventions to distinguish between different types of information:

Type of information	Marking	Example
Names of dialog boxes, input fields and selection lists	<i>italics</i>	The dialog box <i>Options</i>
Buttons	bold	Click OK , to...
Menu commands	bold	Use the command Messages you can...
		If several commands must be used in sequence to carry out a function, then the individual commands are separated by an arrow: Select File→Open , to...
Keyboard commands	<fett>	With <F2> to open the Input Assistant.
		If a command requires a combination of keys, then a "+" is placed between the key symbols: With <Shift>+<ESC> you can...
Program listings	Courier	IF var1 < var2 THEN...
Keywords	Courier bold	...starts with FUNCTION and ends with END FUNCTION .
Tip		TIP! If you position the mouse pointer over an icon in the toolbar, the associated command will be displayed as a "tool tip".

1.3

First steps

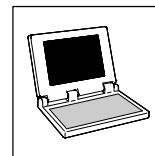


Tip!

Information on the topics of

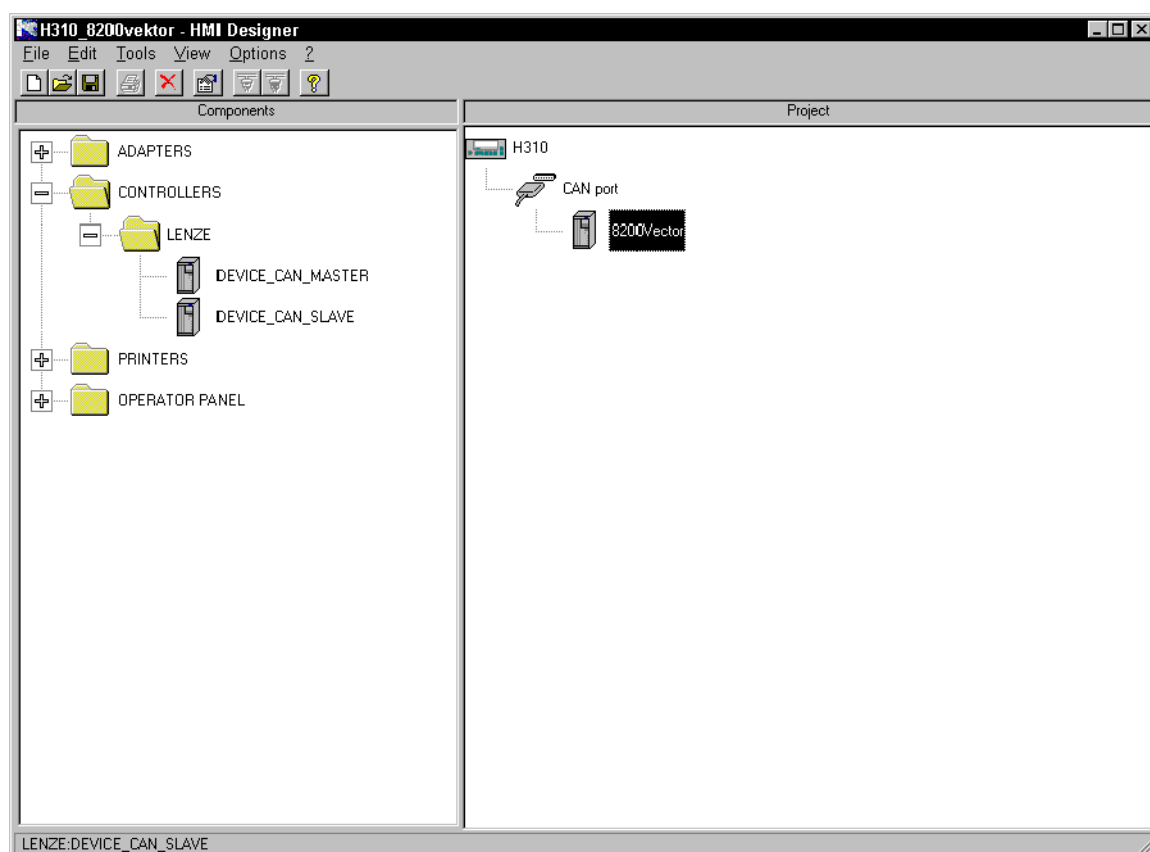
- System requirements
- Software installation
- First steps with HMI Designer

can be found in the Manual "HMI-Designer - First steps" (Ident number: 00422732).



2 Project Manager

2.1 User interface



Menu bar

The menu bar is placed along the top edge of the main window. It contains all the menu commands for HMI Designer.

Toolbar

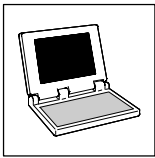
The symbol bar gives you fast access to the most frequently needed menu commands.

- Click on a symbol (icon) to execute the corresponding command.



Tip!

If you hold the mouse pointer over an icon in the function bar for a short time, the corresponding command will appear in a "Tool tip".



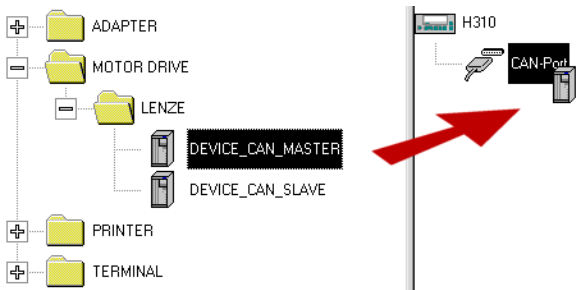
HMI Designer

Project Manager

Component area

In the component area you can find all the components that are available for the project (keypads, interfaces, printers, etc.).

- The display of the components is optional (**View→Components**).
- The components are arranged according to type in a hierarchical directory structure, so that they can be found quickly.
- A directory may contain further (sub)directories.
 - A click on the plus sign   will open the directory, and the subdirectories (if any) or components will then be displayed.
A minus sign is now displayed, instead of the plus sign.
 - A click on the minus sign   can be used to close the directory.
- Any components to which the a new component could be attached will be highlighted if you place the mouse pointer on top of the new component.



Project area

In the project area you determine the configuration of the keypad and the associated components (interfaces, devices, printers, etc.)

- You can edit the component parameters, add or remove components, and change the type of keypad to a different type.



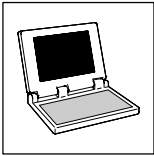
Caution!

Changing the type of the keypad may cause the loss of data that have already been configured!



Tip!

In the project area there is a context menu with the most frequently needed commands, which you can call up by a click on the right mouse button.



Status bar

The name of the component which you have selected is shown in the status bar.

- The command **View→Status bar** can be used to toggle the status bar on and off.
- If the status bar is selected, a tick ✓ appears next to this menu item.

Context menu

In the project area you can use the right mouse button to display a context menu.

- The context menu shows the commands that are most frequently used for the project area, or the component that has been marked.

Screen divider

The screen divider is the boundary between the component area and the project area.

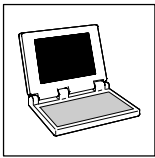
- If you place the mouse pointer on the screen divider, the symbol for the mouse pointer changes: 
- If you hold down the left mouse button, you can now drag the screen divider to the left or right.



Tip!

Note that the screen divider remains in the same absolute position, even if the HMI Designer window is resized.

If the screen divider is no longer visible, simply enlarge the HMI Designer window.



HMI Designer

Project Manager

2.2 Menu reference

File

	Add...	Create a new project.
	Open...	Open an existing project.
	Save	Save the project.
	Save as...	Save the project under a different name.
	Print	Print the project documentation.
	Exit	End HMI Designer.

Edit

	Parameters...	Display/edit the parameters for the selected components.
	Project Editor...	Configure the selected keypad in the Project Editor.
	Rename	Rename the selected keypad.
	Delete	Delete the selected keypad and the associated components.

Extras

Convert...	Convert the type of the selected keypad to another type.
Changing the type of the keypad may cause the loss of data that have already been configured!	

View

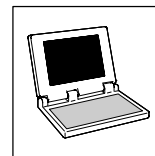
Palette	Show or hide the components that are available for the project.
Status bar	Show/hide the status bar.
When a view is activated, a tick ✓ appears next to the corresponding menu item.	

Options

Language...	Select the language (English/German) for HMI Designer.
-------------	--

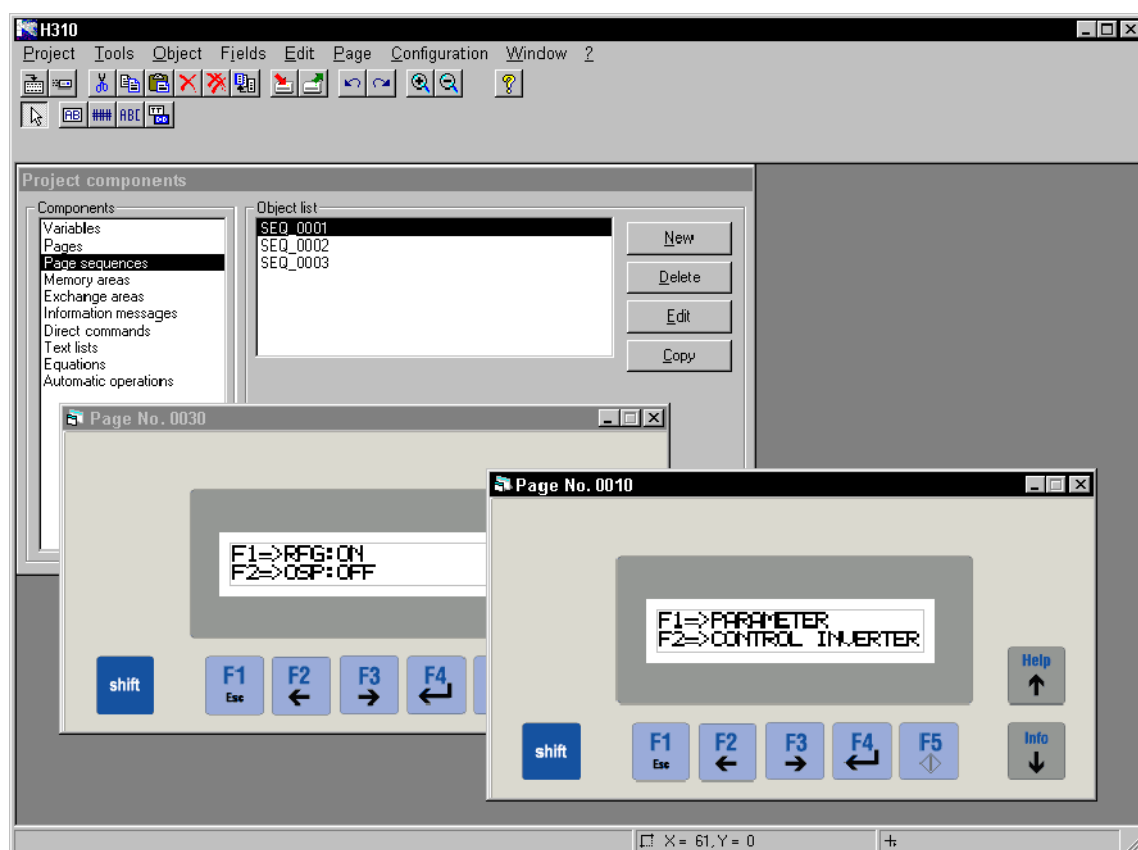
? (Help)

	Help topics...	Show the contents/index of the online help.
	Help index...	Show the index for the online help.
	Info...	Shows information about HMI Designer.



3 Project Editor

3.1 User interface



Menu bar

The menu bar is placed along the top edge of the main window. It contains all the menu commands for HMI Designer.

Symbol bar

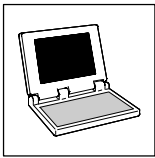
The symbol bar gives you fast access to the most frequently required menu commands.

- Click on a symbol (icon) to execute the corresponding command.



Tip!

If you hold the mouse pointer over an icon in the function bar for a short time, the corresponding command will appear in a "Tool tip".



HMI Designer

Project editor

Working area

The working area of the project editor shows the windows for editing project components, pages, printout pages etc. .



Tip!

The menu **Window** menu you will find all the commands for managing the windows.

These include commands for the automatic arrangement of the windows, as well as for changing from one open window to another.

At the bottom of the **Window** menu you will find a list of all the windows that are open, in the order in which they were opened.

- Click on an entry, to change to the corresponding window. The active window is indicated by a tick in front of the menu item.

Project components

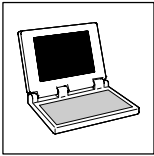
The **Project components** window is always open, so that you can define and edit the elements of the various project components.

Status bar

The status bar shows information, such as page coordinates, date, time, and notes on the selected command.

Context menu

In many windows you have the option clicking on the right mouse button, to display a context menu that contains the most frequently required commands.



3.2 Menu reference



Tip!
The menus and commands which are shown in the Project Editor depend on the type of keypad.

Project

Close	Close Project Editor, without updating the alterations.
-------	---

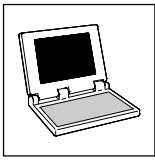
Tools

	Compile project...	Compile the project, i.e. convert it into a format that is understood by the keypad.
	Transfer project...	Transfer the compiled project to the keypad, via the interface port.
	Font Editor...	Start the Font Editor to create or edit a font for the keypad.
	Save/restore...	Create a backup copy of the project, etc. Restore a project from a backup copy.
	Export translations...	Export the project translations to a text file.
	Import translations...	Import the project translations from a text file.

Object

	The graphics objects are only available in keypads that have a graphics display.
--	--

	Selection mode	Selection mode (objects can be selected)
	Line	Draw a line.
	Rectangle	Draw a rectangle.
	Ellipse	Draw an ellipse or a circle.
	Arc	Draw an arc (section of a circle).
	Insert bitmap...	Insert a graphics object in bitmap format (*.bmp).
	Load library...	Load an object library.



HMI Designer

Project editor

Fields



The fields which are available depend on the type of keypad.

	Label	Insert a label.
	Number	Insert a number.
	Text	Insert a text.
	Text list	Insert a text list.
	Bar chart	Insert a bar chart.
	Mobil symbolic	Insertion of moving fields.
	Picture list	Insert a list of pictures.
	Date	Insert a date.
	Trend	Insert a trend (trend diagram).
	Indicator	Insertion of an analog display.
	Slide switch	Insertion of a slide switch (display element).
	Slide potentiometer	Insertion of a slide potentiometers (display element).
	Rotary switch	Insertion of a rotary switch (display element).
	Rotary potentiometer	Insertion of a rotary potentiometers (display element).
	TouchKey	Insert a TouchKey.
	Touch area	Insertion of a touch area (invisible field).

Alter

	Delete	Delete the marked object(s).
	Delete all	Delete all objects.
	Cut	Cut out the marked objects, and place them on the clipboard.
	Copy	Copy the marked objects to the clipboard.
	Insert	Insert the objects from the clipboard.
	Duplicate	Make a duplicate of the marked objects.
	Undo	Undo the last command.
	Redo	Redo the last command that was undone.
	Save as library...	Save a collection of objects in a library.

Arrange



To front

Move the marked objects to the front (foreground).



To back

Move the marked objects to the back (background).



One layer to front

Move the marked objects one layer towards the front.



One layer back

Move the marked objects one layer towards the back.

Arrange



Top

Arrange the marked objects at the top.



Below

Arrange the marked objects at the bottom.



Right

Arrange the marked objects at the right.



Left

Arrange the marked objects at the left.



Vertically centered

Arrange the marked objects to be vertically centered.



Horizontally centered

Arrange the marked objects to be horizontally centered.

Mirror



Horizontally

Mirrors the marked objects about a vertical axis set in the middle of the marked objects.



Vertically

Mirrors the marked objects about a horizontal axis set in the middle of the marked objects.



Color...

Select a color for the marked objects and those created in future.



Raster...

Set the movement raster for the page.



Show touch areas

Anzeigen der unsichtbaren Felder vom Typ "Touch area".



Font...

Select a font for the marked objects and those created in future.



Inverted Text

Inverts the color for marked text objects.



3D

Display highlighted text in 3D.

Font size



X1

Display marked text object in standard size.



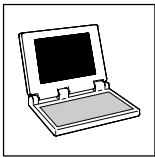
X2

Display marked text objects at 2x enlargement.



X4

Display marked text objects at 4x enlargement.



HMI Designer

Project editor



Enlarge view

Enlarge the page view.



Reduce view

Reduce the page view.

Settings...

Display/edit the object parameters.

Translations...

Settings for text translations.

Page

Page information

Show the information for the current page.

Function key assignment...

Display of function key assignment

Copy to clipboard

Copy active page to the Windows Clipboard

Axis origin

Show cross-hairs to align elements on page. The x/y values for the cross-hairs can be entered in the status bar.

Configuration

Project information...

Show general information about the keypad.

Access rights...

Change and set the access rights for the keypad.

Timer...

Display/setting of available timers.

Function key assignment...

Display/edit the function key assignment.

System messages...

Display/edit the system messages shown by the keypad.

Field keypad

Variable type assignment for value entry

Bitmap memory area

Information about bitmap memory capacity.

Languages...

Set the languages that are supported by the keypad.

Project settings...

Set the general operating parameters for the project.

Print settings...

Display/edit the print parameters.

Import/Export...

Import/export global project sections, such as headers/footers for printing.

Data storage structure...

Define the structure of a set-up.

Window

Vertical

Arrange all the open windows one above another.

Horizontal

Arrange all open windows side-by-side.

? (Help)



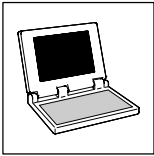
Help topics...

Show the contents/index for this online help.



Help index...

Show the index for this online help.



3.3 Dialog boxes

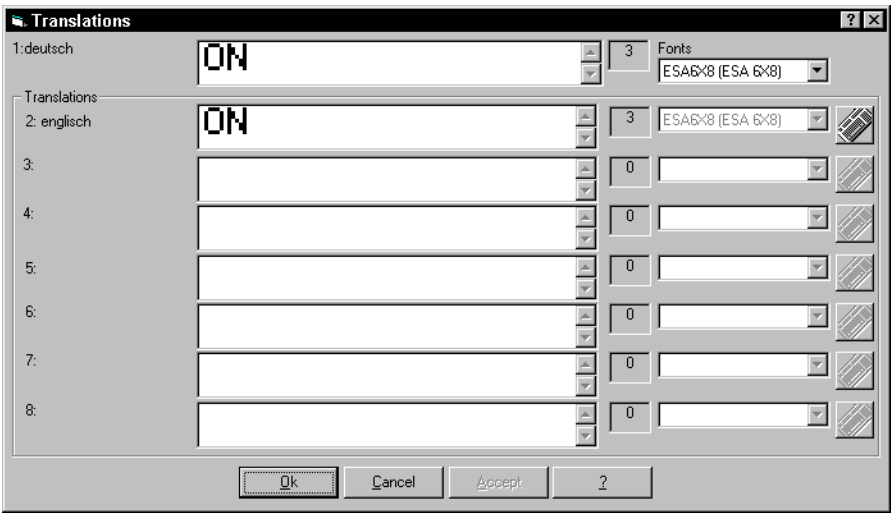
3.3.1 Standard radio buttons

OK	Accept the alterations and close the dialog box.
Abort	Cancel the alterations and close the dialog box.
Accept	Accept the alterations and leave the dialog box open.
?	Show the online help, with information about the corresponding dialog box.

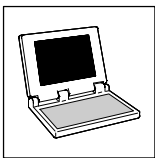
3.3.2 Compilations



In the HMI Designer you can configure the keypads, so that the display texts are available in up to 8 different languages.



- For languages which you have defined under **Configuration→Languages** you can enter the appropriate compilations in the *Compilations* dialog box.
- On keypads with a TouchScreen you can also assign an individual font to each defined language (to be able to use language-specific special characters, for instance).



HMI Designer

Project editor

Show the Compilation dialog box

The dialog box *Compilations* is only displayed if you

- click  in the dialog box for a project component.
- insert a label and confirm the entry of the label with **<Enter>** *Compilations*
- mark a text field on the page and execute the command **Alter → Compilations** .



Tip!

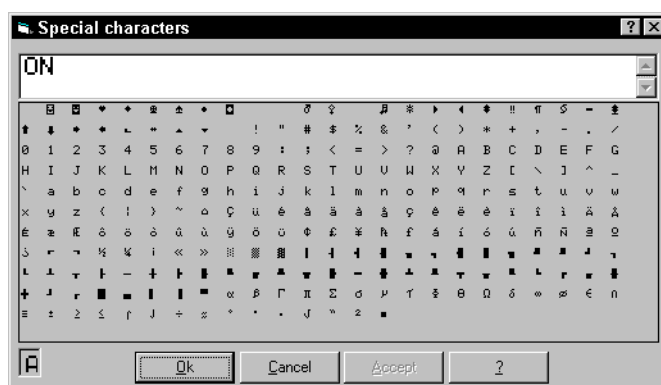
- The dialog box *Compilations* is only shown if you have used **Configuration → Languages** to define at least two languages.
- The maximum number of characters is determined by the number of characters in the text for the first language.
- You can find further information on the topic of translation in the chapter “Configuration”.
( 3-116)

3.3.3

Special characters



The dialog box *Special characters* shows you all the characters that are contained in the font, and thus enables you to enter special characters which cannot be entered directly from the keyboard.

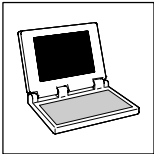


- The current text is displayed in the upper entry line.
- You can also edit the upper entry line directly, e.g. to move the insertion mark, or to remove characters, using the **** or **<←>** keys.
- If you move the mouse pointer over a character, the corresponding character will be shown magnified.
- If you place the mouse pointer on a character and click on it, it will be inserted into the text at the position indicated by the insertion mark in the upper entry line.



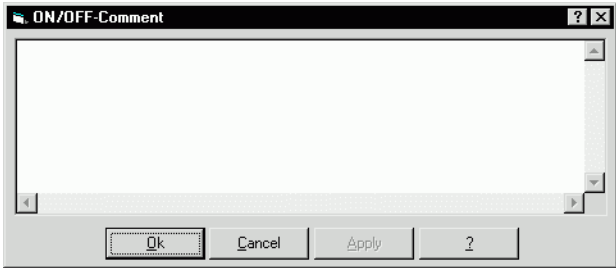
Tip!

The dialog box *Special characters* can also be called up by the function key **<F12>** from a text input box.



3.3.4 Remarks

The radio button **Comment** opens a dialog box where you can enter comments on the corresponding object of the project component.



- If you use the **Duplicate** function, the remarks will not be duplicated together with the object.

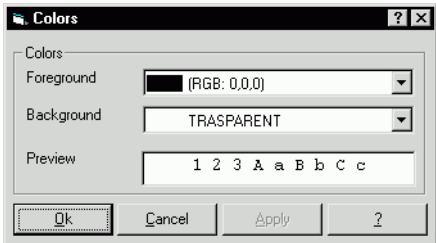
3.3.5 Colors

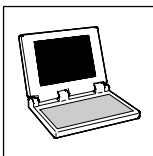


In the dialog box *Colors* you can select the colors for the foreground and background display of an object.



Tip!
The use of colors depends on the type of keypad.





HMI Designer

Project editor

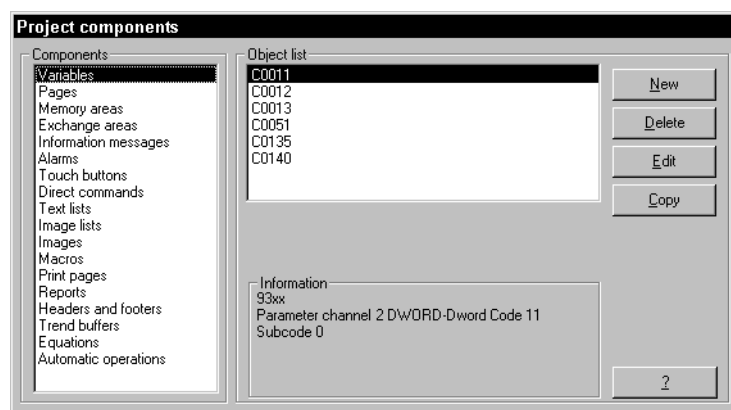
3.4 Project components



Tip!

The project components which are available in the *Project components* dialog box depend on the type of operating unit.

The adjustment options, and the registers that are displayed in the dialog boxes for the various project components, can also vary according to the type of operating unit.



Components

Contains the components which are available for the selected operating unit and possess corresponding objects that can be configured.

Component list

The corresponding objects for the selected components are presented in the component list.

Info

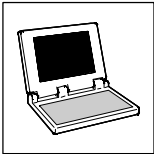
Shows information on a selected object.

Add an object to a component

- Double-click on the components in the selection box **Components** to which you want to add a new object
- or -
- mark the components in the selection box **Components** to which you want to add a new object, and confirm by pressing **New**.

Edit component objects

- Mark the object which is to be edited, and press the **Edit** button - or -
- double-click on the object that is to be edited.



Delete a component object:

- Mark the object which is to be deleted, and press the **Delete** button, or .

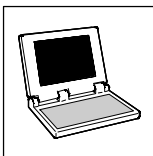
Duplicate a component object



Tip!

You can use the **Duplicate** function to create a new object, and thus carry over the settings for an object that already exists.

- Mark the object that has the settings which you want to carry over to the new object, and press **Duplicate**.



HMI Designer

Project editor

3.4.1 Variables

The project component **Variables** defines variables which can be used as variable fields.

- Each variable field is assigned to an device variable.
- The value of a variable that is represented in a variable field can be altered by the user, by placing the cursor on the variable field.
- Variable fields can be text fields or numerical fields.

General

Name

Name of the variables to be used in Project Editor.

- We recommend that you use a name that indicates the function of the variable, to assist the programmer.

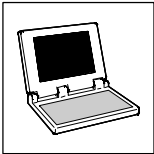
Comment

Entry of additional information about the object. (3-9)

Device

Variable assignment to an

- external automation component (e.g. controller defined in the project manager).
- Internal variable of the keypad



Device data area

Variable assigned to external automation component:

- Select whether data exchange is via parameter channel 1/2, or process data channel 1, 2 or 3.
 - For code access, use *Parameter channel 1 DWORD* or *Parameter channel 2 DWORD*.

Variable assigned to internal variable of keypad:

- Select the variable type.
 - *Internal registers*: Word, Dword, Floating point, String
 - *Internal registers (bit)*: Bit

Type

The data length of the parameter data or process data telegram (selection “xxx.x”, “xxx.xx” or “xxx.xxx”).

- “xxx.xx” stands for access to a code with 2 decimal places (e.g. C0012 - “Run-up time”). This selection automatically sets the linear correction for FIXED32 codes.

Sign

Displays the variables with/without mathematical sign.

- Activate the option **Sign** to display the variables with their mathematical sign.
- When this option is activated, the sign is only shown for negative values.

Code/Subcode

(only with selection “Parameter channel 1/2”)

Defines the code that is to be used for data exchange.

Offset

(only with selection “Can In/Out 1/2/3”)

The offset defines which byte of the process data telegram is to be accessed (offset 0 = byte 1).

The possible value of the offset depends on whether a CAN object of type WORD or DWORD was selected:

- For the type WORD, the offset can be from 0 to 6.
For instance, to access bytes 7/8, enter 6 as the offset value.
- For the type DWORD, the offset can be from 0 to 4.
For instance, to access bytes 5/6/7/8, enter 4 as the offset value.

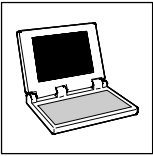
IR or Bit

(only with “Internal registers” or “Internal registers (bit)”)

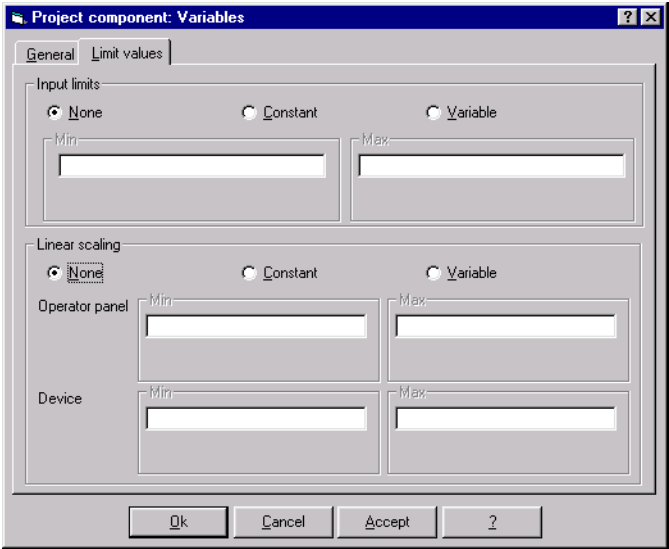
Determination of address in the internal register where the variable is to be stored.

- An address can only be used once.
- Memory available for internal variables:

EPM-H310	EPM-H315	EPM-H410	EPM-H502	EPM-H505	EPM-H510	EPM-H520
0.5 kB	2 kB	4 kB	2 kB	2kB	4 kB	4 kB



Entry limits



Entry limits

In the group field **Entry limits** you can define optional entry limits for the variables.

If the Constant option is selected, you can enter fixed values as input limitation.

If the **Variable** option is selected, you can enter a variable as input limitation. The variables must be defined beforehand and assigned with a value.

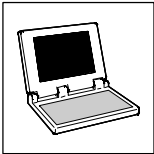
Linear correction

- In the group field **Linear correction** you have the option of entering a scaling routine for the variable.
- With the scaling routine you can use a range of values in the keypad that is different from the range in the device, so that you can obtain a direct display in other units (e.g. rpm instead of frequency).
 - Example: scale frequency (50 Hz) to revs. per min. (1500 rpm):

If the Constant option is selected, you can enter fixed values as scaling values.

	min	max
Keypad	0	1500
Device	0	50

If the **Variable** option is selected, you can enter a variable as input limitation. The variables must be defined beforehand and assigned with a value.



3.4.1.1 Access to codes



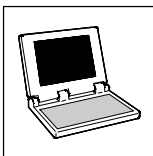
Tip!

Lenze codes have various data formats.

The settings that must be made in the dialog box *Project Components Variables* for the specific format for the particular code can be found in the following table.

- Further information on the data formats for codes can be found in the system manual for the drive controller (Part D, “Code table”).

Code (example)	Data format for the code	Settings in the dialog box				
		General			Limits and linear correction	
		Communication form	Type	Sign	Constant	linear correction
C0470	B8 1 byte, bit-coded	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
C0150	B16 2 bytes, bit-coded	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
C0471	B32 4 bytes, bit-coded	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
C0012	FIX32 32-bit value decimal with 4 dec. places	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	yes Terminal 0 ... 1 Device 0 ... 10000 or via “xxx.xx”
C0474	I32 4 bytes, with sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	yes	no	no
C0169	U32 4 bytes, without sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no



HMI Designer

Project editor

Creation of variables in Drive PLC Developer Studio (DDS)

Only variables linked with codes and PLC markers (C2500/C2501) can be used to write and read variables.

Code	Data format for the code	Settings in the dialog box				
		General			Limits and linear correction	
		Device data area	Type	Sign	Constant	linear correction
User-defined	BOOL In the instance Parameter manager: ext. data type: 8-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	BYTE In the instance Parameter manager: ext. data type: 16-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	WORD In the instance Parameter manager: ext. data type: 16-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	DWORD In the instance Parameter manager: ext. data type: 32-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	SINT In the instance Parameter manager: ext. data type: 8-bit, with sign	Access not possible				
	USINT In the instance Parameter manager: ext. data type: 8-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	INT In the instance Parameter manager: ext. data type: fixed point	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	yes	no	yes
	UINT In the instance Parameter manager: ext. data type: 16-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no
	DINT In the instance Parameter manager: ext. data type: 32-bit, with sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	yes	no	no
	UDINT In the instance Parameter manager: ext. data type: 32-bit, no sign	Parameter Channel 1 DWORD or Parameter Channel 2 DWORD	DWORD	no	no	no



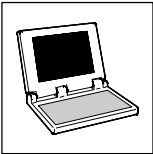
Tip!

The indication “???” on the keypad display means one of the following:

- The code does not exist.
- No corresponding subcode has been entered.
- The communication with the drive controller is faulty.

The indication “***” on the keypad display means:

- No enough places are available to show the value.

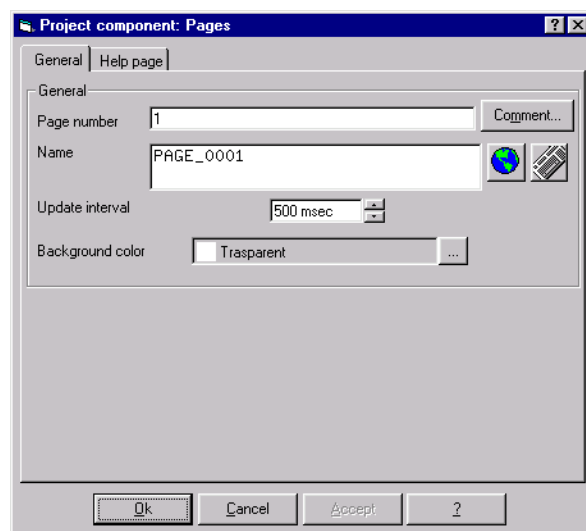


3.4.2 Pages

Using the pages, you can define the representation of static and dynamic information on the keypad display.

- The keypad used determines whether a page can display alphanumerical characters (text) or graphics and bitmaps.
- The maximum possible number of pages on the type of keypad.
(see hardware manual)

General



Page number

The number that is used to access the page.

- A page number can only be assigned once.
- Defined sequences make use of these page numbers.

Comment

Entry of additional information about the object. (3-9)

Name

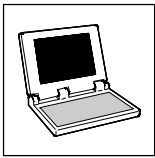
Name of the page, for use in Project Editor.

Refresh delay

The time interval for refreshing/updating the (dynamic) information on the page.

Background color

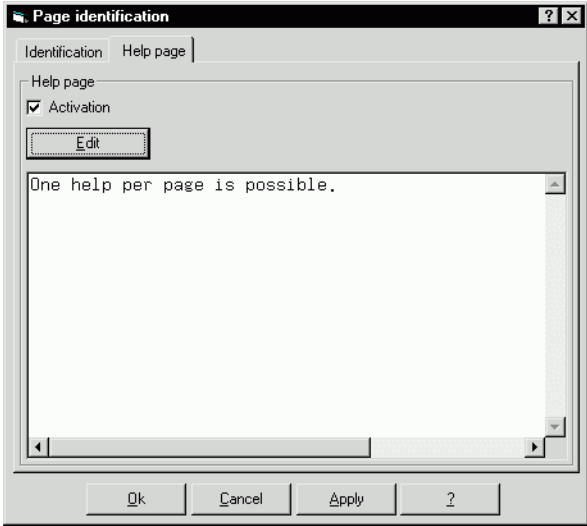
The ... button opens a dialog window for selecting the background colour of your display.



HMI Designer

Project editor

Help page



On a help page you can enter additional information (help texts) that can be displayed on the keypad for the user.

Activate

Activate this option check box, if you want to use the help page.

Edit

Edit the text for the help page, in the Help Editor

Edit

Automatic jump to next entry field

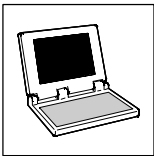


Note!

This option can only be used for the text display.

Activate this option check box if the user is to be automatically switched to the next field after making the entry in this field.

- The sequence of the fields is defined by the Field Index.



3.4.3 Sequences



Tip!

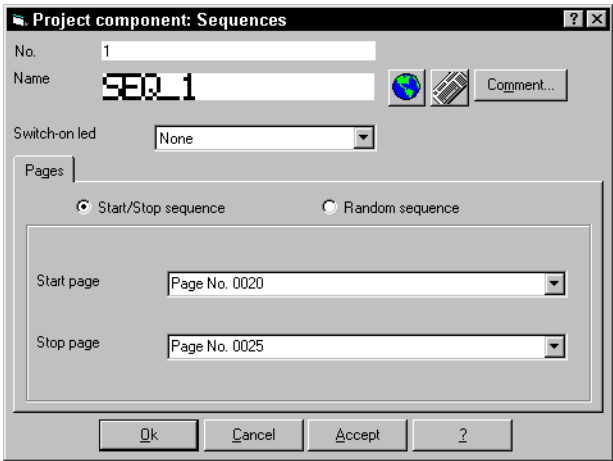
The correct functioning of a project requires that keypads without a TouchScreen must have at least one sequence of pages defined as a start-up sequence.

If pages are not included in a sequence, then the display management must be performed by the attached device, using the command area.

A sequence is to be understood as one or more linked pages, which can be stepped through by using the arrow keys on the keypad.

A sequence can be called up by one of the following options:

- By a command from an attached device.
- By pressing a function key.
- By the definition of a start-up sequence for the switch-on of the keypad.



No.

The number that is used to access the sequence.

- A number can only be assigned once.

Name

Name of the sequence in Project Editor.



Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (3-7)

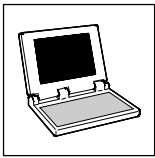


Special characters

Entry of special characters which cannot be entered directly from the keyboard. (3-8)

Comment

Entry of additional information about the object. (3-9)



HMI Designer

Project editor

Switch on LED

The LED in a function key can be switched on when the sequence is activated.

Start/stop sequence

Start/stop sequences are defined by a start and a stop page, and include all the pages which are defined between the start and stop pages.

- The number of the start page must be the same as or lower than the number of the stop page.



Tip!

When you are defining pages, you can leave out numbers, so that you have the option of adding pages into a sequence at a later stage.

Example:

Define pages with numbers at intervals of 5 (5, 10, 15, 20, ...).
Now you can, for instance, define a start/stop sequence starting at page 5 and ending at page 20.
If you need to insert another page into the sequence later, simply define a page with one of the numbers that were left out (6, 7, 8, ...).

Free sequence

A free sequence can have pages assigned with page numbers in any order (e.g. 8 →20→3 →45 →46 →22).



Add the selected page to a sequence.

Functions for pages that are already included in a sequence: (right list box)



Remove marked page from a sequence.



Move the marked page forwards one position in the sequence.



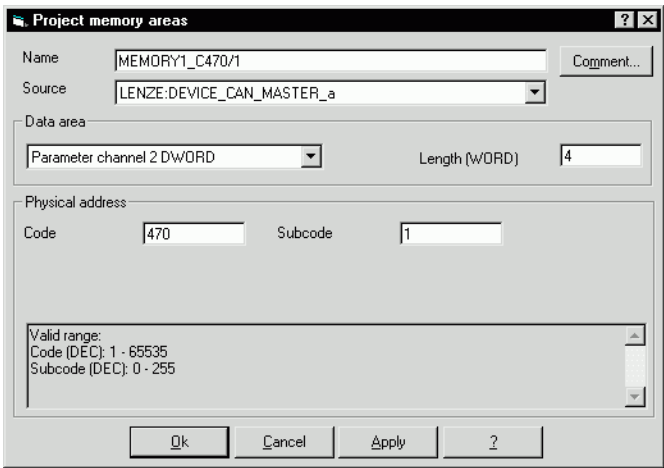
Move the marked page back one position in the sequence.



Remove all pages from the sequence.

3.4.4 Device memory areas

- A device memory area is understood as a contiguous area of data in the attached device.
- Device memory areas are required to be able to use the **Data exchange areas** component.
 - Further information can be found in chapter 5.3, “Memory and exchange areas”. (📖 5-13)



Name
Name of the area, for use in Project Editor.

Comment
Entry of additional information about the object. (📖 3-9)

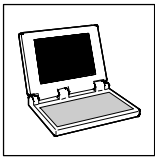
Device
The device with the device memory area to be accessed.

Device data area
Select whether data exchange is via parameter channel 1/2, or process data channel 1, 2 or 3.

Length
Definition of exchange area size.

Code/Subcode
Defines the code that is to be used for data exchange.

Offset
The offset defines which byte of the process data telegram is to be accessed (offset 0 = byte 1).



HMI Designer

Project editor

3.4.5 Data exchange areas

The memory and data exchange areas can be used to implement functions such as: alarm messages, information messages, page changes, switch LEDs on/off from attached device.

- Alarm or message areas can only be used together with device memory areas.
- Alarms or messages with value structure areas do not require the use of device memory areas. They are controlled via variables.
- Data exchange areas are exchanged cyclically with the device, and are divided into write and read areas.
 - Read areas are update in a cycle that is defined by the programmer and are divided into an **Input area** and a **Command area**.
 - Write areas are only update in the attached device if there has been an alteration in the **Status area** of the keypad.

Input area

The input area is used by the keypad to access system events that have been recorded by the attached device, and for the output of alarm and information messages.

Command area

The command area is used by the attached device for the performance of certain functions and/or commands by the keypad, e.g. page change.

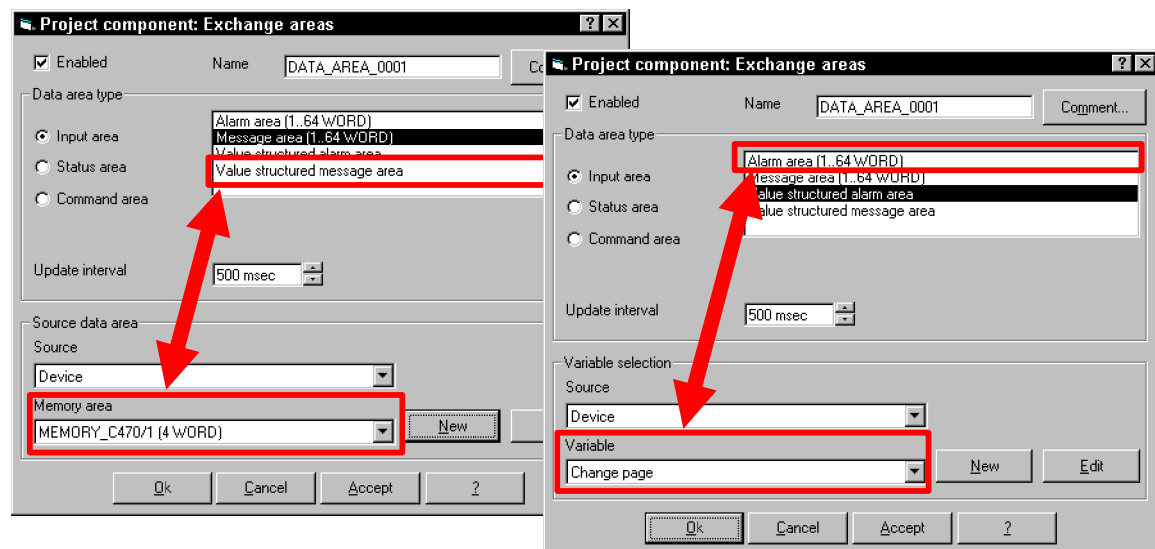
Status area

The status area is used by the keypad to inform the connected device about the change of the keypad operating status or as response to a request from the connected device (e. g. status of function keys).



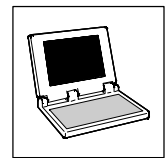
Tip!

Further information can be found in chapter 5.3, “Memory and exchange areas”. (□ 5-13)



Activate

Activate this option check box, if you want to use the exchange area.
(Compiling the registers does not automatically activate the exchange area.)



Name

Name of the exchange area, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)

Data area type

Select the data area type:

- Input area
- Command area
- Status area

Refresh delay

The time interval for updating the exchange information.

Source

Data source for the assignment of the exchange area.

Memory area

(only with message or alarm area)

Assignment of an available memory/storage area.

New

Opens the dialog box for the project component **Device memory areas** to add a new device memory area.

Edit

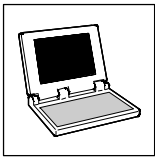
Opens the dialog box for the project component **Device memory areas** to edit the selected device memory area.

Variable

(only with a message or an alarm with value structure area).

Variable assignment.

- Alarms and messages can be activated by changing the value of a variable.



HMI Designer

Project editor

3.4.6 Information messages

Information messages are texts that can be shown to the user as a result of an event.

- An information message can include a message field to show the numerical value of the variable that triggered the message.
- Depending on the type of keypad that is used, date and time of the event may also be shown.



Name

Name of the information message, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Message area

Assignment of an available exchange area.

New

Opens the dialog box for the project component **Data exchange areas** to add a new data exchange area.

Edit

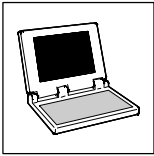
Opens the dialog box for the project component **Data exchange areas** to edit the selected exchange area.

Bit Number

Determines which bit (with status "1" or TRUE) triggers the information message.

Value

Selection of the variable value which activates the information message. (3-22, Exchange areas)



Text

Text

Entry of the message to be shown.

Font size

Select the font size for the message to be shown.

Preview

Preview of the message to be shown.



Message field

Assignment of a field of type "Number" to the message.

- With the help of this field, you can show the numerical value of the variable that triggered the message.

Add

Assignment of a field of type "Number" to the message.

Edit

Edit the assigned field.

Remove

Remove the assignment.



Help page

Additional information (help texts) that can be displayed on the keypad for the user.

Edit

Opens the dialog box Help Editor, to enter the help texts in the defined languages.

Preview

Preview of the help message to be displayed.



Help key

Definition of a help key that can be used to call up a specific page.

Go to page

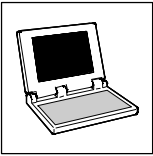
Select the page that will be called up by operating the help key.

Label

Label for the help key

Preview

Preview of the help key to be displayed.



HMI Designer

Project editor



Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (📖 3-7)



Special characters

Entry of special characters which cannot be entered directly from the keyboard. (📖 3-8)



Colors

Select foreground and background colors for the representation on the display. (📖 3-9)



Print options

Print message

Activate this option check box, if you want the message to be printed out when it is triggered.

3.4.7 Alarm messages

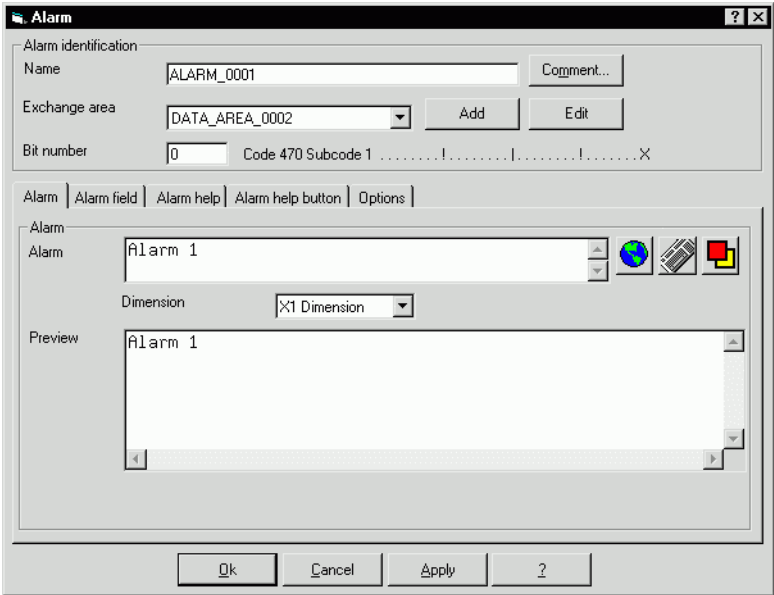
Alarm messages are message texts which are shown if an event occurs, that is signalled to the keypad through the alarm input area.



Note!

Alarm messages operate according to the ISA-1A standard, i.e. an alarm must be acknowledged by the user.

- An alarm message can include a field to show the numerical value of the variable that triggered the alarm.
- In addition to the alarm message, the keypad has the option of showing the date and time for incoming alarms, outgoing alarms and acknowledged alarms. The display of this additional information depends on the type of keypad.
- The optional date/time details are identified in the display by the characters in square brackets, as shown below:
 - [>] incoming alarm
 - [<] outgoing alarm
 - [#] acknowledged alarm
- The alarms that occur are stored in a buffer.
 - If the buffer is full, then no new alarms that occur can be stored in the the buffer until it has been emptied, by acknowledging the existing alarms.
 - The number of alarms that can be buffered depends on the type of keypad.



Name

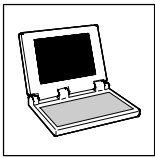
Name of the alarm message, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Message area

Assignment of an available exchange area.



HMI Designer

Project editor

New

Opens the dialog box for the project component **Data exchange areas** to add a new data exchange area.

Edit

Opens the dialog box for the project component **Data exchange areas** to edit the selected exchange area.

Bit Number

Determines which bit (with status "1" or TRUE) triggers the alarm message.

Value

Selection of the variable value which activates the alarm message. (📖 3-22, Exchange areas)



Text

Text

Entry of the message to be shown.

Font size

Select the font size for the message to be shown.

Preview

Preview of the message to be shown.



Alarm field

Assignment of a field of type "Number" to the message.

- With the help of this field, you can show the numerical value of the variable that triggered the message.

Add

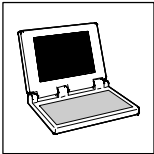
Assignment of a field of type "Number" to the message.

Edit

Edit the assigned field.

Remove

Remove the assignment.



Help page

Additional information (help texts) that can be displayed on the keypad for the user.

Edit

Opens the dialog box Help Editor, to enter the help texts in the defined languages.

Preview

Preview of the help message to be displayed.



Help key

Definition of a help key that can be used to call up a specific page.

Go to page

Select the page that will be called up by operating the help key.

Label

Label for the help key

Preview

Preview of the help key to be displayed.



Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (📖 3-7)



Special characters

Entry of special characters which cannot be entered directly from the keyboard. (📖 3-8)



Colors

Select foreground and background colors for the representation on the display. (📖 3-9)



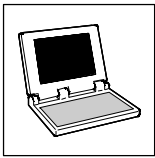
Print options

Print alarm message

Activate this option check box, if you want the message to be printed out when it is triggered.

Store alarm message in buffer

Activate this option check box, if you want the alarm message to be stored in the buffer.



HMI Designer

Project editor

3.4.8 TouchKeys

A **TouchKey** is understood as an area that is defined on a keypad with a TouchScreen, which can be used as a button (key).

This button can be assigned to functions and/or commands which will be carried out when the button area is touched.

General

Name

Name of the information message, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Access rights

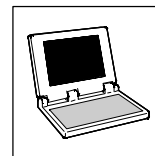
The function key can have access rights assigned to it, so that only specified users are permitted to operated the function key and thus implement the assigned function.

- Use the radio button **Edit** to alter the access rights.

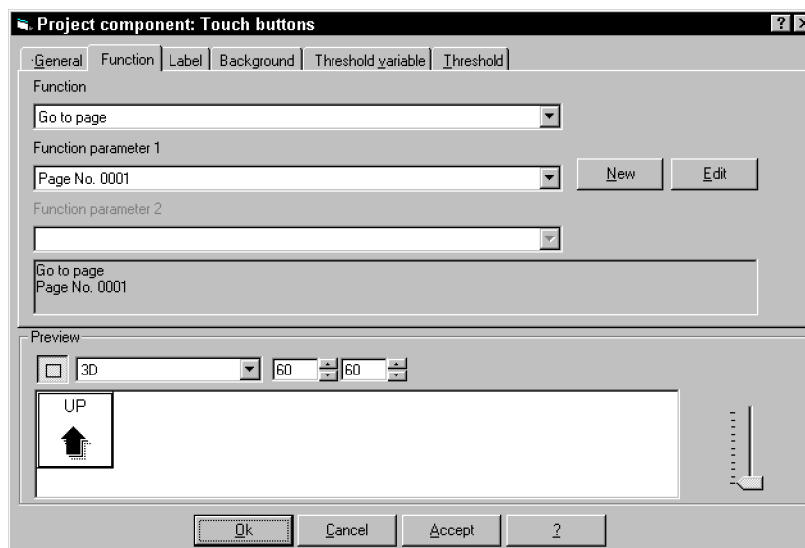
Preview

Displays frames and contents of buttons as well as its actions if the value of the threshold variable is changed.

Animated previews are indicated by an animation arrow in the right half of the field.



Function settings



Function settings

The radio button can be assigned to one of the functions that are listed.

Function parameter 1

Parameter for the selected function.

- **Example:** If you selected **Go to page** as the function, then, in the list box **Function parameter 1** you can select the page that will be called up by the radio button.

New

Create a new **Function parameter 1**.

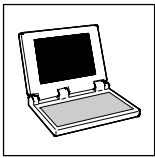
- **Example:** If you selected **Go to page** as the function, then with the button **New** you can directly define a new page (as an object for the project component **Pages**), without having to leave the *TouchKeys* dialog box.

Edit

Edit the selected **Function parameter 1**.

Function parameter 2

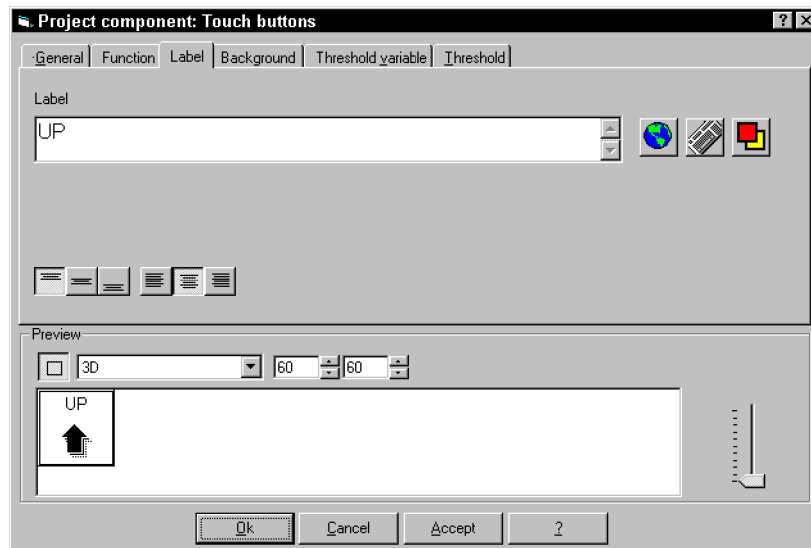
If the selected **Function parameter 1** includes other objects, then they are shown in the list box **Function parameter 2** for selection.



HMI Designer

Project editor

Label



Label

The text that is displayed on the button.



Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (3-7)



Special characters

Entry of special characters which cannot be entered directly from the keyboard. (3-8)



Colors

Select foreground and background colors for the representation on the display. (3-9)



Text alignment

Vertical text alignment.



Text alignment

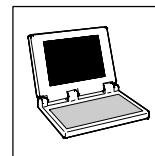
Horizontal text alignment.



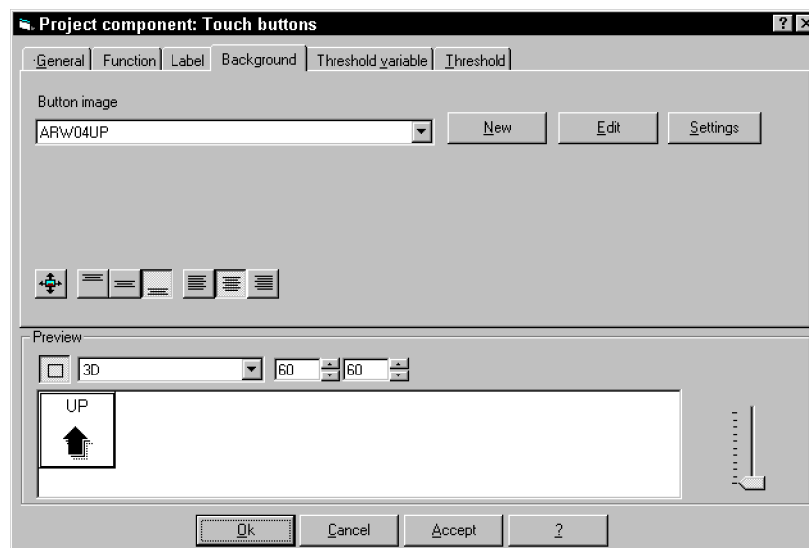
Frame

Activate this button if you want a frame around the button.

- Next to the button you can choose between a 2D or 3D image of the button.
- The next two fields are to set the width and height of the button.



Background bitmap



Key picture

Select a bitmap from the **Picture list** for the background of the button.

- **New:** Add a bitmap to the project component **Picture list**.
- **Edit:** Edit the selected bitmap in the application program that it is linked to.
- **Settings:** Show settings for the selected map.



Scale selected bitmap

Scale bitmap automatically to button size.



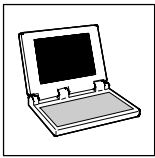
Align bitmap

Vertical bitmap alignment.



Align bitmap

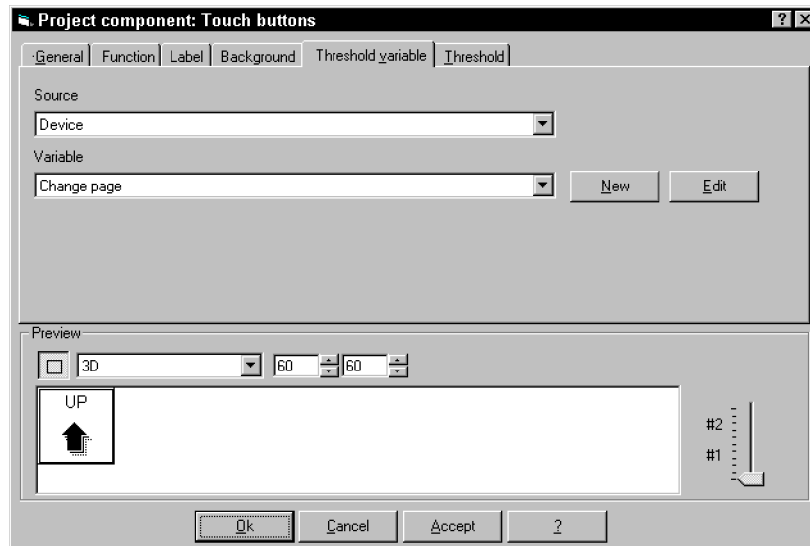
Horizontal bitmap alignment.



HMI Designer

Project editor

Threshold variable



Only after a threshold has been set (see register **Threshold**), a threshold variable can be activated.

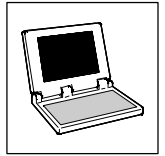
Source

Data source selection (unit, data memory element, system variable).

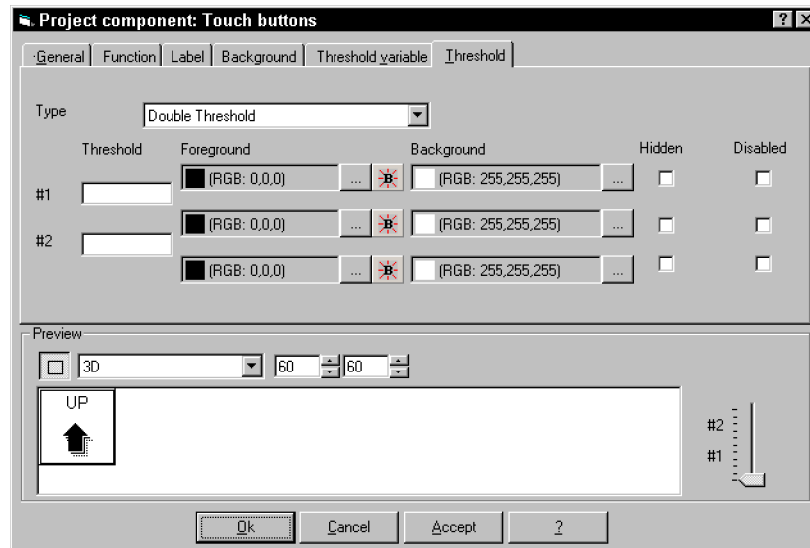
Variable

Variable selection. Depending on the variable value, the button display changes according to the threshold values set.

- **Insert:** Add a variable to the project component **Variables**.
- **Modify:** Edit the selected variables.



Threshold



Type

Selection of the threshold type:

- Single or double threshold.
- The print colour (foreground) and/or background of the button will change.
- A bitmap will be shown or hidden in the background.

Threshold

#1:1. value of the threshold variable which changes the button display a second time.

#2:2. value of the threshold variable which changes the button display a second time.

Foreground



Print colour.



Blinking print.

Background



Button background colour.

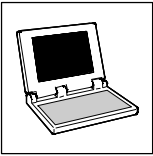
Hide

The button will be hidden when the threshold is reached.

If the button is hidden, it is not active.

Deactivate

The button function will be deactivated when the threshold is reached.



HMI Designer

Project editor

3.4.9 Direct commands

A direct command can be assigned to a button (TouchKey / function key), and makes it possible to change the value of a numerical variable when the corresponding button is activated.

- You can configure any number of within a project.
- Direct commands can change a single bit, or the numerical value of a variable.

Project component: Direct commands

Name

QSP

Comment...

Variable selection

Source

Device

Variable

C0135

New

Edit

Direct command type

☒ Bit

☐ Value

Bit No.

3

.....!.....!.....!.....X....

Ok

Cancel

Accept

?

Name

Name of the direct command, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Assigned variable

- **Source:** Data source for the assignment of direct commands.
- **Variable:** Variable affected by the direct command.
- **New:** Add a variable to the project component **Variables**.
- **Edit:** Edit the selected variables.

Direct command type

- **Bit:** The direct command only changes the specified bit of the variable.
- **Value:** The direct command changes the numerical value of the variable.

Functions for changing the value of the variable:	
Add value*	Add the specified value to the value of the variable.
Subtract value*	Subtract the specified value from the value of the variable.
AND-link value*	A logical AND operation on the specified value and the value of the variable.
OR-link value*	A logical OR operation on the specified value and the value of the variable.
XOR-link value*	A logical XOR operation on the specified value and the value of the variable.
Set value	The value of the variable is set to the specified value.
*not available with H310 keypad	

Example of an XOR function:		
Variable value	120 (decimal)	01111000 (binary)
Specified value	45	00101101
Result (new value of the variable)	85	01010101

3-36

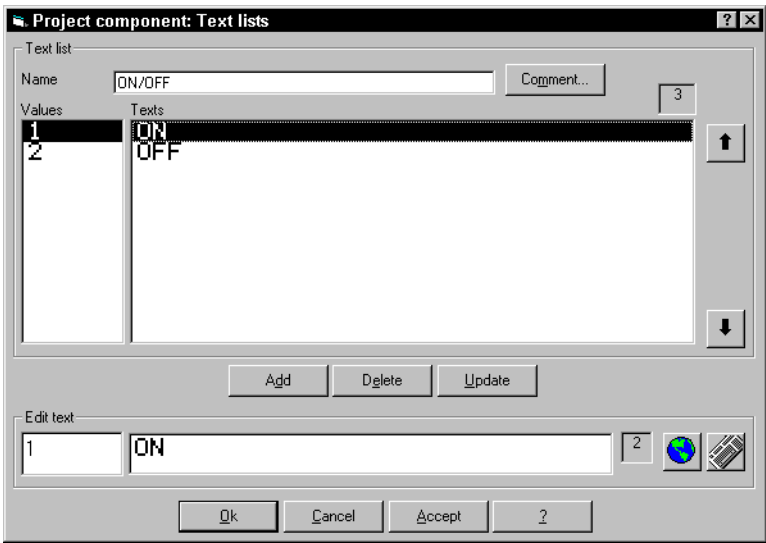
HMI Designer EN 1.5

Lenze

3.4.10 **Text lists**

Text lists can be used to show the user a (status) text instead of the numerical value of a variable.

- Instead of the variable values "0" and "1" you can, for instance, use a text list to implement the display of the more meaningful texts "OFF" and "ON".
- A text list must contain at least two texts.
- You can position a text list on a page with the help of the field **Text lists**.



Name
Name of the text list, for use in Project Editor.

Comment
Entry of additional information about the object. (3-9)

Values
Every text is assigned to a number. "0" cannot be used.

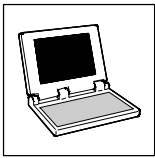
- If a bit is assigned to a text,
 - 1 corresponds to the bit value "0",
 - 2 corresponds to the bit value "1".

(3-68, field "Text list", register "Type")

Texts
The texts contained in the text list.

 Move highlighted text upwards and assign a different value.

 Move highlighted text downwards and assign a different value.



HMI Designer

Project editor

Add

Add the text in the entry field **Edit text** to the text list.

Remove

Remove the text that is marked in the text list.

Update

Update the text that is marked in the text list **Edit text** with the text entered in the field.

Edit text

Entry field for inserting new texts with values or updating texts already part of the text list.



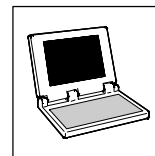
Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (📖 3-7)



Special characters

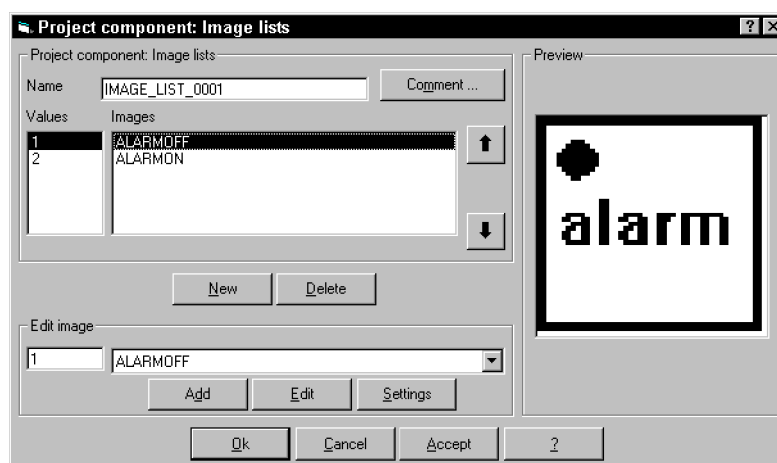
Entry of special characters which cannot be entered directly from the keyboard. (📖 3-8)



3.4.11 Picture lists

Picture lists can be used to show the user a more meaningful visualization (on keypads with graphics capability) instead of the numerical value of a variable.

- For instance, you can use a picture list to display bitmaps, such as a picture of a closed or open valve, instead of the variable values "0" and "1".
- A picture list must contain at least two bitmaps.
- You can position a picture list on a page with the help of the field **Picture list**.



Name

Name of the picture list, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Values

Every text is assigned to a number. "0" cannot be used.

- If a bit is assigned to a text,
 - 1 corresponds to the bit value "0".
 - 2 corresponds to the bit value "1".

(3-76, field "Picture list", register "Type")

Pictures

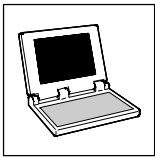
The bitmaps which are included in the picture list.



Move highlighted bitmap upwards and assign a different value.



Move highlighted bitmap downwards and assign a different value.



HMI Designer

Project editor

Add

Add the picture selected in the entry field **Edit pictures** to the picture list.

Remove

Remove the marked bitmap from the picture list.

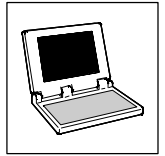
Edit pictures

Selection list for adding bitmaps to the picture list, or editing existing bitmaps. The selection list includes all the objects from the project component **Pictures**.

- **New:** Adding a bitmap with value to a project component **Pictures**.
- **Edit:** Edit the selected bitmap in the application program that it is linked to.
- **Settings:** Show settings for the selected map.

Preview

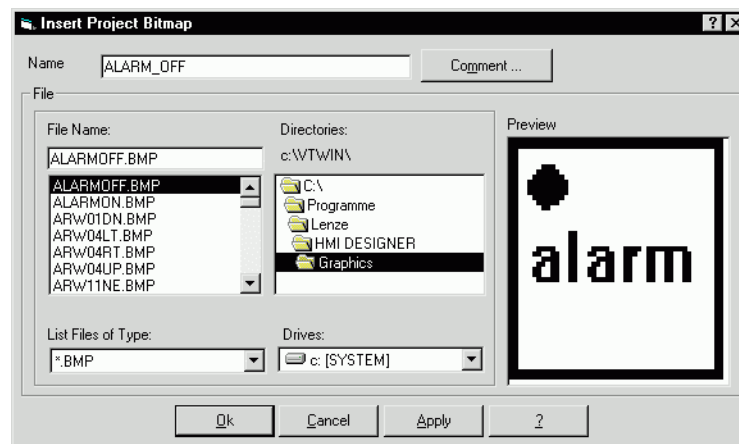
Preview of the selected bitmap.



3.4.12 Pictures

In the project component **Pictures** you can find all the bitmaps that are available for other project components (e.g. TouchKeys, picture lists).

- Bitmaps can be created and edited with graphics programs, such as Microsoft Paint.
- Depending on the type of keypad, bitmaps are supported in the BMP format with 2 colors (i.e. black/white), 16 colors, or 16 gray levels.



Name

Name of the bitmap, for use in Project Editor.

Comment

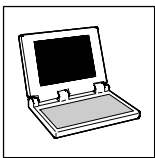
Entry of additional information about the object. (3-9)

File

Select the bitmap file from the file system.

Preview

Preview of the selected bitmap.



HMI Designer

Project editor

3.4.13 Macros

A macro is a sequence of commands or functions that is combined in a single command, and is used to simplify routine tasks.

- A macro can contain a maximum of 16 commands or functions.



Limitations

The following functions and commands cannot be entered:

- Direct command **Set real-time bit**
- Direct command **Reset real-time bit**
- Function **Show page directory**

The internal command **PROJECT - Output project** can only be inserted as the final command.

Name

Name of the macro, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Function list

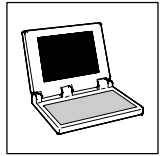
List of the functions included in the macro.



Move the marked function forwards one position in the processing sequence.



Move the marked function back one position in the processing sequence.



Add

Adds the function defined in the group field **Function settings** to the macro.

Remove

Remove the marked function from the function list.

Update

Updates the function list with the function defined in the group field **Function**.

Function settings

The one of the functions that are listed can be assigned to the macro.

Function parameter 1

Parameter for the selected function.

- **Example:** If you selected **Go to page** as the function, then, in the list box **Function parameter 1** you can select the page that will be called up by the radio button.

New

Create a new **Function parameter 1**.

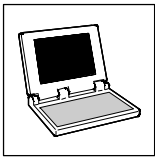
- **Example:** If you selected **Go to page** as the function, then with the button **New** you can directly define a new page (as an object for the project component **Pages**), without having to leave the *Macros* dialog box.

Edit

Edit the selected **Function parameter 1**.

Function parameter 2

If the selected **Function parameter 1** includes other objects, then they are shown in the list box **Function parameter 2** for selection.



3.4.14 Print pages

In the project component **Print pages** you can find all the pages that have been defined for printing.

- With a print page, you define which data (variables) and texts should be sent to the printer, and in which form.
- A print page can have all those elements inserted that can also be inserted into a text page, but not graphical elements such as pictures or drawings.
- A print page cannot be printed individually, but must be assigned to a report, which is made by a group of print pages.
- The dynamic fields that are inserted into the print page have the attribute **Read-only** and so they cannot be altered in this location.
- The elements that are inserted into the print page also have other attributes, known as Print attributes:

Print attribute (menu: Change →Print attributes):	
Form feed	A page feed, to print a field on the next page.
Bold	The field appears in bold print.
Underline	The field is printed with underlining.
Strike-through	The field is printed with a stroke through the text.
Italics	The field is printed in italic (cursive) type.
Code 1	Configurable by user.
...	...
Code 6	Configurable by user.

Print page

Identification

No.

1

Name

PRN_PAGE_0001

Comment

☒ Use default settings

Print settings

Rows per page (1..80)

66

Columns per page (1..132)

80

Left margin column (0..132)

0

Ok

Cancel

Apply

?

Number

The number that is used to access the sequence.

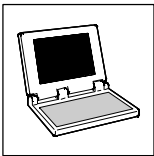
- A number can only be assigned once.

Name

Name of the print page, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)



Use global settings

Activate the option **Use global settings**, if you want to use the global settings for the print page.

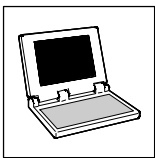
Print parameters

If you deactivate **Use global settings** then, in the group field **Print parameters**, you can make settings for lines, columns and margins, which deviate from the global settings.



Tip!

If you make the number of liens for the print page only half of the possible number for the printer, then you can print out two pages of a report on a single printed page.



HMI Designer

Project editor

3.4.15 Reports

A report is a group of print pages.

- Print pages can only be printed out as part of a report.

No.

The number that is used to access the sequence.

- A number can only be assigned once.

Name

Name of the sequence in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Pages

Start/stop sequence

Start/stop sequences are defined by a start and a stop page, and include all the pages which are defined between the start and stop pages.

- The number of the start page must be the same as or lower than the number of the stop page.



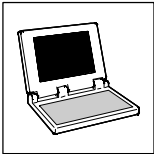
Tip!

When you are defining pages, you can leave out numbers, so that you have the option of adding pages into a sequence at a later stage.

Example:

Define pages with numbers at intervals of 5 (5, 10, 15, 20, ...).

Now you can, for instance, define a start/stop sequence starting at page 5 and ending at page 20. If you need to insert another page into the sequence later, simply define a page with one of the numbers that were left out (6, 7, 8, ...).



Any sequence

A free sequence can have pages assigned with page numbers in any order (e.g. 8 →20→3 →45 →46 →22).



Add the selected print page to a sequence.

Functions for print pages that are already included in a sequence: (right list box)



Remove marked print page from a sequence.



Move the marked print page forwards one position in the sequence.



Move the marked print page back one position in the sequence.



Remove all print pages from the sequence.



Print parameters

Use global settings

Activate this option if you want to use the global settings for the report.

Send form feed at the end of a page/footer

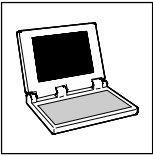
Activate this option if you want a new sheet at the end of every report page, regardless of the size of the report.

Header

Select a header that is available in the project.

Foot line

Select a footer that is available in the project.



HMI Designer

Project editor

3.4.16 Head line/foot line

In the project component **Header/footer** you can find all the headers/footers that have been defined within the project.

- Use headers and footers to define the appearance of the upper or lower section of a report.
- A header/footer cannot be printed individually, but must be assigned to a report, which is formed by a group of print pages.
- The following elements can be inserted into a header or footer:

Page no. for alarms	The page number for alarms, which is set to zero at the start of a new printout.
Page no. for report	The page number for report pages, which is set to zero at the start of a new printout.
Page no. for alarm register	The page number for the alarm register, which is set to zero at the start of a new printout.
Page no. for hardcopy	Page no. for hardcopy
General page number	The total page number for the printed pages, which is set to zero when the keypad is switched on, either by the appropriate function, or by a command from the device, through a command area.
Date/time field	
Label	

- The elements that are inserted into the print page also have other attributes, known as Print attributes **Menu: Modify→Print attributes**):

Form feed	A page feed, to print a field on the next page.
Bold	The field appears in bold print.
Underline	The field is printed with underlining.
Strike-through	The field is printed with a stroke through the text.
Italics	The field is printed in italic (cursive) type.
Code 1	Configurable by user.
...	...
Code 6	Configurable by user.

Header/Footer

Identification

Name

HF_PAGE_0001

Comment

☒ Use default settings

Print settings

Printer

Rows per page (1..80)

66

Columns per page (1..132)

80

Left margin column (0..132)

0

Ok

Cancel

Apply

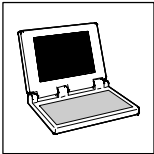
?

Name

Name of the print page, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)



Printer

Select the printer.

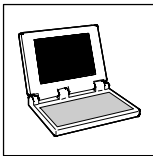
- Headers/footers can only be assigned to a printer.
(The printer on the ASP port or the printer on the LPT port)
- If you need headers/footers for more than one printer, you can use the duplicate function.

Use global settings

Activate the option **Use global settings**, if you want to use the global settings for the print page.

Print parameters

If you deactivate **Use global settings** then, in the group field **Print parameters**, you can make settings for lines, columns and margins, which deviate from the global settings.



HMI Designer

Project editor

3.4.17 Trend buffer

A trend buffer can be used to check and display the history (trend) of a variable.

- The number of values that can be stored in the trend buffer depends on the variable type and the type of keypad.
- The value of a variable can be requested in three different ways:

Single variable value, through polling:	The value of the variable is acquired at constant intervals (from 500 ms to 24 hr).
Single variable value, on command:	The value of the variable is acquired after every internal command, or by data exchange.
Block of variable values, on command:	On a command, the keypad reads an already acquired block of values that is stored in the attached device. (The acquisition of the variables is a task for the device.)

- The trend buffer can be filled in two different ways:

FIFO (First In - First Out)	When the trend buffer is full, the oldest (first) variable values are deleted, to make space for new values.
Ignore overflow values	When the trend buffer is full, any new incoming values are ignored.

General

Number

The number for accessing the trend buffer.

- A number can only be assigned once.

Name

Name of the trend buffer in Project Editor.

Comment

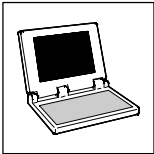
Entry of additional information about the object. (3-9)

Source

Data source for the assignment of the trend buffer.

Variable

The variable values to be saved in the trend buffer.



New

Add a variable to the project component **Variables**.

Edit

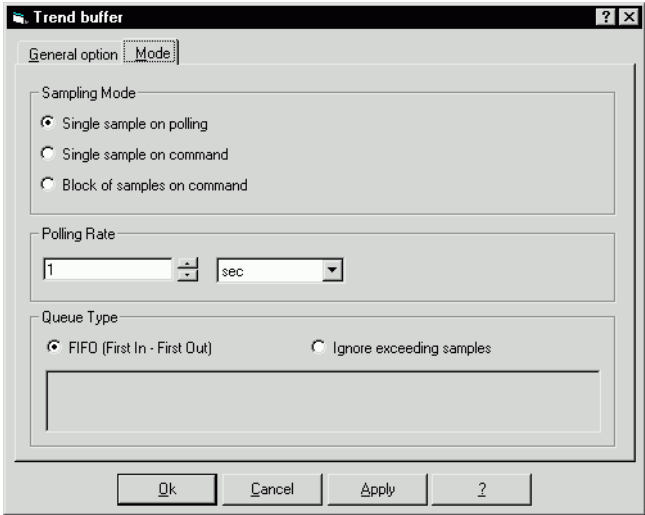
Edit the selected variables.

Number of variable values

The number of samples to be acquired.

- Sample width, and available and used storage space, are all shown in the entry field.

Mode



Sampling mode

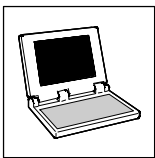
Select the sampling mode

Polling interval

The interval between successive acquisitions of a variable, during polling

Storage procedure

Set the procedure to be followed when the buffer is full.



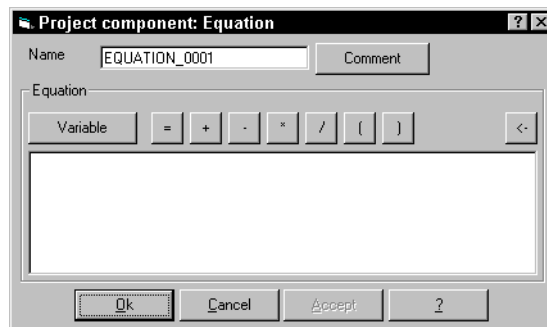
HMI Designer

Project editor

3.4.18 Equations

The project component **Equations** mathematically combines variables.

- Permissible variable types:
 - Internal variables
 - Unit variables (codes of Lenze automation components)



Name

Equation name in the Project Editor

Comment

Entry of additional information about the object. (3-9)

Variable

Selection of variables to be used for the equation.

- Display of all variable created in the project component Variables.

Commands and functions

	Event command		Addition command		Subtraction command		Multiplication command
	Division command		Start parenthesis level		Stop parenthesis level		Delete character before cursor

Example for a mathematical equation:

[Variable1] = [Variable2] * (([Variable3] * 2) + ([Variable4] * 2))

- The result is copied to Variable1 which can be in BIT, BYTE, WORD, DWORD and Floating Point format.
- The calculation is started by the event selected in the project component **Automatic operations**.



Tip!

- All commands and functions can be entered via PC.
- Max. 32 equations can be created.
- Possible equations:
 - 3 variables for the calculation and 1 variable for the result.
 - 4 parenthesis levels (without [] for variable names).
- If an event activates several mathematical operation, the equations will be calculated one after the other.

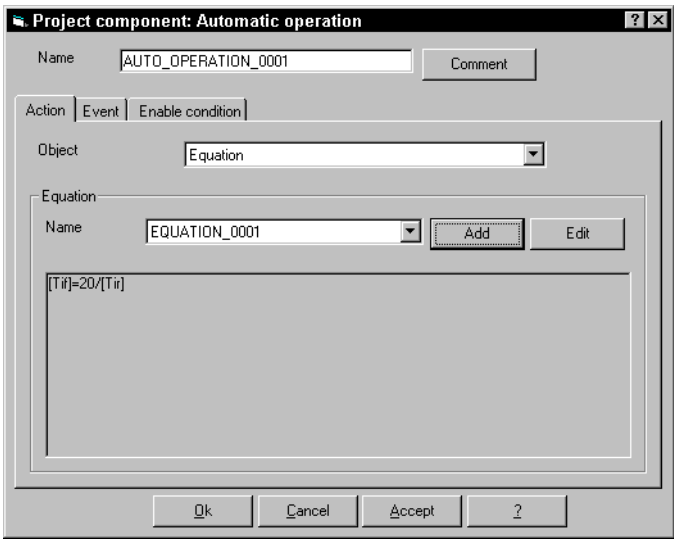
3.4.19 Automatic operations

Automatic operations are activated by certain events. Therefore the PLC can control simple logic processes with a PLC.



Tip!
Max. 16 automatic operations can be created.

Action



Name
Name of the automatic operation for use in project editors.

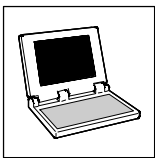
Comment
Entry of additional information about the object. (3-9)

Object
Selection of event that activates an automatic operation.

- Equations:
 - Calculation of mathematic funcions.
- Function:
 - Function start (change of page, sequence, execution of a direct command, internal command)
 - Macro start

Equations
(only with “Equation”)

- **Name:** Equation which calculates the mathematical function.
- **Add:** Adding of an equation to the project component **Equations**.
- **Edit:** Edit the selected equations



HMI Designer

Project editor

Function

(only with "Function")

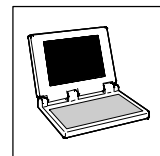
- **Function:** Assignment of one of the listed functions.
- **Specification of the function:** Parameters for the selected function
 - **Example:** If you selected **Go to page** as the function, then, in the list box **Specification of the function**, select the page to be opened up.
- **Add:** Creation of a new **Specification of the function**.
 - **Example:** If you selected **Go to page** as the function, then with the button **Add** you can directly define a new page (as an object for the project component **Pages**), without having to leave the *Automatic operations* dialog box.
- **Edit:** Edit the selected **Specification of the function**.

Event

Name

Name of the event to start the action. Events can be:

- Variable
- Timer
- External



Variable

(only with "Variable")

- **Source:** Data source for the assignment of the event
- **Variable:** Selection of the variable to activate the action.
- **Add:** Add a variable to the project component **Variables**.
- **Edit:** Edit the selected variables.
- **Refresh delay:** Time interval for updating variable values.
- **Type:** Selection whether an action is to be started when reaching a certain variable value or a value range.
- **Value:** Entry of the variable value.
- **From** and **to:** Entry of limit values for a value range.

Timer

(only with "Timer")

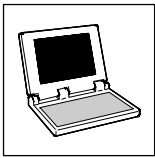
- **Timer:** Selection of a timer to activate the action.
 - Only enabled timers will be indicated. Click **Edit** to enable a timer.
- **Edit:** Editing of available timers.
 - Max. 16 timers can be used.
 - Timer names can be edited.
 - Times between 100 ms and 25 s (increments of 100 ms) can be set.

External

(only with "External")

An action is started after a variable value has been entered into a number field and been confirmed with "Enter".

Variables are assigned under *Number* , *Automatic operation* by enabling and activating the option field **Example:** .



HMI Designer

Project editor

Activating condition

Use of activating condition

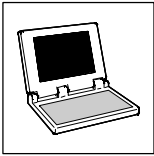
Field activated: An action will be run until the enabling condition is met.

Variable

- **Source:** Data source for the assignment of the enabling condition.
- **Variable:** Variable condition to be fulfilled.
- **Add:** Add a variable to the project component **Variables**.
- **Edit:** Edit the selected variables.

Condition

- **Type:** Selection of enabling condition.
 - Variable value equals the value set.
 - Variable value between two set values.
 - Variable value equal to or lower than set value.
 - Variable value equal to or higher than set value.
- **Value:** Entry of the variable value.
- **From** and **to:** Entry of limit values for a value range.



3.5 Fields

Using **Fields**, which are positioned on a page, you can show static and dynamic data on the display of the keypad.

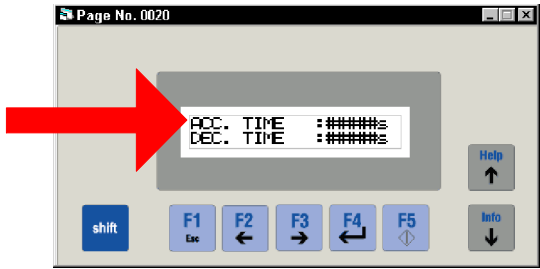


Tip!

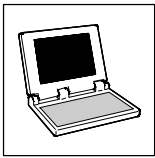
- The field types indicated under **Fields** depend on the type of keypad used.
 - The adjustment options, and the registers that are displayed in the dialog boxes for the various fields, can also vary according to the type of operating unit.
 - You can look at the pages in Project Editor, in the dialog field *Project components* by selecting the project component **Pages** and double-clicking on the corresponding page in the list box **Corresponding objects** .
-
- In the **Fields** menu you can find the command for placing fields on a page.
 - You can use the mouse pointer to drag a field that has been placed on a page into the right position.
 - For precise positioning, you can set up a (movable) **Raster**
 - If the same fields are to be repeated over several pages, then you can use the Duplicate function for the project component **Pages Duplicate** All the fields on the page that is duplicated will then be applied to the new page.

3.5.1 Label

Use the command **Fields →Label** to position a text on the current page:



- After selecting the command, click on the page at the position where the text should be placed.
- Enter the required text, and finish the entry with **<Enter>**. The dialog box *Translations* will now be opened, where you can add translations for the text that was entered.
- Close the dialog box *Translations* using **OK**, to accept the text that was entered.

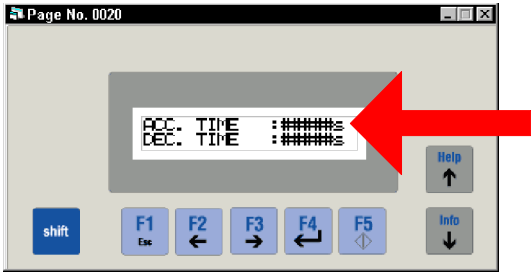


HMI Designer

Project editor

3.5.2 Number

Use the command **Fields→Number** to position a number field (##.##) on the current page:



Tip!

With the help of this field, you can have the values of numerical variables shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General

Numeric field

GeneralModeThresholdAutomatic Operation

NamePAGE_0001-FIELD_0001Comment...

Variable selection

SourceDeviceVariableC0012NewEdit

Display

☒ Leading zeros

Visible digits4

Rounded digit0

Format### ##

Preview12,34

Numeric formatDecimal

OkCancelAccept?

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown in the field.

New

Add a variable to the project component **Variables**.

Edit

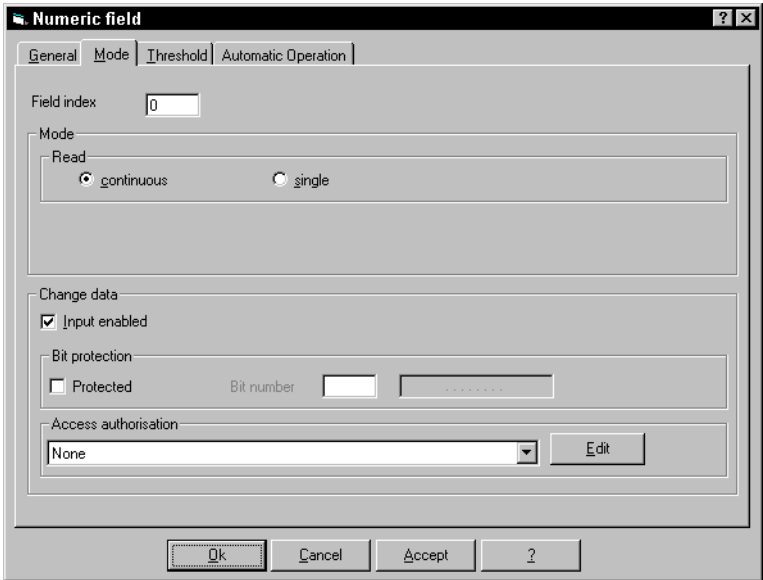
Edit the selected variables.

Display

In this group field you can make the settings for the configuration of the display format for the variables.

- The display format that is currently set is presented in a preview window.

Mode



Field Index

The field index defines the row positioning sequence for the cursor in the entry fields.

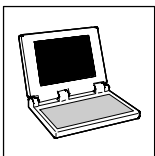
The option **Automatic jump to next entry field** uses this field index to determine the row sequence.

- The option **Automatic jump to next entry field** can be used to activate the corresponding page in the project component **Pages** in the register **Edit Mode** .
- If this option is activated, then, after an entry is made in a field, the entry automatically switches to the next field.

Read

Select whether the value is permanently read out, or just once.

- If permanently is chosen, then the value is read out from the appropriate device at the update interval that is set for the page, and updated in the keypad display.
- With a one-time read, the value is read out from the device just once, when the page is called up.



HMI Designer

Project editor

Permit changes

Activate this option to make the field a read/write field, and not a read-only field.

- You can use a read/write field to set up device parameters from the keypad.

Bit protection

(only available for read/write fields)

Activate the option **Protected**, if the device is going to decide whether it is permissible to alter the value of a read/write field.

- Define the "Protection" bit that is to be used for protection under **Bit Number**.
"Protection" bit = 0 means: read/write field (changes are permitted)
"Protection" bit = 1 means: read-only field
- The attached device is responsible for handling the "Protection" bit, through the command area.

Access rights

(only available for read/write fields)

The field can have access rights assigned to it, so that only specified users are permitted to alter the field.

- Click the button **Edit** to alter the access rights.

Threshold

The print and background colours can change depending on the variable value.

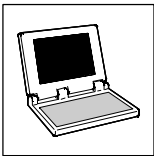
Type

Selection of the threshold type:

- Single or double threshold.
- The print colour (foreground) and/or background of the number field will change.

Source

Data source for the number field.



Variable

Variable selection. Depending on the variable value, the number field display changes according to the threshold values set.

Insert

Add a variable to the project component **Variables**.

Modify

Edit the selected variables.

Threshold #1

1. value of the threshold variable which changes the number field display.

Threshold #2

2. value of the threshold variable which changes the number field display a second time.

Foreground



Print colour.

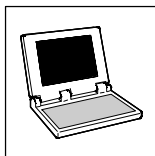
Background



Background colour for the number field.

Preview

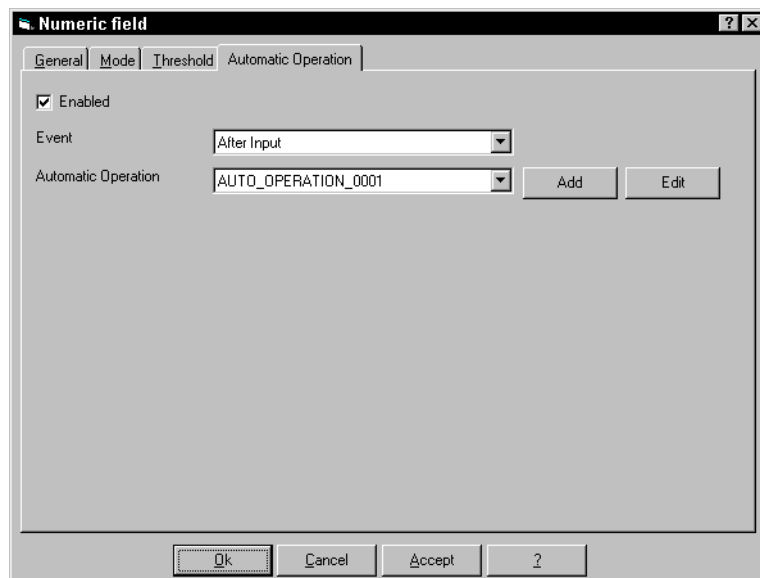
Shows the number field and print colours and reactions to a change of the threshold variable.



HMI Designer

Project editor

Automatic operation



Activated

Field activated: Automatic operation.

Event

Selection: "When entered"

- If you enter a value into the number field and press "Enter" the selected automatic operation will be carried out.

Automatic operation

Selection of automatic operation

Add

Adds an automatic operation to a project component **Automatic operations**.

Edit

Edit an automatic operation.

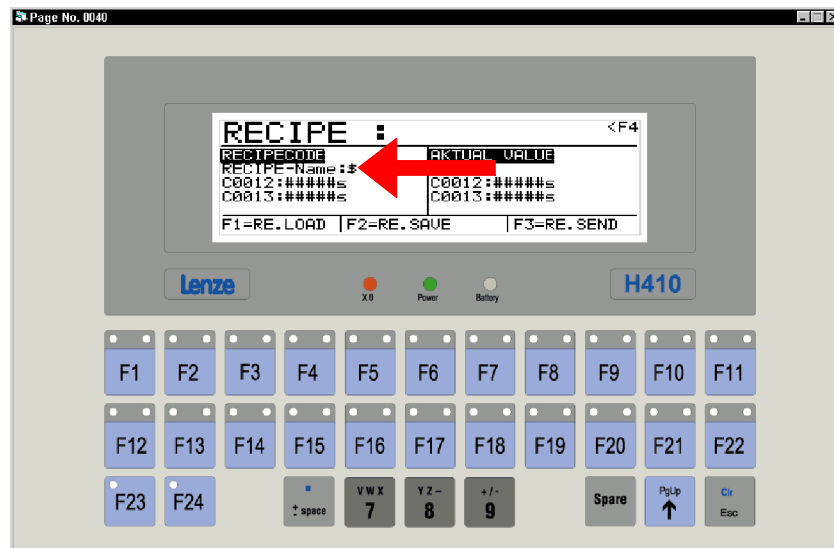


Tip!

More detailed information about automatic operations can be found in chapter 3.4.19. (3-53)

3.5.3 Text

Use the command **Fields→Text** to position a text field (\$) on the current page:

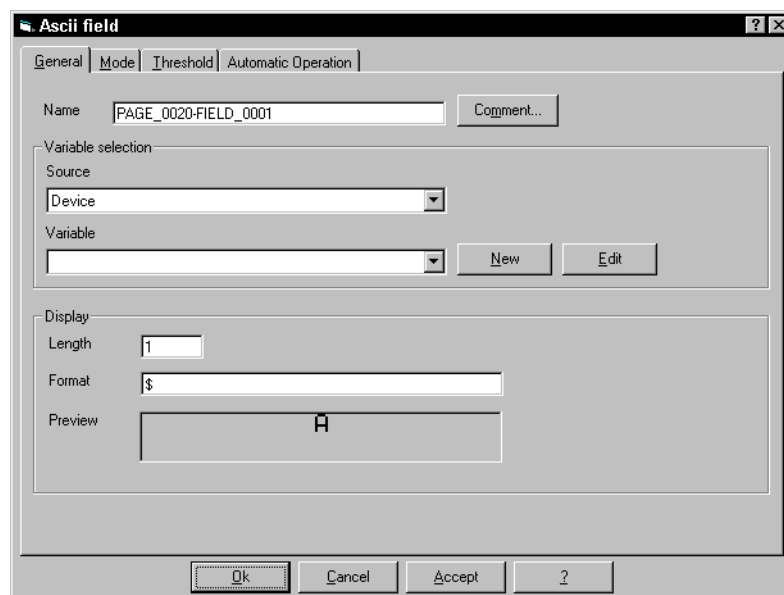


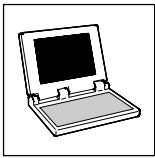
Tip!

With the help of this field, you can have the contents of STRING variables (e.g. the name of a recipe) shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General





HMI Designer

Project editor

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The STRING variable, whose value is to be shown in the field.

New

Add a variable to the project component **Variables**.

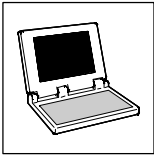
Edit

Edit the selected variables.

Display

In this group field you can make the settings for the configuration of the display format for the variables.

- The display format that is currently set is presented in a preview window.



Mode

For setting options, see the **Mode** in chapter 3.5.2. (📖 3-59)



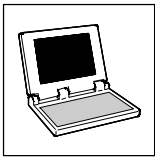
Threshold

For setting options, see the **Threshold** in chapter 3.5.2. (📖 3-60)



Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)

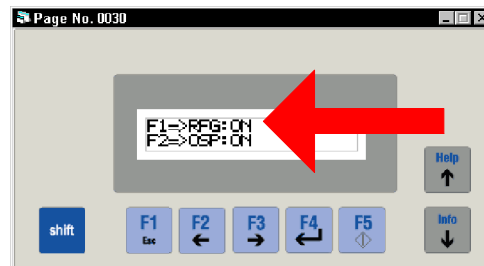


HMI Designer

Project editor

3.5.4 Text list

Use the command **Fields→Text list** to position a text field on the current page:



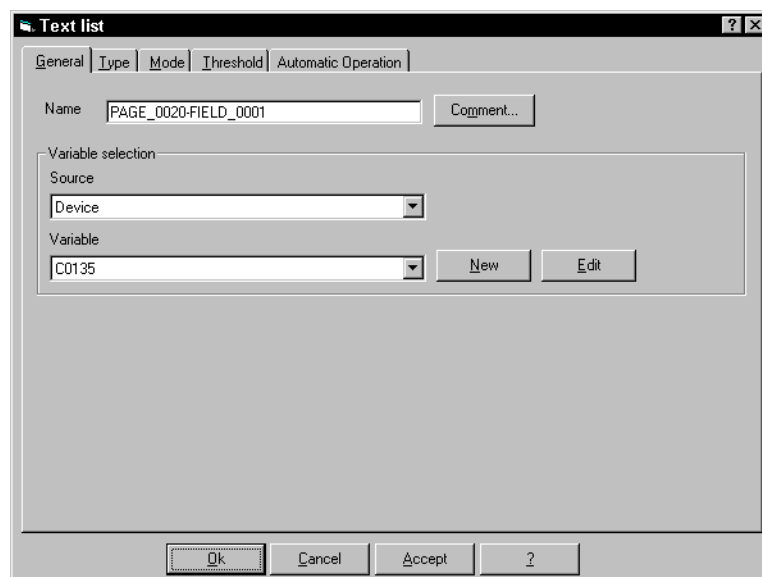
Tip!

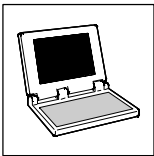
With the help of this field, you can have an associated text shown on the display, instead of the value of a numerical variable.

Variable value = 1 → the first text list entry is displayed,
Variable value = 2 → the second text list entry is displayed, etc.

- The text display is made by interpreting the value of the variable, or the status of one or more bits that are assigned to the text list.
- It is possible that the text list assigned to the variable contains more elements than can be assigned to the variable value.
- If it is not possible to assign a valid element from the text list through the variable value, a series of exclamation marks [!] appears on the keypad display, for instance, if the variable value = 0 or is larger than the number of entries in the text list.
- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General





Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable for which an assigned text is to be shown in the field.

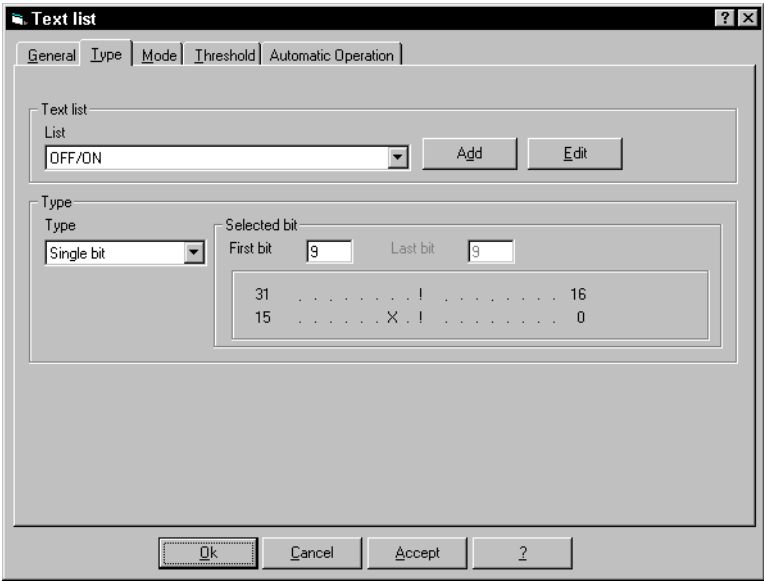
New

Add a variable to the project component **Variables**.

Edit

Edit the selected variables.

Type



List

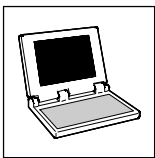
Select the text list that contains the possible display texts.

New

Add a text list to the project component **Text lists**.

Edit

Edit the selected text list.



HMI Designer

Project editor

Type

Select how an element in the text list is assigned to the variable.

- **Single bit:**
selected bit = 0: display element 1 from the text list
selected bit = 1: display element 2 from the text list
(other elements in the text list cannot be assigned)
- **Bit group:**
The elements from the text list are assigned by the selected bits.
Example: selected bits = bit 4 to bit 6:
Bit 4 = 1: display element 1 from the text list
Bit 5 = 1: display element 2 from the text list
Bit 6 = 1: display element 3 from the text list

Please note:

- Only 1 bit of the selected bit group can be set to 1 at a time.
- If more than one bit of the selected bit group is set to 1, then the element from the text list that is assigned to the highest value bit will be displayed.

- **Numerical value**
The elements from the text list are assigned according to the numerical value of the variable:
Value = 1: Display element 1 from the text list.
Value = 2: Display element 2 from the text list.
Value = 3: Display element 3 from the text list

Mode

For setting options, see the **Mode** in chapter 3.5.2. (📖 3-59)

Threshold

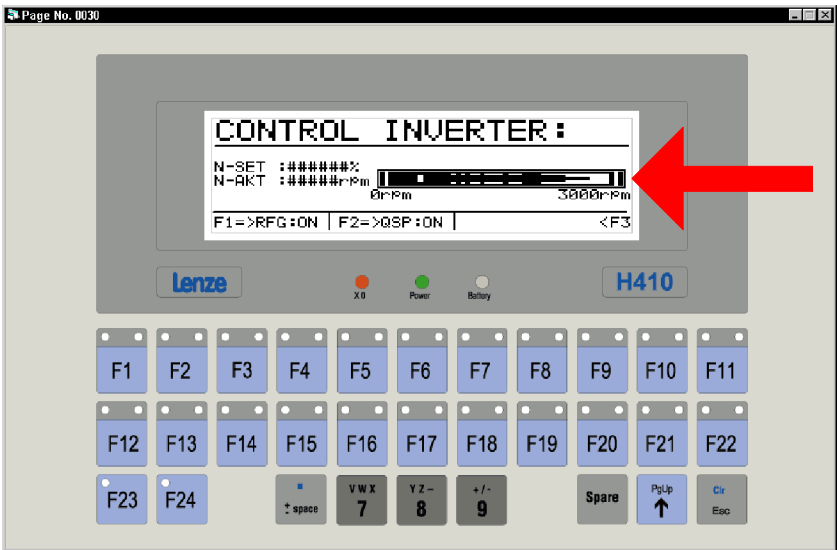
For setting options, see the **Threshold** in chapter 3.5.2. (📖 3-60)

Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)

3.5.5 Bar chart

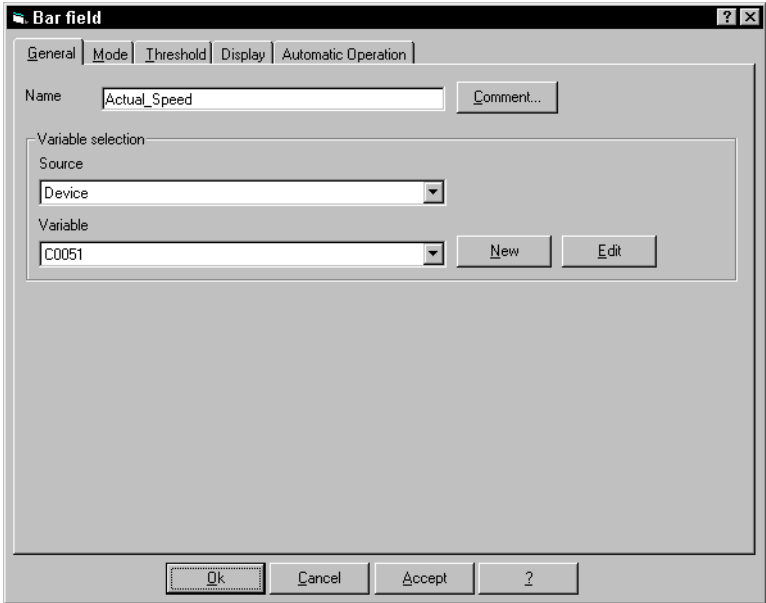
Use the command **Fields→Bar chart** to position a bar chart on the current page:

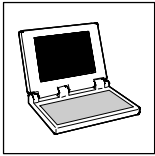


Tip! With the help of this field, you can have the values of numerical variables shown on the keypad display as a bar chart.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General





HMI Designer

Project editor

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown as a bar chart.

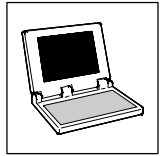
Limit the variable entry to determine the value range.

New

Add a variable to the project component **Variables**.

Edit

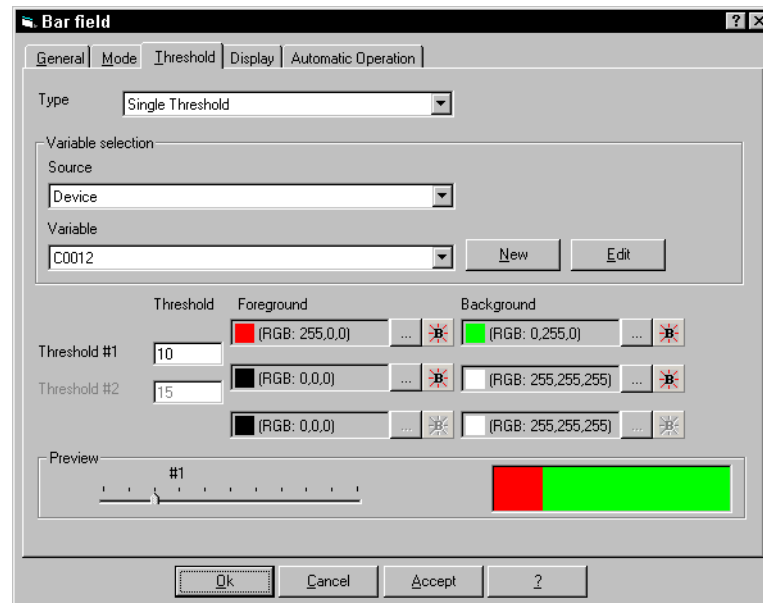
Edit the selected variables.



Mode

For setting options, see the **Mode** chapter 3.5.2. (3-59)

Threshold



The foreground and background colours can change depending on the variable value.

Type

Selection of the threshold type:

- Single or double threshold.

Source

Data source for the number field.

Variable

Variable selection. Depending on the variable value, the bar display changes according to the threshold values set.

Insert

Add a variable to the project component **Variables**.

Modify

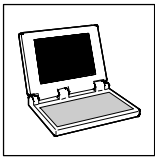
Edit the selected variable.

Threshold #1

1. value of the threshold variable which changes the bar display.

Threshold #2

2. value of the threshold variable which changes the bar display a second time.



HMI Designer

Project editor

Foreground



Bar colour to be used when threshold is reached.



Bar blinking.

Background



Background colour to be used when threshold is reached.

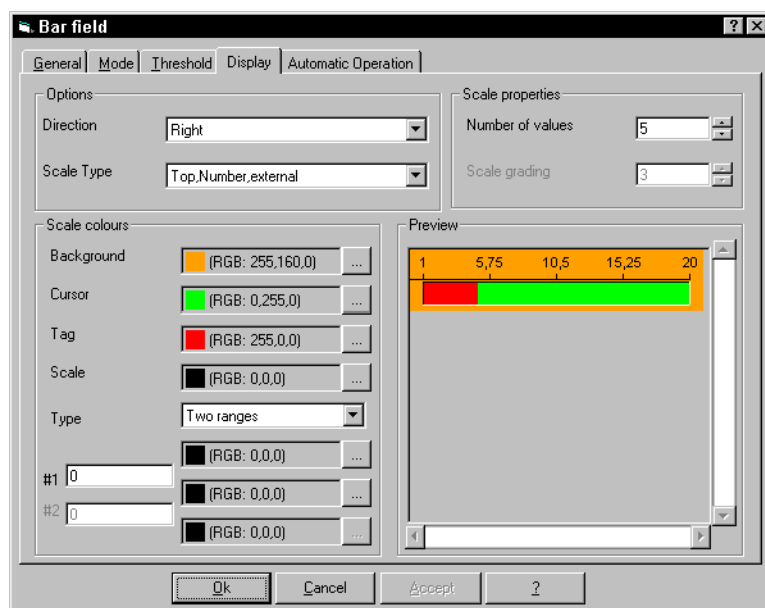


Background colour blinking.

Preview

Shows the bar colours and reactions to a change of the threshold variable.

Display



Direction

Direction for the bar.

Scale type

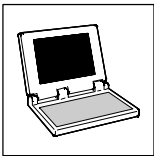
Scale type

Number of values

Indicate number of values to be shown on the scale.

Scale resolution

Number of entries between two values.



Background



Setting of background colour of the field.

Cursor



Background colour for bar

Notch



Colour for pointer

Scale



Colour for scale labelling

Type



Colours for different scale sections

#1

First scale section for a certain colour

#2

Second scale section for a certain colour

Preview

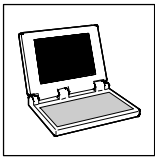
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Change→Settings** and open the dialog box again.



Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)

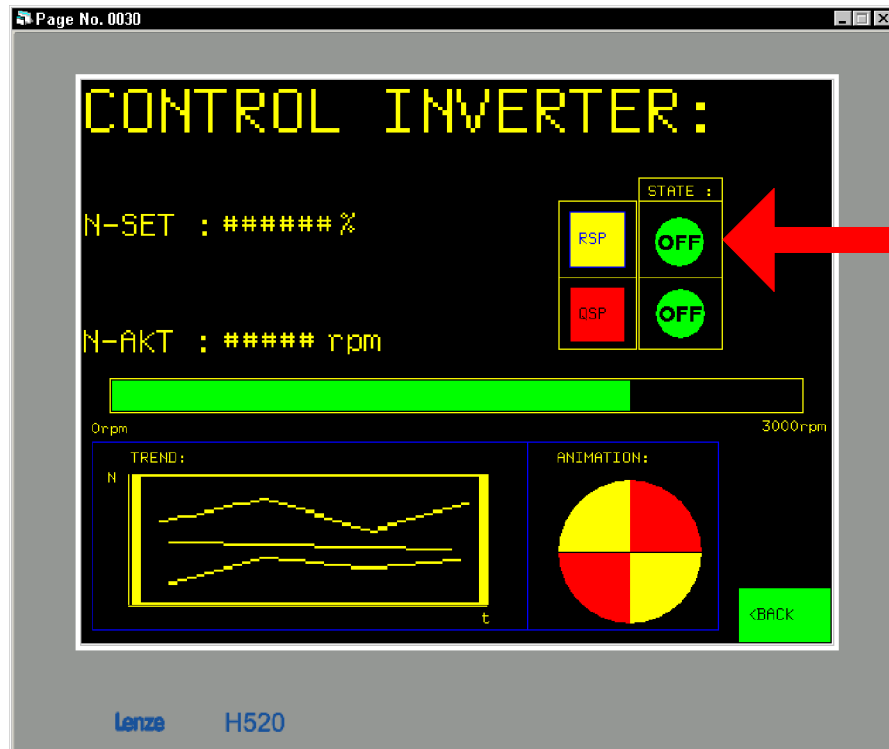


HMI Designer

Project editor

3.5.6 Picture list

Use the command **Fields→Picture list** to position a graphic field on the current page:

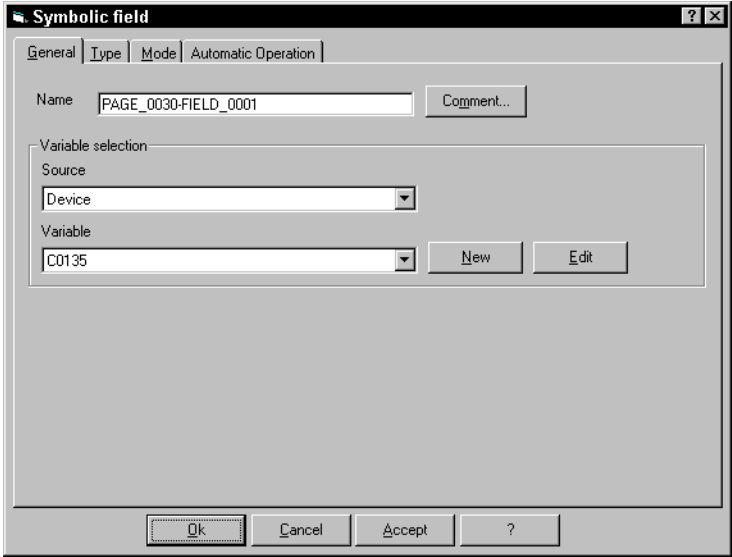


Tip!

- With the help of this field, you can have an associated bitmap shown on the display, instead of the value of a numerical variable.
- If you touch the graphic button on the keypad you can choose from bitmaps defined in the picture list.
If you confirm the selection, the bitmap will be indicated on the button and the assigned value will be written to the variable configured under **General**.

- The bitmap display is made by interpreting the value of the variable, or the status of one or more bits that are assigned to the picture list.
- It is possible that the picture list assigned to the variable contains more elements than can be assigned through the variable value.
- If it is not possible to assign a valid element from the picture list through the variable value, the message ERROR appears on the keypad display,
- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General



Name
Name of the field, for use in Project Editor.

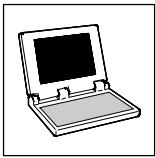
Comment
Entry of additional information about the object. (3-9)

Source
Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable
The variable for a bitmap shown in the field.

New
Add a variable to the project component **Variables**.

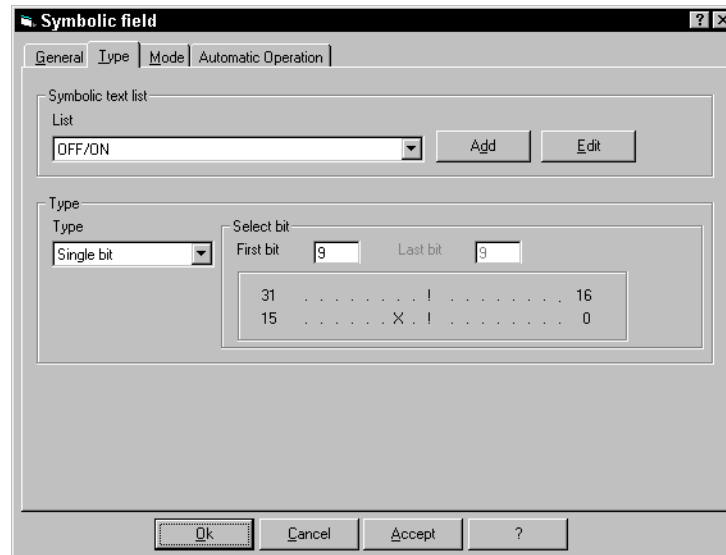
Edit
Edit the selected variable.



HMI Designer

Project editor

Type



List

Select the picture list that contains the possible bitmaps.

New

Add a picture list to the project components **Picture lists**.

Edit

Edit the selected picture list.

Type

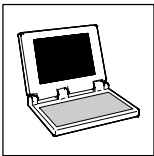
Select how an element in the picture list is assigned to the variable.

- **Single bit:**
Selected bit = 0: Display element "1" from the picture list.
Selected bit = 1: Display element "2" from the picture list.
(other elements in the picture list cannot be assigned)
- **Bit group:**
The elements from the picture list are assigned by the selected bits.
Example: selected bits = bit 4 to bit 6:
Bit 4 = 1: Display element "1" from the picture list.
Bit 5 = 1: Display element "2" from the picture list.
Bit 6 = 1: Display element "3" from the picture list.

Please note:

- Only 1 bit of the selected bit group can be set to 1 at a time.
- If more than one bit of the selected bit group is set to 1, then the element from the picture list that is assigned to the highest value bit will be displayed.

- **Numerical value**
The elements from the picture list are assigned by the selected bits:
Value = 1: Display element "1" from the picture list.
Value = 2: Display element "2" from the picture list.
Value = 3: Display element "3" from the picture list, etc.



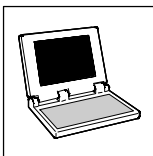
Mode

For setting options, see the **Mode** in chapter 3.5.2. (📖 3-59)



Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)

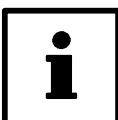
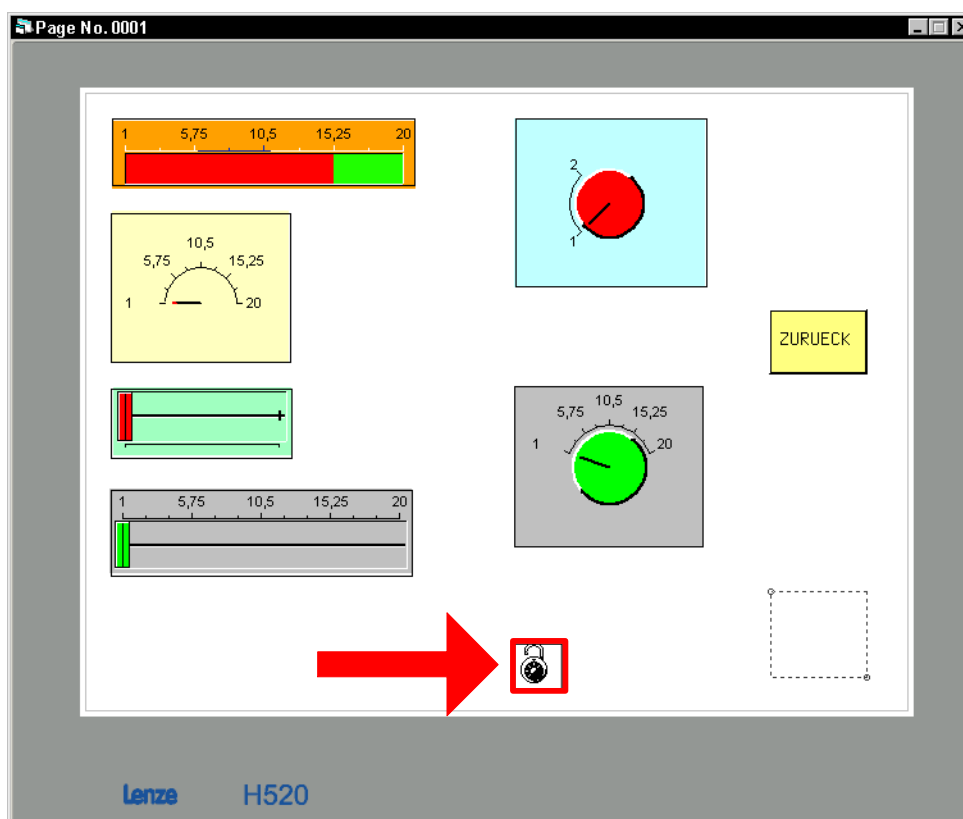


HMI Designer

Project editor

3.5.7 Mobile symbolic

Use the command **Fields→Mobile symbolic** to position a movable graphic field on the current page:

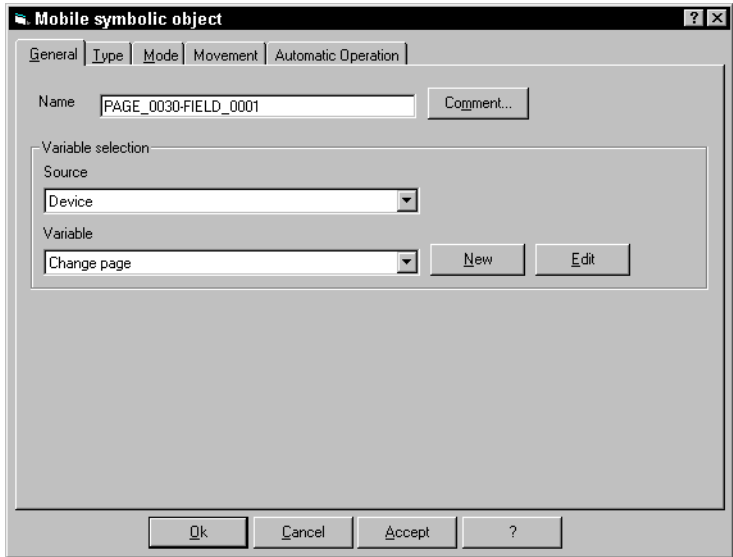


Tip!

- With the help of this field, you can have a movable graphics button and assigned bitmaps shown on the (pressure-sensitive) display of the keypad.
- If you touch the graphic button on the keypad you can choose from bitmaps defined in the picture list.
If you confirm the selection, the bitmap will be indicated on the button and the assigned value will be written to the variable configured under **General**.

- The bitmap display is made by interpreting the value of the variable, or the status of one or more bits that are assigned to the picture list.
- It is possible that the picture list assigned to the variable contains more elements than can be assigned through the variable value.
- If it is not possible to assign a valid element from the picture list through the variable value, the message ERROR appears on the keypad display,
- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.

General



Name
Name of the field, for use in Project Editor.

Comment
Entry of additional information about the object. (📖 3-9)

Source
Selection of source or type of variable (data storage element).

Variable
The variable for a bitmap shown in the field.

New
Add a variable to the project component **Variables**.

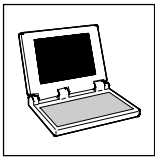
Edit
Edit the selected variable.

Type

For setting options, see the **Type** in chapter 3.5.2. (📖 3-76)

Mode

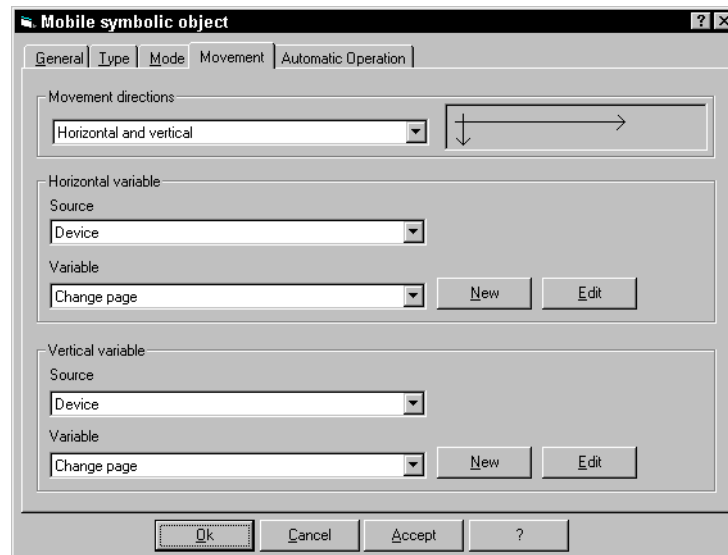
For setting options, see the **Mode** in chapter 3.5.2. (📖 3-59)



HMI Designer

Project editor

Movement



Direction of movement

Selection of direction of movement for movable symbolic objects

Horizontal variable

Selection of variables which activate a horizontal movement.

- **New:** Add a variable to the project component **Variables**.
- **Edit:** Edit the selected variables.

Verical variable

Selection of variables which activate a vertical movement.

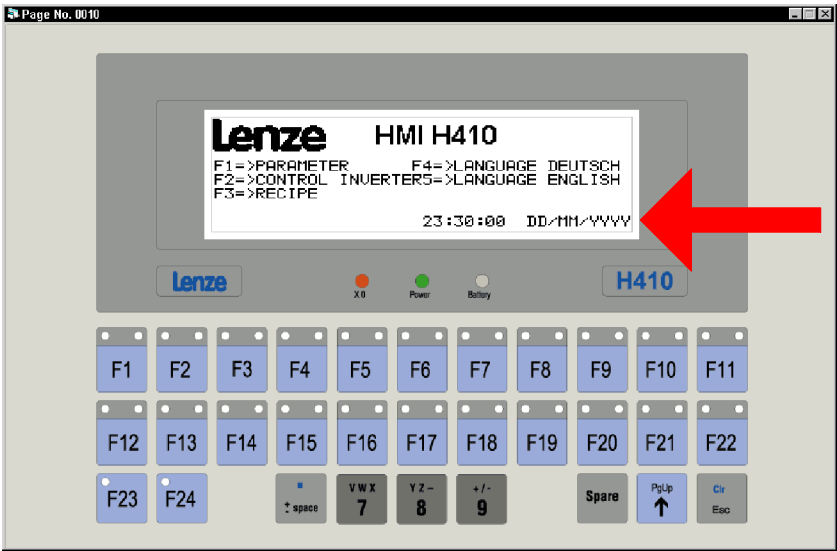
- **New:** Add a variable to the project component **Variables**.
- **Edit:** Edit the selected variables.

Automatic operation

For setting options, see the **Automatic operation** register in chapter 3.5.2. (3-62)

3.5.8 Date

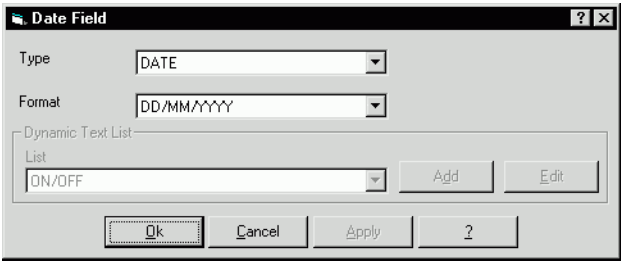
Use the command **Fields→Date** to position a date/time field on the current page:

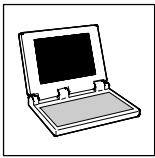


Tip!

With the help of this field, you can have the date, weekday or time shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.





HMI Designer

Project editor

Type

Select the display (date, weekday, time)

Format

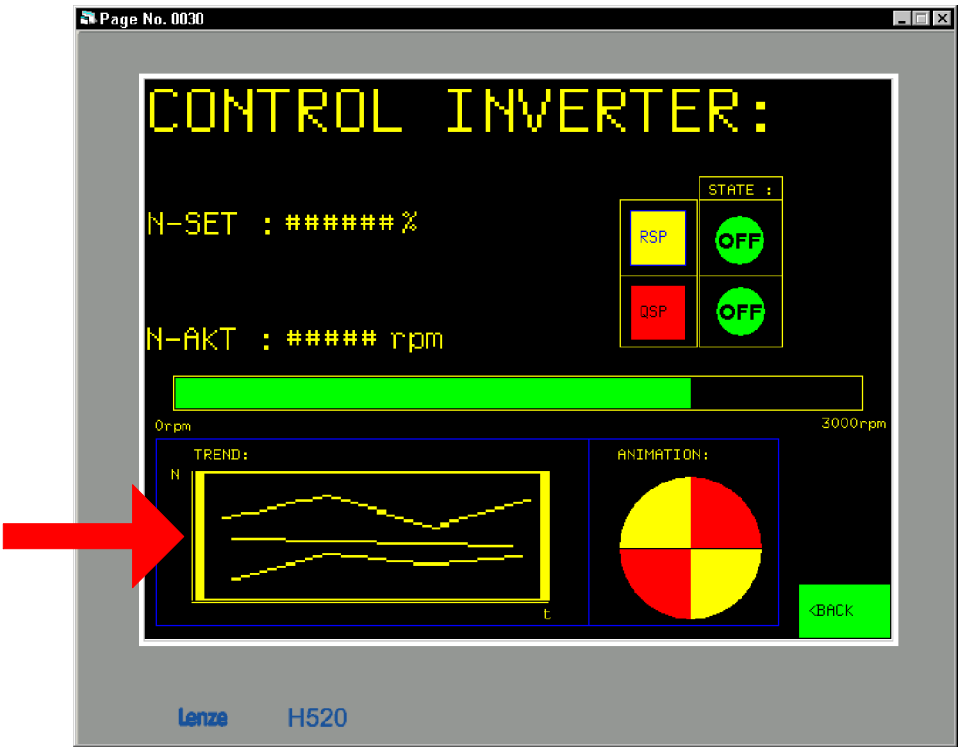
Select the display format.

- You have the following options for the weekday display:

Tag	Display for selection = 1	Display for selection = Monday
Sunday	0	Element 1 of the selected text list
Monday	1	Element 2 of the selected text list
Tuesday	2	Element 3 of the selected text list
...	...	...
Saturday	6	Element 7 of the selected text list

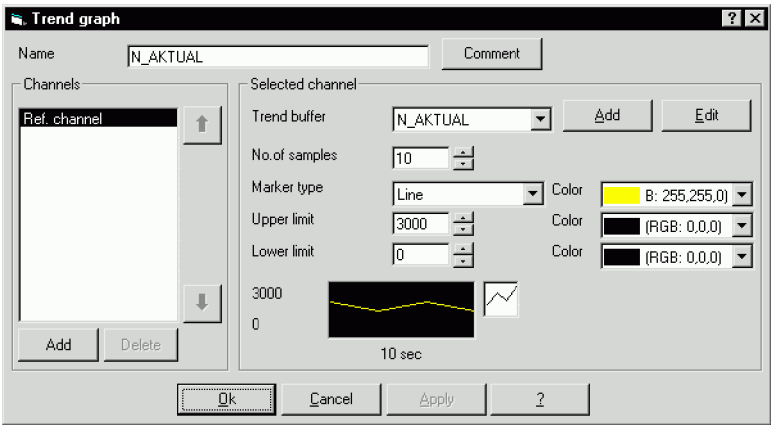
3.5.9 Trend

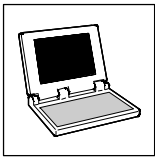
Use the command **Fields→Trend** to position a graphics field with a trend display on the current page:



Tip! With the help of this field, you can have the history of the value of one or more numerical variables shown as a trend indication on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.





HMI Designer

Project editor

Name

Name of the field, for use in Project Editor.

Channels

Definition of the channels to be shown in the trend display, and selection of the channel to be configured.

- The maximum number of channels that you can show in a trend display depends on the type of keypad.

Add

Add a new channel.

Delete

Remove the selected channel.

Trend buffer

Select the trend buffer to be shown for the selected channel.

New

Add a trend buffer to the project components **Trend buffer**.

Edit

Edit the selected trend buffer.

Number of values

The number of values to be shown for the selected channel.

Trend indication

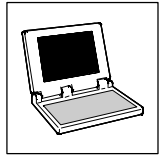
Select the trend indication for the selected channel.

Upper/lower limits

Determine the limits for the selected channel

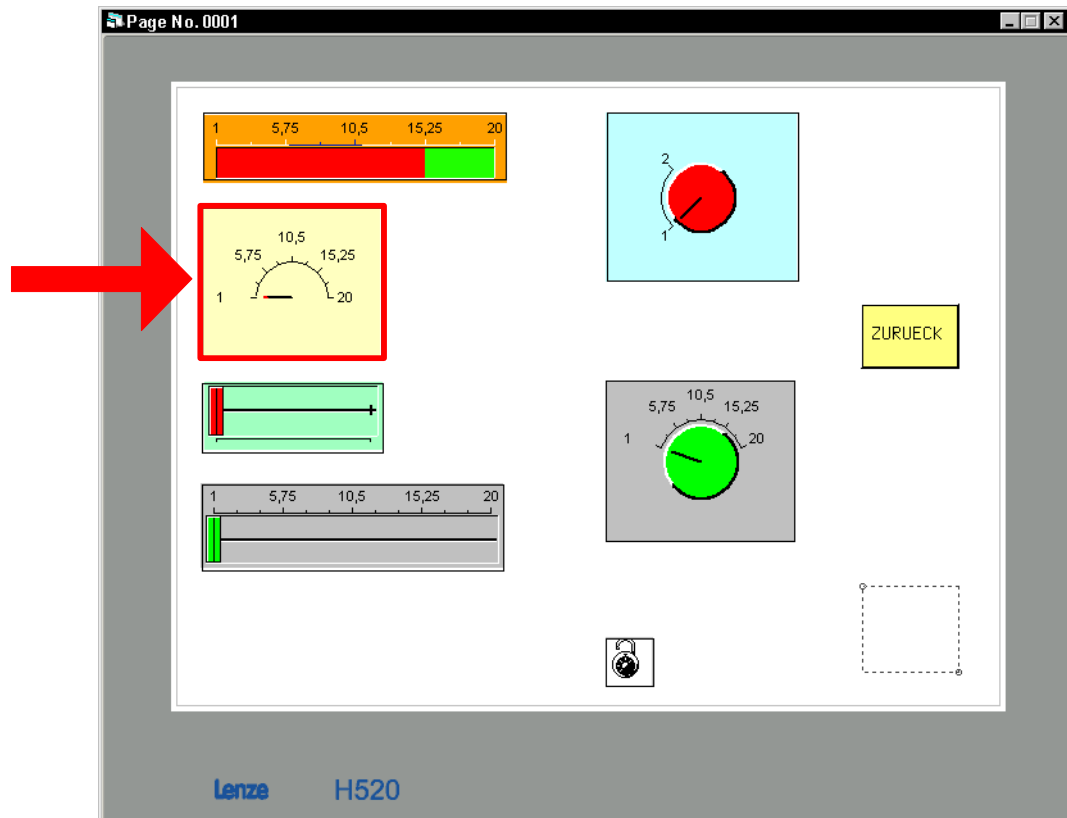
Color

- for trend indication:
Select a color for the indication of the selected channel.
- for upper limit:
Select a color for the indication of the selected channel if it goes above the upper limit.
- for lower limit:
Select a color for the indication of the selected channel if it goes below the lower limit.



3.5.10 Indicator (analog display)

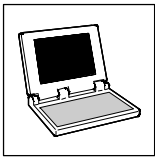
Use the command **Fields→Indicator** to position a graphics field with an analog display on the current page:



Tip!

With the help of this field, you can have the values of numerical variables shown on the keypad display as analog display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor

General

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be indicated.

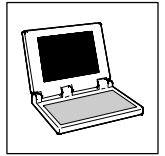
Limit the variable entry to determine the value range.

New

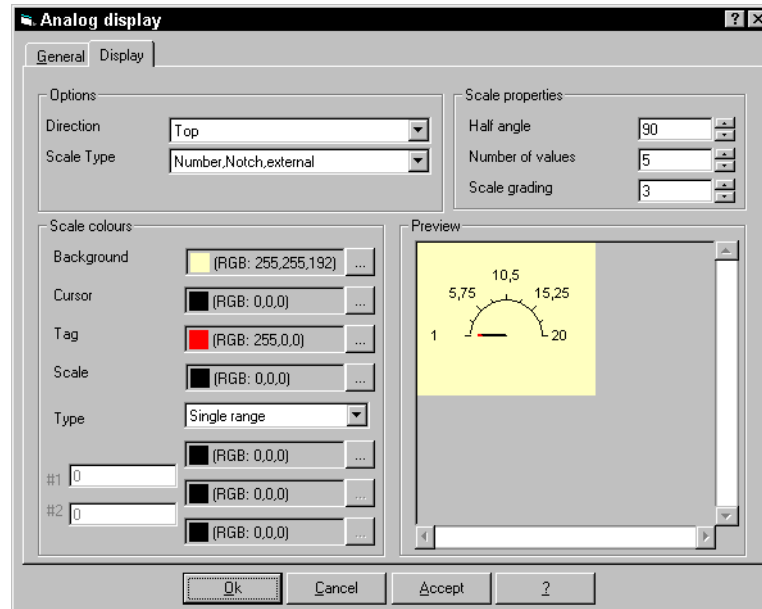
Add a variable to the project component **Variables**.

Edit

Edit the selected variable.



Display



Direction

Scale position.

Scale type

Scale type

Half angle

Indicate opening angle of scale.

Number of values

Indicate number of values to be shown on the scale.

Scale resolution

Number of entries between two values.

Background



Setting of background colour of the field.

Cursor



Selection of pointer colour.

Notch

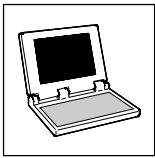


Selection of pointer pivot colour.

Scale



Selection of colour for scale labelling



HMI Designer

Project editor

Type



Selection of colours for different scale sections

#1

First scale section for a certain colour

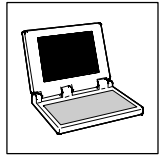
#2

Second scale section for a certain colour

Preview

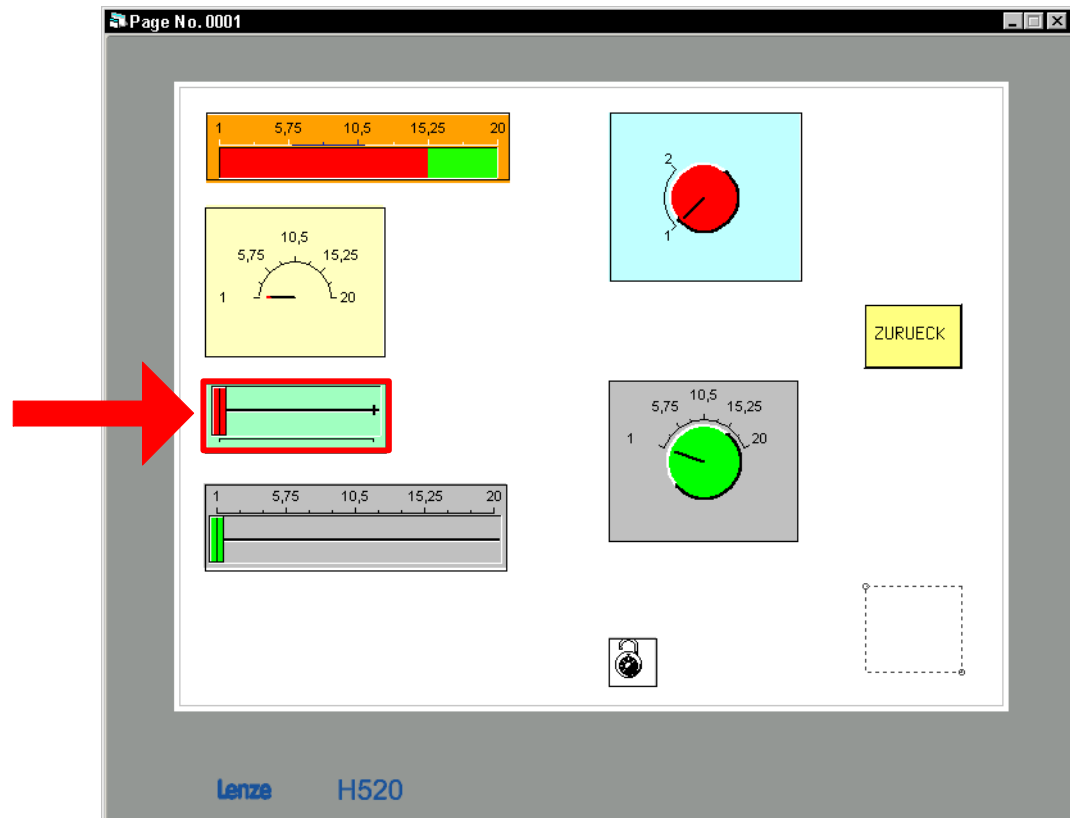
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Change→Settings** and open the dialog box again.



3.5.11 Slide switch

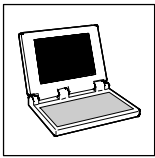
Use the command **Fields→Slide switch** to position a graphics field with a slide switch on the current page:



Tip!

With the help of this field, you can have the switch status of numerical variables shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor

General

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown with the slide switch.

Limit the variable entry to determine the value range.

New

Add a variable to the project component **Variables**.

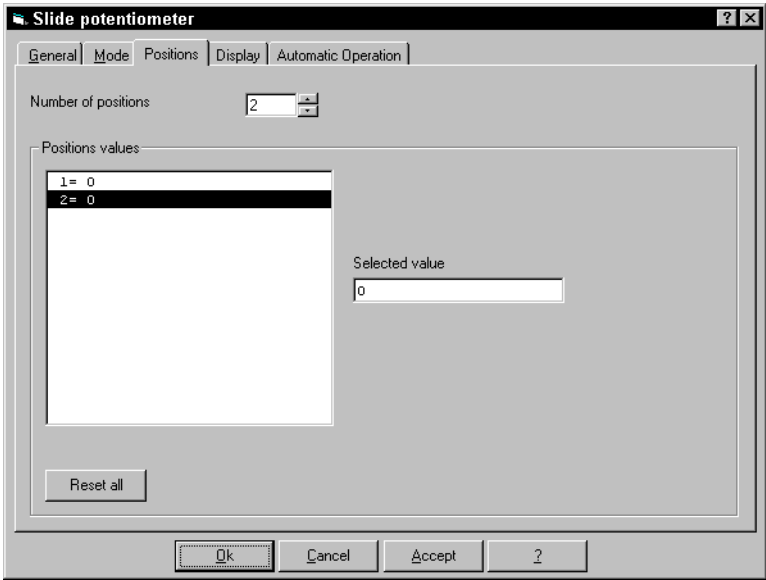
Edit

Edit the selected variable.

Mode

For setting options, see the **Mode** in chapter 3.5.2. (3-59)

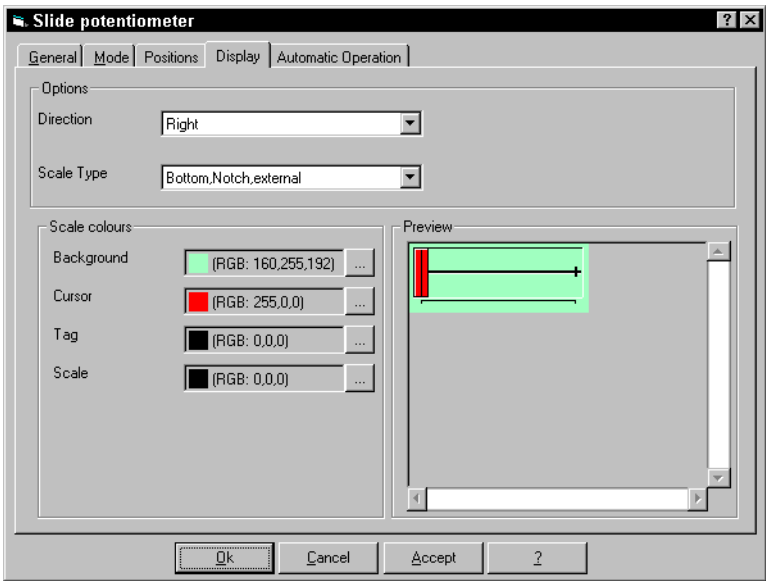
Positions



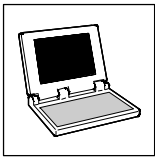
Number of positions
Selection of number of steps.

Selected value
Highlight a step (position value) and got to **Selected value** to enter the value to be indicated as soon as the variable under **General** reaches this value.

Display



Direction
Selection of slice switch position



HMI Designer

Project editor

Scale type

Scale type

Background



Setting of background colour of the field.

Cursor



Selection of switch knob colour.

Notch



Selection of colour of switch knob notch.

Scale



Selection of scale colour.

Preview

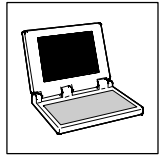
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Change→Settings** and open the dialog box again.



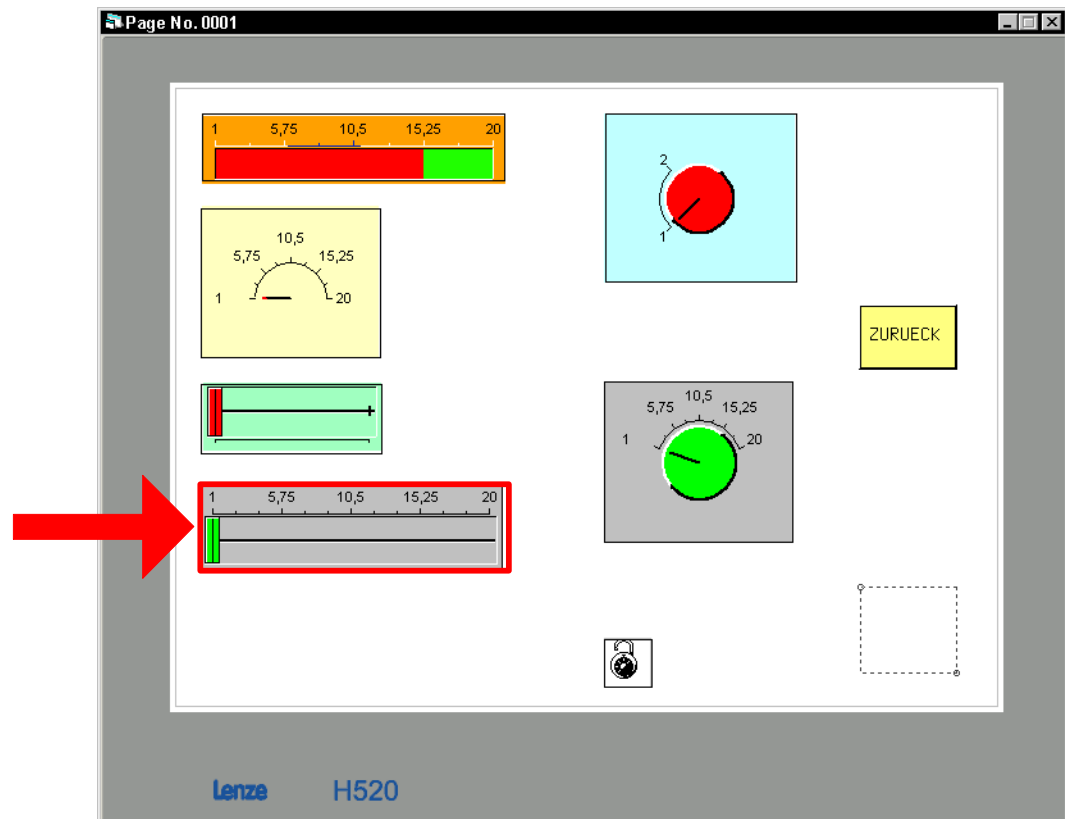
Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)



3.5.12 Slide potentiometer

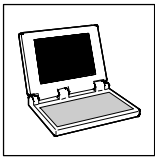
Use the command **Fields→Slide potentiometer** to position a graphics field with a slide potentiometer on the current page:



Tip!

With the help of this field, you can have the values of numerical variables shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor

General

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown in the field.

Limit the variable entry to determine the value range.

New

Add a variable to the project component **Variables**.

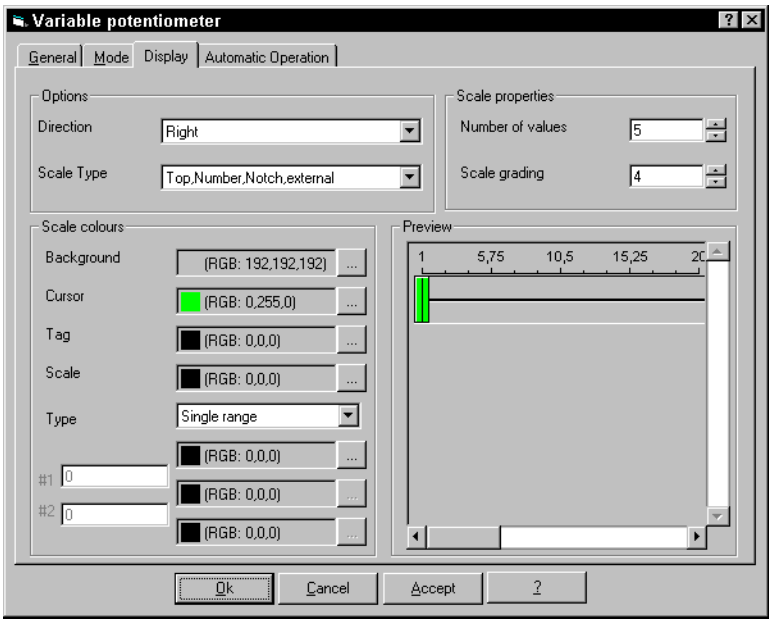
Edit

Edit the selected variables.

Mode

For setting options, see the **Mode** in chapter 3.5.2. (3-59)

Display



Direction
Selection of position of potentiometer.

Scale type
Scale type

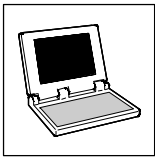
Number of values
Indicate number of values to be shown on the scale.

Scale resolution
Number of entries between two values.

Background
 Setting of background colour of the field.

Cursor
 Selection of slide potentiometer colour.

Notch
 Selection of colour of slide switch potentiometer.



HMI Designer

Project editor

Scale



Selection of colour for scale labelling

Type



Selection of colours for different scale sections

#1

First scale section for a certain colour

#2

Second scale section for a certain colour

Preview

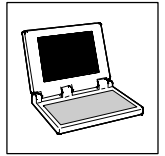
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Alter→Settings** and open the dialog box again.



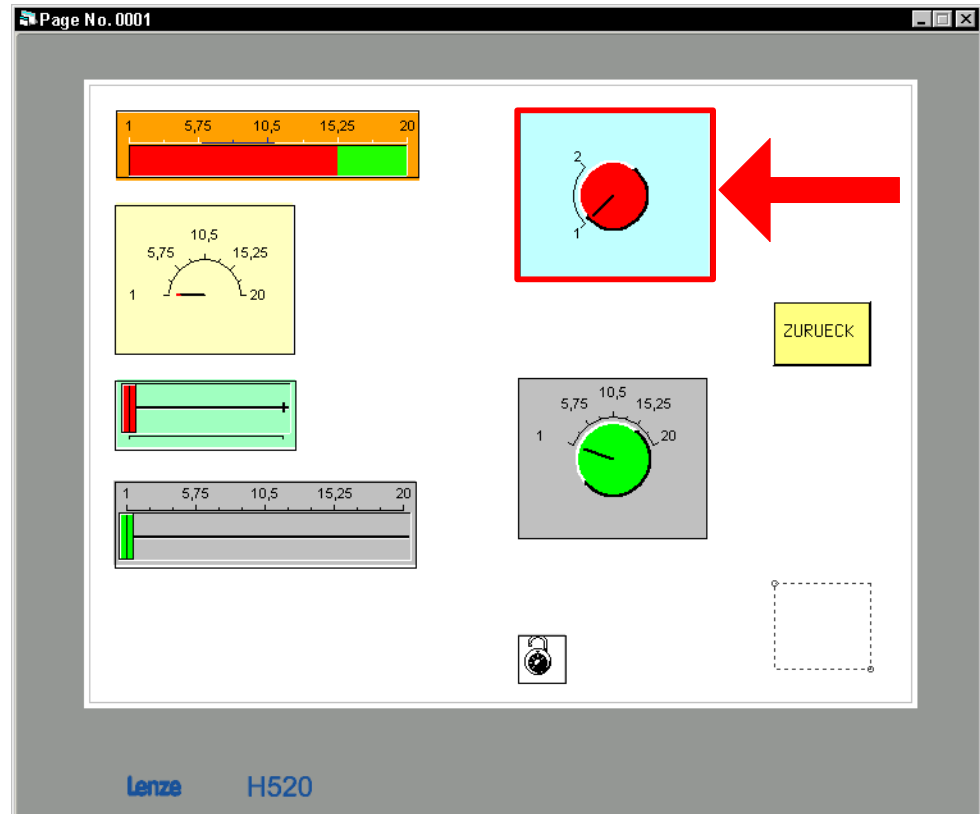
Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)



3.5.13 Rotary switch

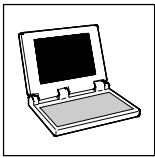
Use the command **Fields→Rotary switch** to position a graphics field with a rotary switch on the current page:



Tip!

With the help of this field, you can have the switch status of numerical variables shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor

General

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown with the rotary switch.

Limit the variable entry to determine the value range.

New

Add a variable to the project component **Variables**.

Edit

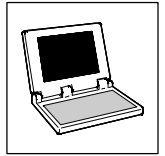
Edit the selected variables.

Mode

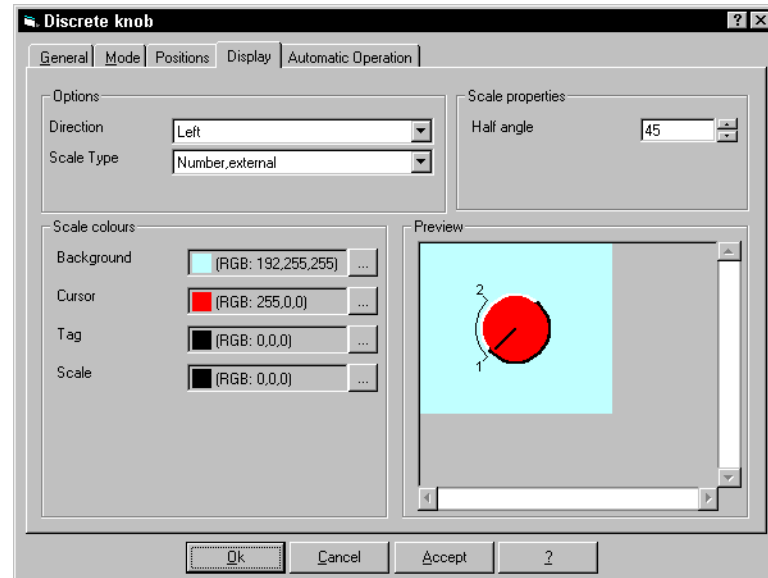
For setting options, see the **Mode** in chapter 3.5.2. (3-59)

Positions

For setting options, see the **Positions** in chapter 3.5.11. (3-91)



Display



Direction

Setting of rotary switch position.

Scale type

Scale type

Half angle

Indicate opening angle of scale.

Background



Setting of background colour of the field.

Cursor



Selection of switch knob colour.

Notch

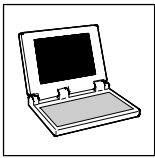


Selection of colour of switch knob notch.

Scale



Selection of scale colour and scale labelling.



HMI Designer

Project editor

Preview

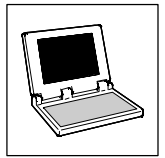
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Alter→Settings** and open the dialog box again.



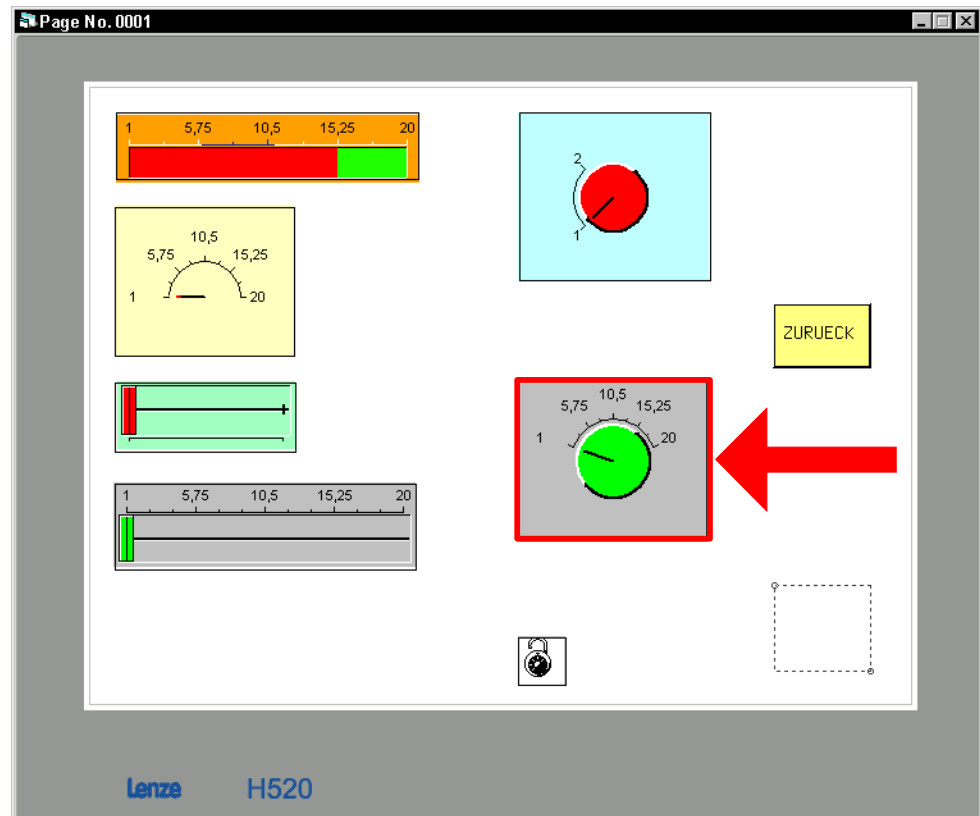
Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (📖 3-62)



3.5.14 Rotary potentiometer

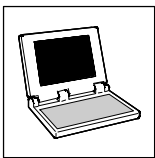
Use the command **Fields → Rotary potentiometer** to position a graphics field with a rotary potentiometer on the current page:



Tip!

With the help of this field, you can have the history of a numerical variable shown on the keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor

General

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

Source

Select the source or type of variable (e.g. data storage element, data storage structure, or system variable).

Variable

The variable value to be shown with the rotary potentiometer.

Limit the variable entry to determine the value range.

New

Add a variable to the project component **Variables**.

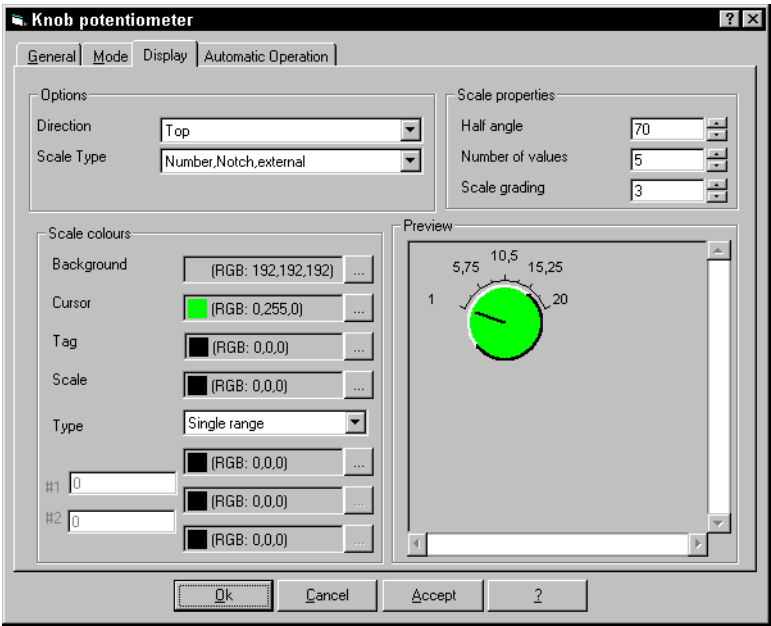
Edit

Edit the selected variables.

Mode

For setting options, see the **Mode** in chapter 3.5.2. (3-59)

Display



Direction
Selection of rotary switch position.

Scale type
Scale type

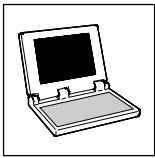
Half angle
Indicate opening angle of scale.

Number of values
Indicate number of values to be shown on the scale.

Scale resolution
Number of entries between two values.

Background
 Setting of background colour of the field.

Cursor
 Selection of switch knob colour.



HMI Designer

Project editor

Notch



Selection of colour of switch knob notch.

Scale



Selection of colour for scale labelling

Type



Selection of colours for different scale sections

#1

First scale section for a certain colour

#2

Second scale section for a certain colour

Preview

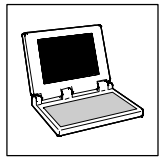
The current display format is shown in the preview window.

A preview is only possible if the field has been inserted, highlighted and scaled to the size wanted before you click **Alter→Settings** and open the dialog box again.



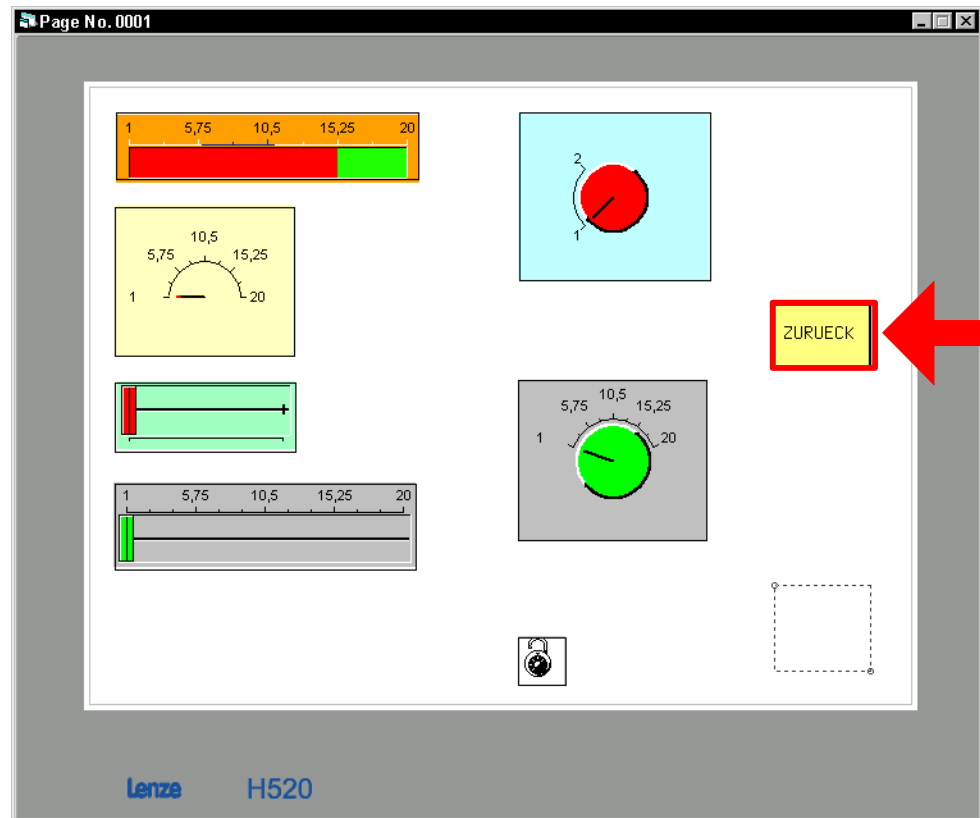
Automatic operation

For setting options, see the **Automatic operation** in chapter 3.5.2. (3-62)



3.5.15 TouchKey

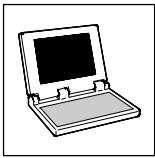
Use the command **Fields→TouchKey** to position a TouchKey field on the current page:



Tip!

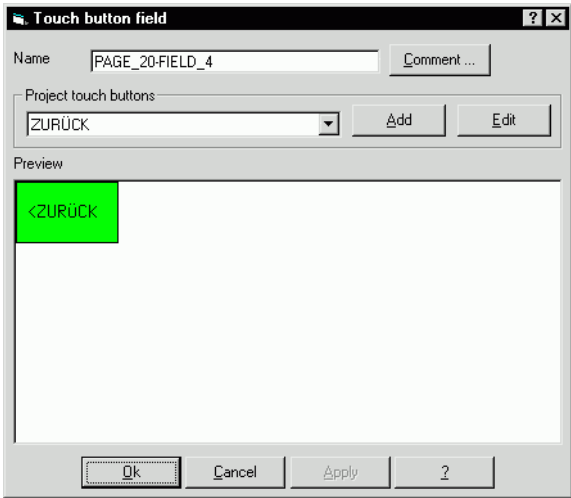
With the help of this field, you can have a graphics button shown on the (pressure-sensitive) display of the keypad.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.



HMI Designer

Project editor



Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (3-9)

TouchKey

Select the TouchKey to be displayed.

New

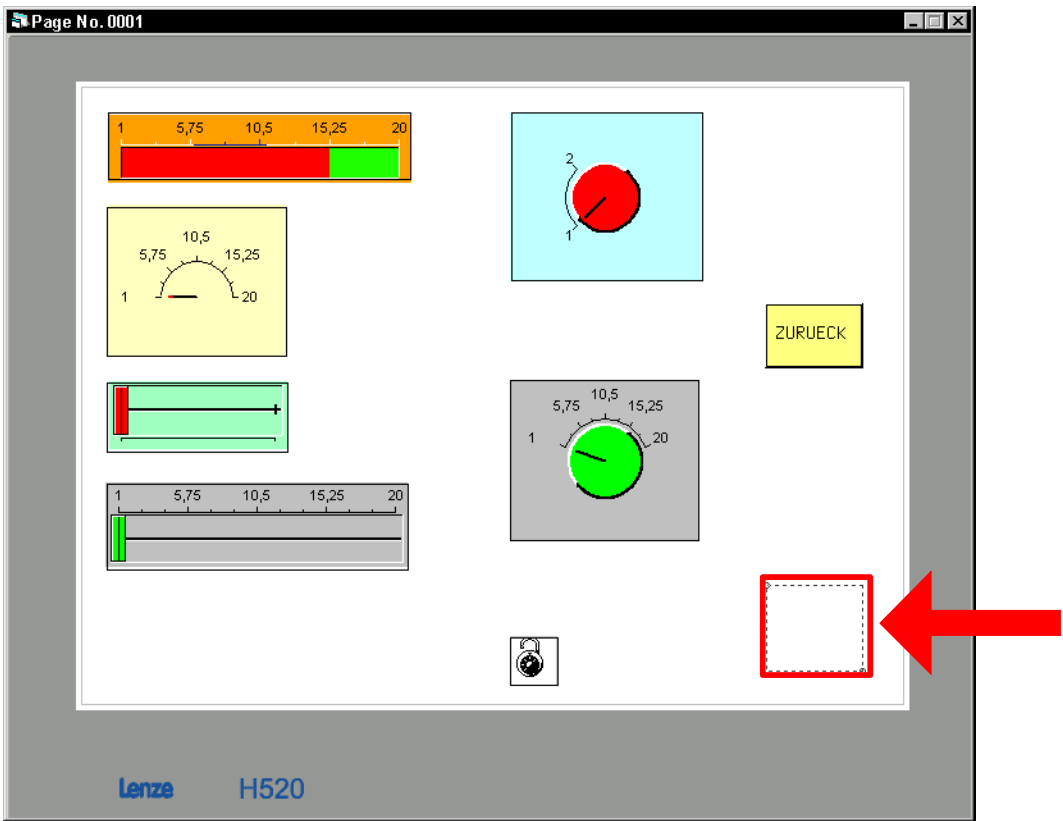
Add a TouchKey to the project components **TouchKeys**.

Edit

Edit the selected TouchKey.

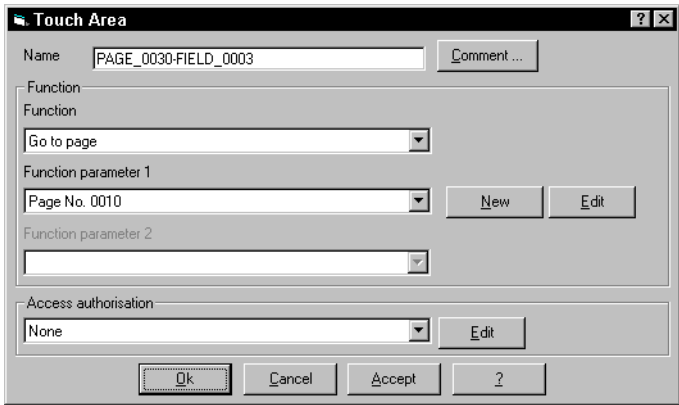
3.5.16 Touch area

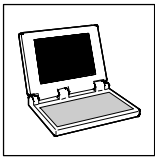
Use the command **Fields→Touch area** to position a touch area field on the current page:



Tip! With the help of this field, you are able to generate an invisible switchpanel on the (pressure-sensitive) keypad display.

- After selecting the command, click on the page at the position where the field should be placed.
- The dialog box *Field settings* will now open, for the configuration of the corresponding field.





HMI Designer

Project editor

Name

Name of the field, for use in Project Editor.

Comment

Entry of additional information about the object. (📖 3-9)

Function settings

The radio button can be assigned to one of the functions that are listed.

Function parameter 1

Parameter for the selected function.

- **Example:** If you selected **Go to page** as the function, then, in the list box **Function parameter 1** you can select the page that will be called up by the radio button.

New

Create a new **Function parameter 1**.

- **Example:** If you selected **Go to page** as the function, then with the button **New** you can directly define a new page (as an object for the project component **Pages**), without having to leave the *Touch areas* dialog box.

Edit

Edit the selected **Function parameter 1**.

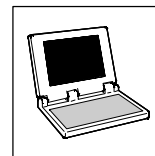
Function parameter 2

If the selected **Function parameter 1** includes other objects, then they are shown in the list box **Function parameter 2** for selection.

Access rights

The button/function key can have access rights assigned to it, so that only specified users are permitted to operated the function key and thus implement the assigned function.

- Use the radio button **Edit** to alter the access rights.



3.6 Configuration

3.6.1 Project information

Use the command **Configuration→Project information** to open the dialog box *Project information* which will show you the following information on the current project:

The information in light gray lettering can only be read, not altered.

You also have the option of adding or editing the following project information:

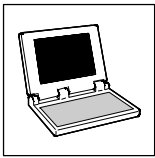
- Name
- Version
- Created/modified (author)
- Company
- Remarks

3.6.2 Access rights

Use the command **Configuration→Access rights** to open the dialog box *Access rights* to configure the password levels of the keypad.

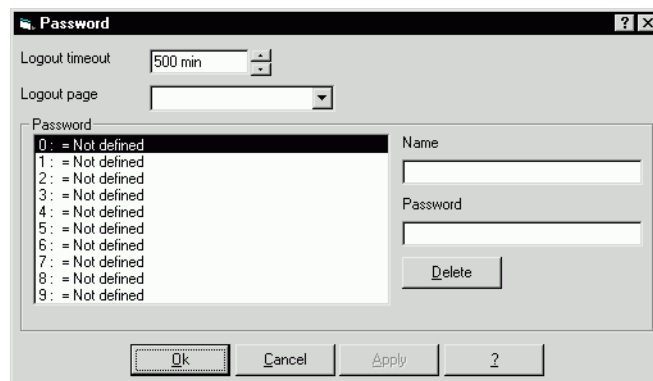
With the help of the password levels you can assign different access rights to different users or user groups.

- Access rights can be assigned for radio buttons and data input fields.
- Up to 10 password levels (0 to 9) are supported, i.e. you can define a maximum of 10 different user groups (for instance: administrators, service technicians, operating personnel).
- A password level includes the access rights to all password levels with a higher number (i.e. lower priority). Example: a user who has the right to use functions protected at level 6 can also use functions which are protected at levels 7, 8 or 9.
- So password level 0 is the highest level of access protection, and should be reserved for administrators.
- If you do not need all 10 password levels, you can leave out some levels, so that they are available for possible future expansion.



HMI Designer

Project editor



Timeout

If there is no input or activation of a radio button within this time (in minutes), then the system leaves the password level that was active up to now, i.e. the previously accessible functions are now protected again.

- The defined time is the same for all password levels.
- A setting of 0 minutes deactivates the **Logout Timeout**, i.e. the system will not automatically leave the activated password level at the end of a certain time.

Logout page / logout sequence

Select the page or sequence that is to be displayed if the **Logout Timeout** has elapsed.

Access rights

Select the password level that is to be configured.

Name

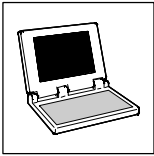
The name for the selected password level.

- For instance, you can enter the name of the user group as the name.

Password

The name for the selected password level.

- The password consists of a maximum of 6 numerical characters.
- A password must be unique, i.e. only used once.



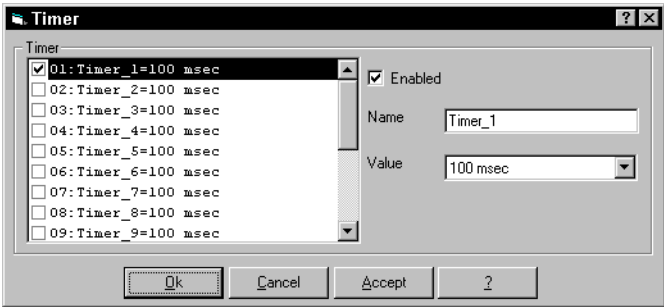
3.6.3 Timer

Use the command **Configuration→Timer...** to open the dialog box *Timers* to configure the timer. Timers define time events which can activate actions. Timers are used in the project component **Automatic operations**. (3-53)

- Timers work cyclically.
- 16 timers can be used.
- You can set run-times from 100 ms to 25 s and increments of 100 ms.

A timer can be started in two different ways:

- Automatic start after switch on of the voltage supply for the keypad.
 - Open the dialog box *Automatic operations*, under *Event* under *Name* and click **Timer**.
- Start by meeting a certain condition.
 - Open the dialog box *Automatic operations*, under *Event* under *Name* and click **Timer**.
 - Go to the register *Activating condition* and select a condition which is going to activate the timer.



Activated

Timer activation.

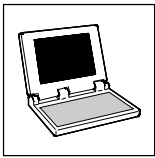
- Select a timer and activate the option *Activated*.

Name

Name of the timers

Value

Selection of the timer run-time.

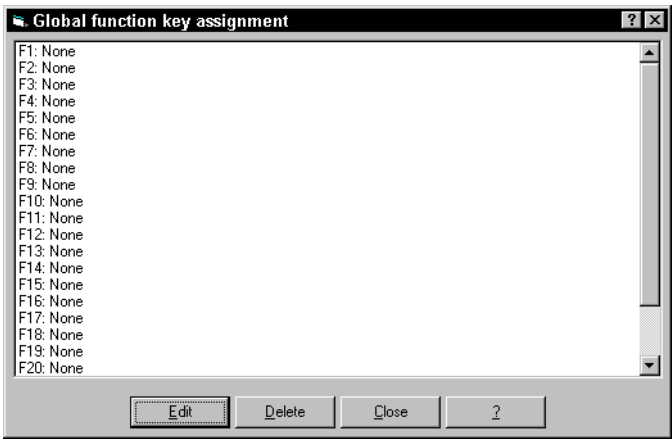


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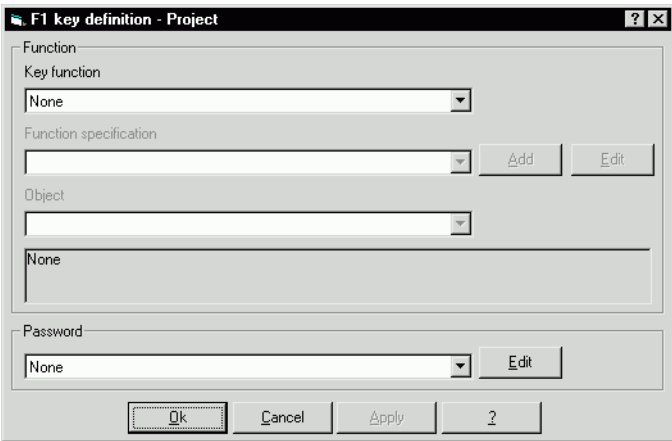
Project editor

3.6.4 Function key assignment

Use the command **Configuration→Function key assignment** to open the dialog box *Function key assignment*, that will show you information on the settings for the function keys.



If you double-click on an entry, it will open the dialog box *Function keys, configuration*, where you can make the following adjustments to the corresponding function key:



Function

The radio button can be assigned to one of the functions that are listed.

Function parameter 1

Parameter for the selected function.

- **Example:** If you selected **Go to page** as the function, then, in the list box **Function parameter 1** you can select the page that will be called up by the radio button.

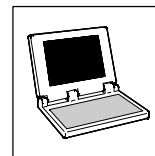
New

Create a new Function parameter 1 .

- **Example:** If you selected **Go to page** as the function, then with the button **New** you can directly define a new page (as an object for the project component **Pages**), without having to leave the *Macros* dialog box.

Edit

Edit the selected **Function parameter 1**.



Function parameter 2

If the selected **Function parameter 1** includes other objects, then they are shown in the list box **Function parameter 2** for selection.

Access rights

The function key can have access rights assigned to it, so that only specified users are permitted to operate the function key and thus implement the assigned function.

- Click the button **Edit** to alter the access rights.

3.6.5 System messages

Use the command **Configuration→System messages** to open the dialog box *System messages*, which will show you the system messages for the keypad.

The following types of system message are possible:

- Message without confirmation
- Message with confirmation by ENTER
- Message with choice of ENTER or ESC
- Message with a password entry, followed by ENTER/ESC confirmation (ENTER confirms the password entry, ESC cancels the password entry).

Example:

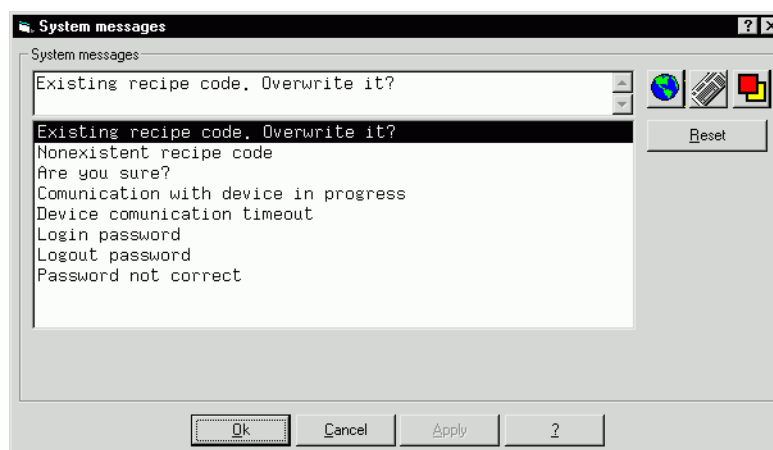
Of the password that is entered was not input correctly, then the system message "Password not correct" appears.



Tip!

You can redefine the system messages.

If you operate the **Reset** button, then the system messages will be reset to the default texts for the keypad.



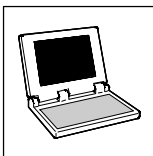
Translations

Entry of the translations for the languages that are defined in **Configuration→Languages**. (3-7)



Special characters

Entry of special characters which cannot be entered directly from the keyboard. (3-8)



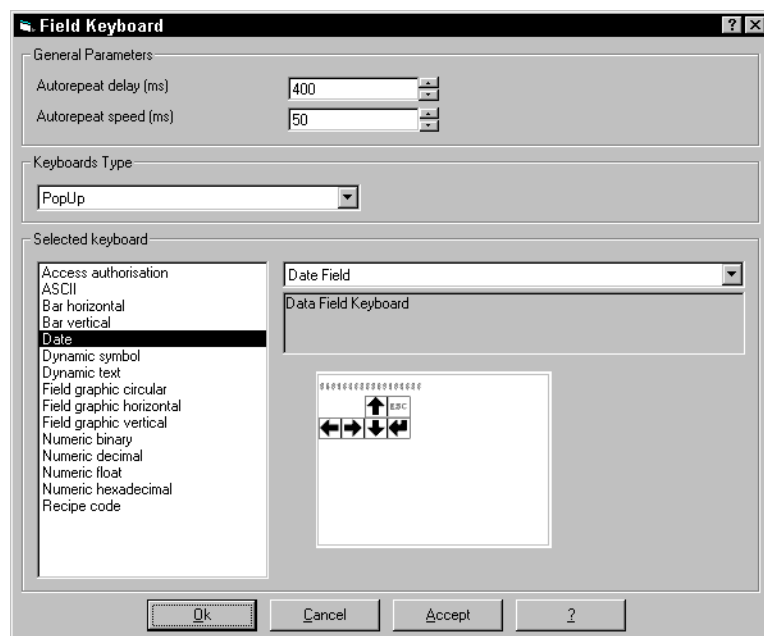
HMI Designer

Project editor

3.6.6 Field keypad

Use the command **Configuration→Field keypad...** to open the dialog box *Field keypad*.

Use this dialog box to assign a field keypad to a variable type.



Auto repeat delay (ms)

Setting of the repeat mode, i.e. how many times is a character repeated when the key is being pressed.

Auto repeat interval (ms)

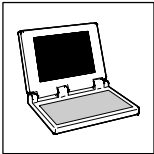
Setting of the delay time necessary between pressing keys.

Keypad types

- PopUp
 - The keypad is opened in a pop-up window. The page will not be hidden.
 - With keypad H520 this function is only available for versions as of “EPM-H520.1B.10”.
- Old style
 - The opened keypad is displayed over the entire screen. The page will be hidden.

Selected keypad

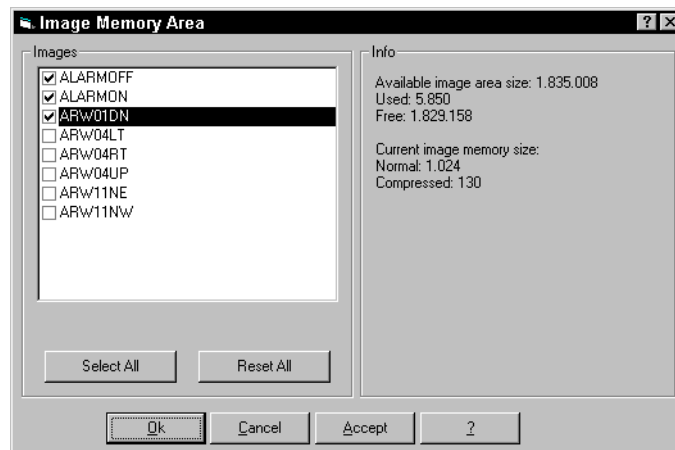
- The left area is to select the variable type for the keypad.
- In the right field you can choose between several keypad layouts. A preview shows the selected keypad.



3.6.7 Bitmap memory area

Use the command **Configuration→Bitmap memory area** to open the dialog box *Memory area for bitmaps*.

- The dialog box indicates the memory area used by the bitmaps in the picture lists.
- The dialog box helps to remove bitmaps from the picture list if there is not enough memory available for storing all pictures.



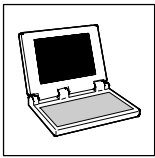
Pictures

- The window shows all bitmaps stored.
- Highlighted pictures will be automatically compressed when the project is downloaded to the keypad.
- **Select all:** Highlights all bitmaps in the window.
- **Undo:** Resets all highlighted bitmaps.

Info

This box shows:

- the memory max. available pictures.
- the memory already used for pictures.
- the memory remaining for pictures.
- the file size of uncompressed and compressed pictures selected from the window *Pictures* .



HMI Designer

Project editor

3.6.8 Supported languages

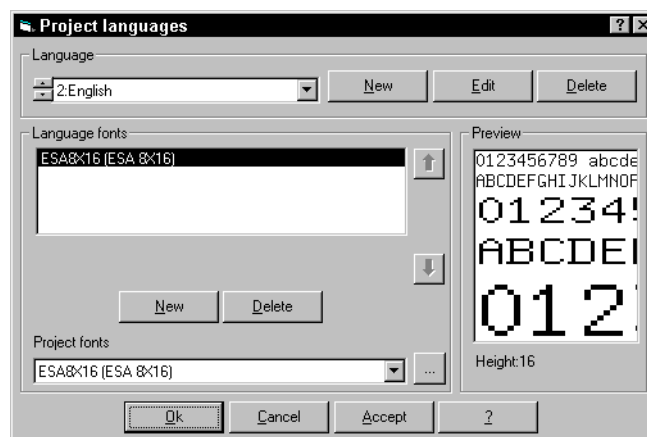


Tip!

In HMI Designer you can configure the keypads, so that the display texts are available in up to 8 different languages.

Use the command **Configuration→Languages** to open the dialog box *Languages* where you can define which languages are to be supported by the keypad.

- The languages which are defined here are listed in the dialog box *Translations*, where you can enter the translation for the appropriate context. (□ 3-7)
- On keypads with a TouchScreen you can assign an individual font to each defined language, so that, for instance, country-specific special characters can be used.
- Using the command **Tools→Export translations** you can export the texts for all the defined languages as a text file, for translation. After they have been translated, you can re-import the texts with the command **Tools→Import translations** into the project again.



Language

A list of defined languages.

Add

Adds a new language.

Edit

Edits the name of a language.

Delete

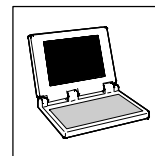
Deletes the highlighted language from the field *Language*.



Move the marked font up one position.



Move the marked font down one position.



Add

Font from the field *Project font* to the field *Font of language*.

Delete

Highlighted font from the list field *Font of language*.



Add fonts for the selected language.



Tip!

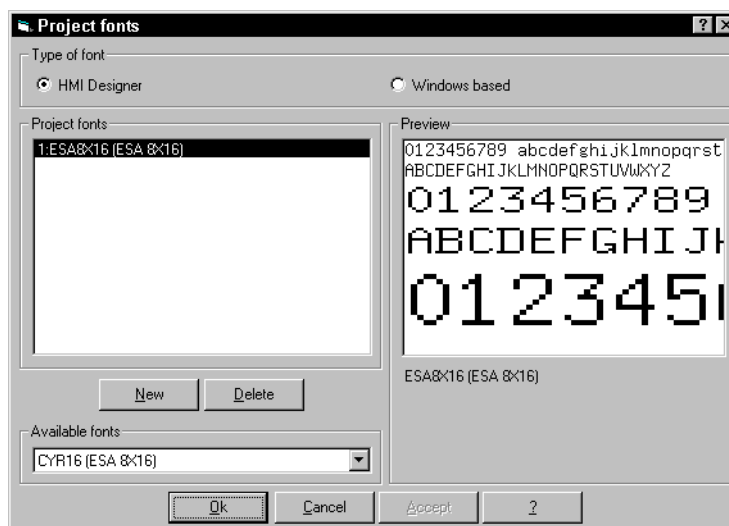
You can only assign one font to every language. The system will use the font which is first in the list field *Font of language*.

3.6.8.1 Define font for supported languages

On keypads with a graphic display you can assign an individual font to each defined language, so that, for instance, country-specific special characters can be used.

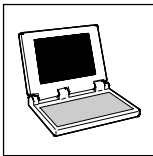
How to assign a particular font to a language:

1. Select **Configuration→Languages**, to open the dialog box *Languages*.
2. Go to *Language* and select the language for a font.
3. Click  to open the dialog box *Select font*.



Font type: HMI Designer

- Go to the field *available fonts* and select the font you want to assign to a language and click **Add** to add the selected font to the list field *Select font*.
- A highlighted font can be deleted from the list field *Select font* by clicking **Delete**.
- Click **OK** to make all fonts selected and listed under *Select font* available for language and close the dialog box *Select font*.

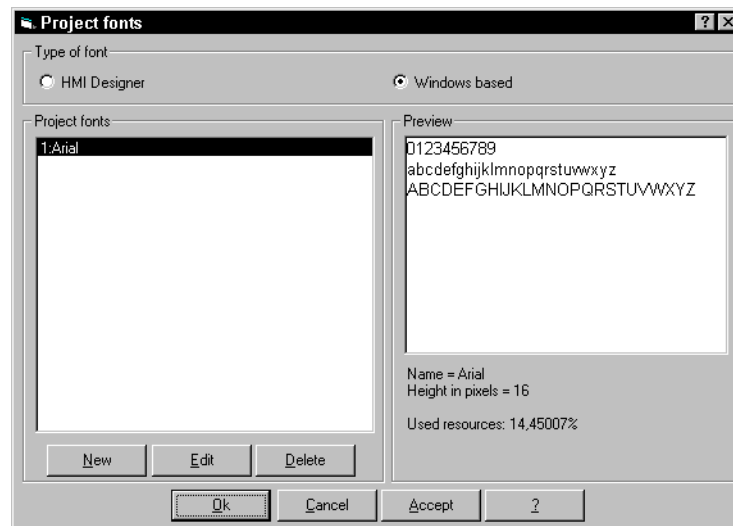


HMI Designer

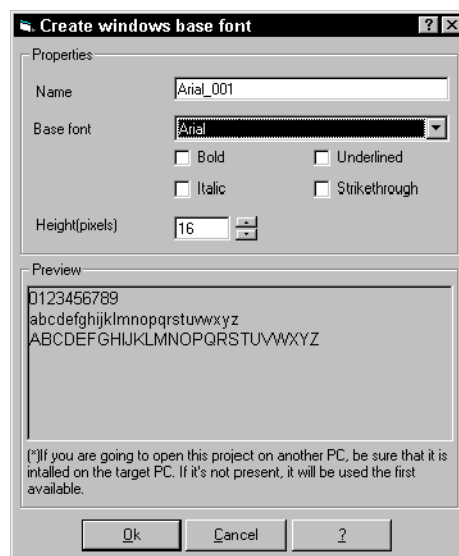
Project editor

Font type: **based on Windows**

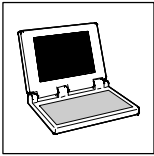
(only for keypads with graphic display)



- Click **Add**, to open the dialog box *Create Windows font* and add a font from the Windows font list.
- Features of a font can be changed if you go to the list field *Select font*, highlight the corresponding font and click **Edit**.
- A highlighted font can be deleted from the list field *Select font* by clicking **Delete**.
- Click **OK** to make all fonts selected and listed under *Select font* available for language and close the dialog box *Select font*.



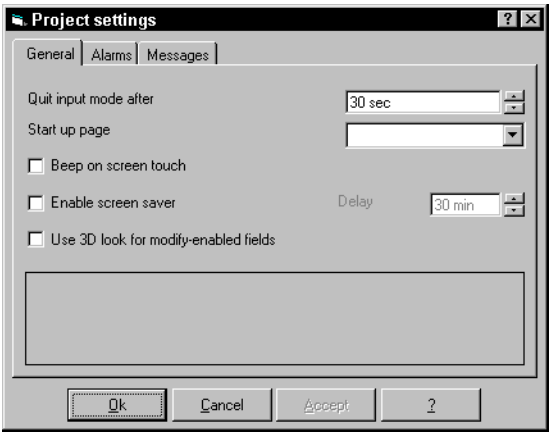
- Go to the field *Font type* and select the corresponding font type, determine the name under *Name* and define the font features.
- Click **Ok** to add the Windows font to the dialog box *Select font* and return to the dialog box *Select font*.



3.6.9 Project settings

Use the command **Configuration→Project settings** to open the dialog box *Project settings*, where you can make the global settings for the project.

General



Set Idle Timeout

The system leaves the entry mode when this time has elapsed.

Page after switch on

Select the page or sequence that is to be displayed after the keypad has been switched on.

Beep if a keys or the screen is touched

Activate this option if you want the keypad to generate a signal tone when you operate a function key or a TouchKey.

Activate screen saver

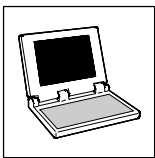
Activate this option if you want the screen saver to function.

- When the screen saver is activated, the normal display of the keypad is switched off after this time, if there have not been any inputs from the keys.

3D effect for editable fields

(only with the H520 keypad)

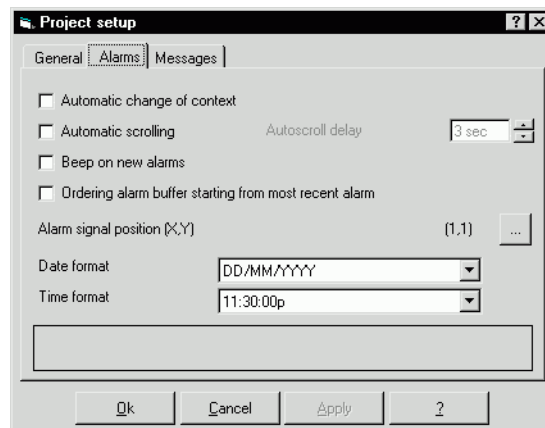
Activate this option if you want to display editable field in 3D.



HMI Designer

Project editor

Alarms



Automatic display of the alarm page

Activate this option if you want the appropriate alarm page to be displayed automatically when an alarm message is received.

Automatic scrolling

Activate this option if the alarm messages are to be displayed automatically, one after another, with the preset delay interval.

Beep on new alarm

Activate this option if the keypad should automatically generate a signal tone when a new alarm message is received.

Ordering alarm buffer starting from most recent alarm

Activate this option if you want the oldest alarm to be displayed first, instead of the newest.

Message signal position (for the alarm)

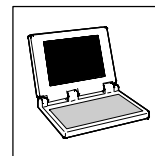
This button opens a dialog field for defining the position of the alarm symbol in the keypad display.

Date format

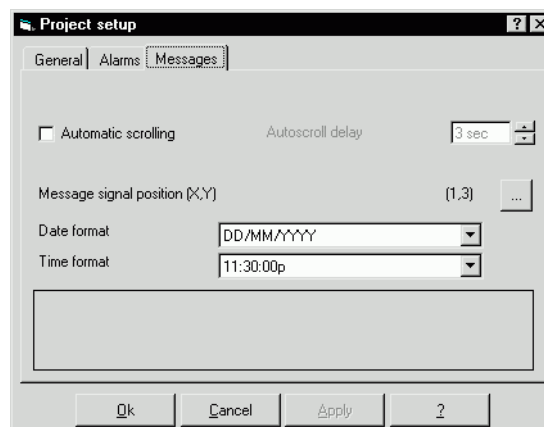
Select the format for the display of the date of the alarm.

Time format

Select the format for the display of the time of the alarm.



Messages



Automatic scrolling

Activate this option if the messages are to be displayed automatically, one after another, with the preset delay interval.

Beep on new message

Activate this option if the keypad should automatically generate a signal tone when a new message is received.

Message signal position

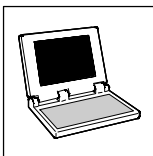
This button opens a dialog field for defining the position of the message symbol in the keypad display.

Date format

Select the format for the display of the date of the message.

Time format

Select the format for the display of the time of the message.



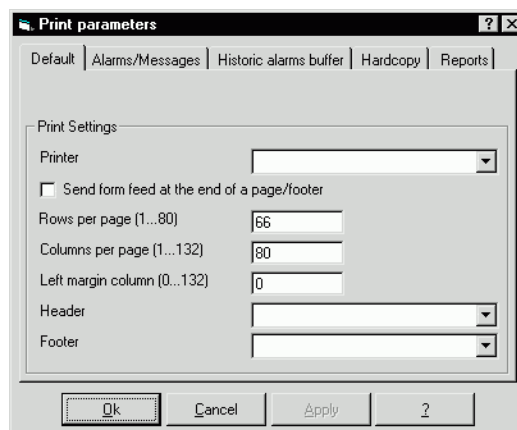
HMI Designer

Project editor

3.6.10 Print parameters

Use the command **Configuration→Print parameters** to open the dialog box *Print parameters* to configure the various parameters for printing.

General



Printer

Select the printer to be used.

Send form feed at the end of a page/footer

Activate this option if you want a new sheet at the end of every page, regardless of the size of the page contents.

Rows/Columns per page

Enter the number of rows or columns to be used on a page.

Left margin column

Enter the number of columns to which the left margin applies.

Header/Footer

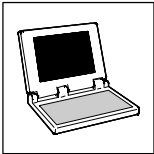
Select a header/footer line.

Alarms/Messages, Alarm buffer, Hardcopy, Reports

Use global settings

Activate this option if the print parameters defined in the **General** register should be accepted.

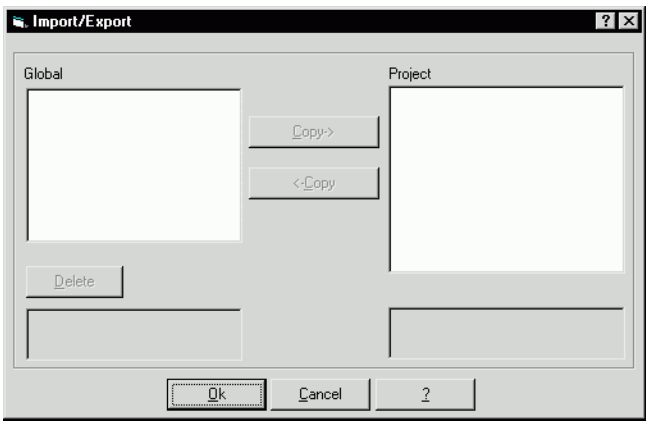
- If this option is deactivated, you can define individual print parameters.



3.6.11 Import/Export

Header/Footer

Use the command **Configuration→Import/Export→Header/Footer** to open the dialog box *Import/Export* in order to copy headers/footers from one project to another.



Global

The global headers/footers are shown in this list box.

- If you want to use global headers or footers in your project, use the **Copy>** button to copy them to your project.

Project

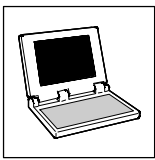
The global headers/footers for the current project are shown in this list box.

Copy

- Use the **Copy>** button to import the global header or footer into your project.
- Use the **<Copy** button you can export a header/footer from your project as a global header/footer.

Delete

Deletes the selected global header/footer.



HMI Designer

Project editor

3.6.12 Data memory structure

Use the command **Configuration→Data storage structure** to open the dialog box *Data storage structure* in order to define a RECIPE.

A **Recipe** is a structure of variables that is stored in a buffered area of the keypad memory.

- In the keypad, 128 KB of buffered memory (H520: 256 KB) are available for recipes
- A recipe is limited to a maximum size of 5 KB, so that it can be displayed and set up through the video buffer of the keypad.
- If a recipe is defined in the project, then all other recipes will have the same memory structure and size.
- **Example:** If you define a recipe with 2 KB of memory, then all other recipes will also have 2 KB of memory, and so you can store a maximum of 64 recipes in the 128 KB of memory that is available ($128 \text{ KB} / 2 \text{ KB} = 64$).
- Each recipe is identified by a unique code.
- The keypad has two internal variables that can be read out by the device, and which contain the number of recipes that have been written and the number of additional recipes that are still possible.
- The transfer of a recipe between the keypad and a device is bidirectional: This makes it possible to alter a recipe for the device and send it back again to the keypad.
- The keypad must be operated with a battery for buffering the data memory (see installation instructions).

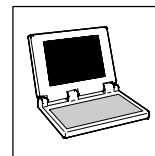


What are recipes used for?

Let us imagine a system that can produce cakes.

- The system can make not just one type of cake, but various cakes, that are distinguished by different ingredients (parameters).
- These different ingredients (parameters) for making the cake can be grouped together in a recipe which is sent to the device.
- Now, if you want to make a different type of cake, you just send a different recipe to the keypad, one which include the ingredients for the new type of cake.

So these recipes provide a simple means of configuring the parameters for a process, without having to alter the control program of the device.



Recipe structure

Code	
Comment	
Variable 1	
Variable 2	
...	
Variable n	
TT	MM
JJ	JJ
HH	MM
Number of variables (n)	
Checksum	

Variable type	Comment
STRING	2 - 40 characters
STRING	2 - 40 characters
STRING/numerical	Variable data
Numerical, 16-bit	Date
Numerical, 16-bit	Time
Numerical, 16-bit	Number = n
Numerical, 16-bit	Binary sum of all bytes

Create a recipe (example)

1. Select **Configuration→Data storage structure**, to open the dialog box *Data storage structure*.
2. In the register **Options** select the variables for the recipe.
3. Open a new page (dialog box: *Project components Components Pages - New*).
4. Place a field of type **Text on the page**.
5. In the dialog box *Field settings: Text* make the following settings:
Source: Data storage structure
Variable: Recipe code
Length: Here you define the number of characters in the recipe code.
6. Close the dialog box *Field settings: Text* with **OK**.
7. Place a field of type **Number on the page**.
8. In the dialog box *Field settings, Number* make the following settings:
Source: Data storage element
Variable: Select the appropriate variable
9. Close the dialog box *Field settings, Number* with **OK**.
10. For the recipe management, assign the appropriate commands to the function keys (transmit recipe, recipe directory etc. - see the section on "Internal Commands" in the Online Help)

Activate recipe management

Activate this option if you want to use recipes.

Synchronous recipe transmission

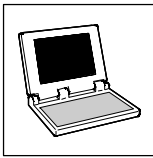
Activate this option if the transmission of the recipe is made in a handshake mode with the device.



Caution!

If the option **Synchronous recipe transmission** is deactivated then the keypad is **always** ready for transmitting the recipe, regardless of whether the device is ready to receive it or not!

This may cause an unpredictable situation in the device. In this case, take precautions to prevent an unpredictable state of the device or incorrect handling by the user.



HMI Designer

Project editor

Code and comment

The 'Data memory structure' dialog box is shown with the 'Code and comment' tab selected. It contains two sections: 'Code' and 'Comment'. Each section has a dropdown menu for selecting a variable, an 'Add' button, and an 'Edit' button. The 'Characters' field is set to 2. At the bottom, there is a status bar indicating 'Fixed part's bytes = 2 ; Items' bytes = 8 ; Allowed recipes on terminal = 1024'. Buttons for 'Ok', 'Cancel', 'Apply', and '?' are at the bottom.

Code

Select the variable that contains the unique code for the recipe.

Remarks

Select the variable that contains the comment for the recipe.

Activate

Activate this option if you want to attach a comment to the recipe.

New

Add a variable to the project component **Variables**.

Edit

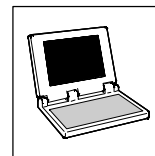
Edit the selected variables.

Character

The maximum character length of the code or comment.

Options

The 'Data memory structure' dialog box is shown with the 'Items' tab selected. It contains an 'Item list' with a list of items: C0011, C0012, C0013, C0039/1, C0051, C0135, C0150, and C0178. The items C0012 and C0013 are checked. Below the list are buttons for 'Add', 'Edit', and 'Reset all'. At the bottom, there is a status bar indicating 'Fixed part's bytes = 2 ; Items' bytes = 8 ; Allowed recipes on terminal = 1024'. Buttons for 'Ok', 'Cancel', 'Apply', and '?' are at the bottom.



In the list box **Options** you can select the variables which are to be included in the recipe.

New

Add a variable to the project component **Variables**.

Edit

Edit the selected variables.

Reset

Reset the selection of the variables.

Information

Active the corresponding information that is to be transmitted with the recipe!

Time

Select the variables to be assigned to this field.

- The time is the time when the last recipe transmission was made, in BCD format.

Date

Select the variables to be assigned to this field.

- The date is the date when the last recipe transmission was made, in BCD format.

Checksum

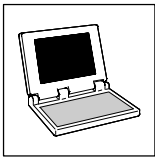
Select the variables to be assigned to this field.

- The checksum is the binary sum of all the bytes that make up the recipe structure.

Number of options

Select the variables to be assigned to this field.

- The number of options is the number of transmitted variables.



HMI Designer

Project editor

3.7 Tools

3.7.1 Save/Restor

Use the command **Tools→Save/restore...** to open the dialog box *DOWNLOADER*.

Use this tool for the following:

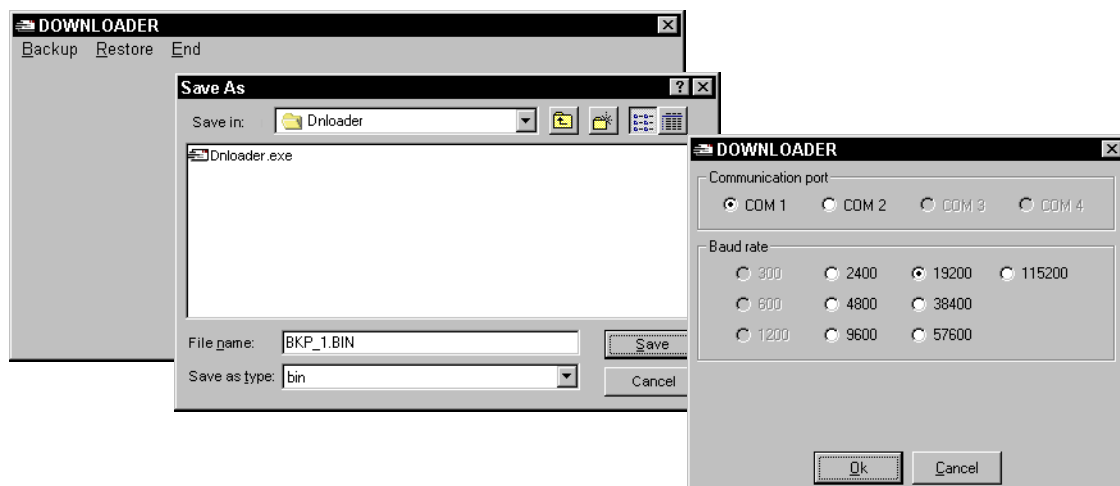
- Copy projects with firmware from the keypad to the PC in just one file.
- Copy recipes with firmware from the keypad to the PC in just one file.
- Copy stores files to other keypads of the same type.



Tip!

The function Store/Redo requires a connection between keypad and PC and the selection of the system page of the keypad (see Operating Instructions for the keypad).

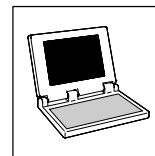
Save project with firmware in a file



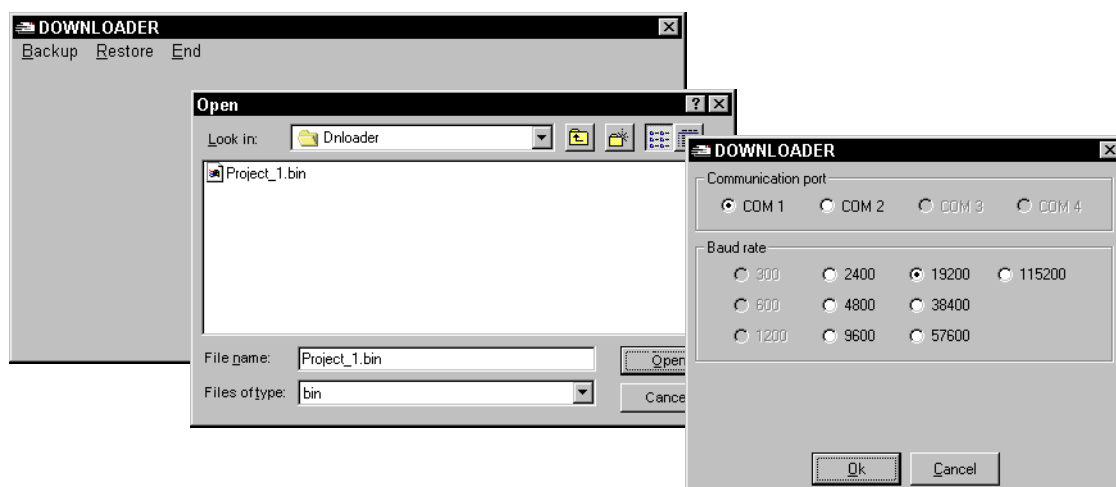
1. Execute the command **Save→Firmware and project**.
2. Open the dialog box *Save file as...* and select the target and name (.bin) for the file.
3. Confirm **Ok** to open the dialog box *DOWNLOADER*.
4. Make all settings required in the dialog box and activate the download mode at the keypad (see Keypad Operating Instructions).
5. Click **Ok** to start the process.

Save recipes in a file

1. Execute the command **Save→Recipes**.
2. Open the dialog box *Save file as...* and select the directory to be used to save the file and enter a file name with the ending: ".rcp".
3. Follow steps 3. to 5. as described under "Save project with firmware in a file"



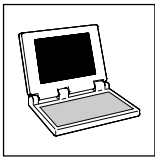
Write project with firmware to the keypad



1. Execute the command **Undo→Firmware and project**.
2. Open the dialog box *Open* and select the file (.bin) to write into the keypad.
3. Click **Open** to open the dialog box *DOWNLOADER*.
4. Make all settings required in the dialog box and activate the download mode at the keypad (see Keypad Operating Instructions).
5. Click **Ok** to start the process.

Write recipes into the keypad

1. Execute the command **Undo→Recipes**.
2. Go to the dialog box *Open* and select the file (.rcp) to be written to the keypad.
3. Follow steps 3. to 5. as described under “Write project with firmware to the keypad”



HMI Designer

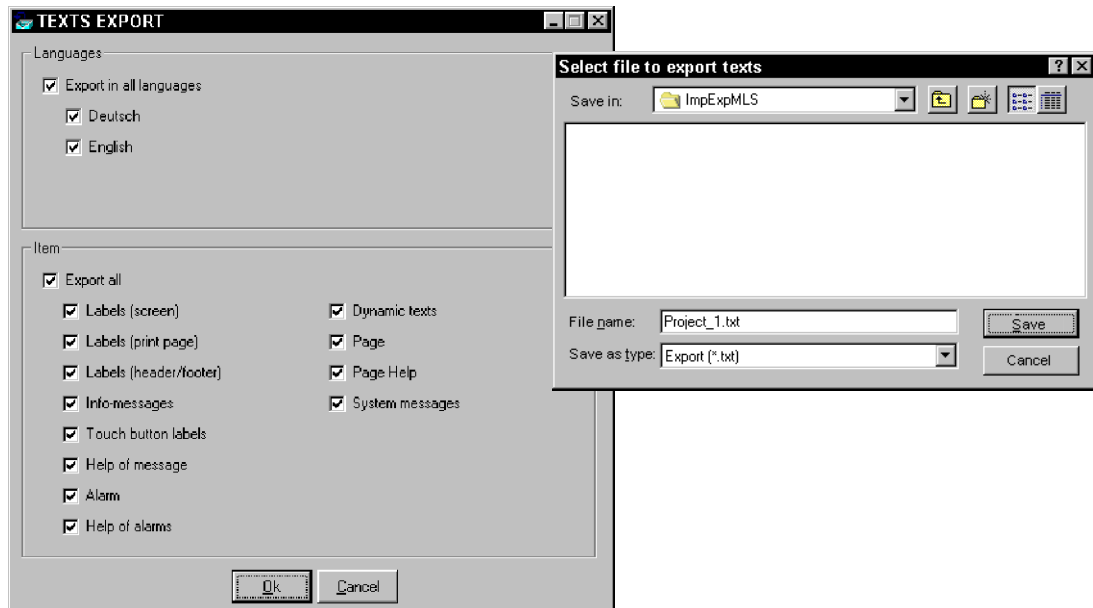
Project editor

3.7.2 Import/export of translations

Projects to be translated can be exported as ASCII files (.txt).

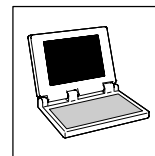
- ASCII text is independent of special programs and can be translated easily.
- The translated ASCII text can be imported again.

3.7.2.1 Export translations

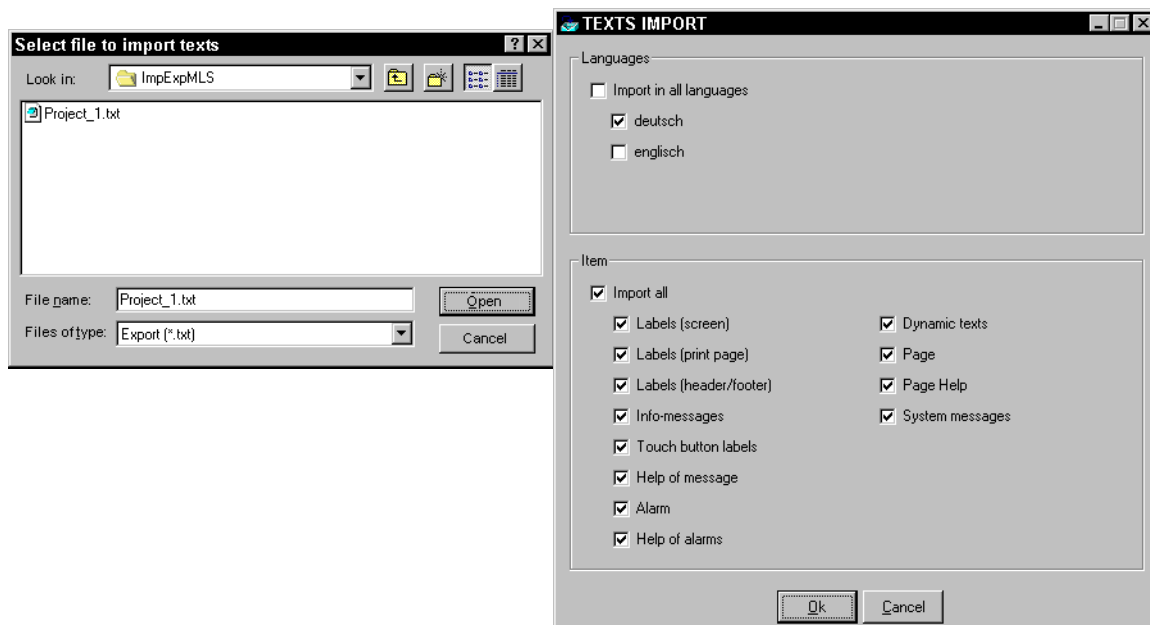


Execute the command **Tools→Export translations...** to open the dialog box *TEXTS EXPORT*.

1. Go to *Languages* and select the source language of the the project and the target language.
2. Go to *Sections* and activate all options to be translated.
3. Click **Ok**.
4. Use the dialog box *Export translations from file* and select target and name (.txt) for the file.
5. Click **Save** to create an ASCII file.

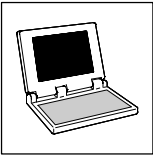


3.7.2.2 Import translations



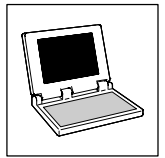
Execute the command **Tools→Import translations...** to open the dialog box *TEXTS IMPORT*.

1. Open the dialog box *Import translations from file* and select the ASCII file (.txt) to be written to the keypad.
2. Click **Open**.
3. Open the dialog box *TEXTS IMPORT* under *Languages* and select the languages to be imported into the project.
4. Go to *Sections* and activate all options to be imported.
5. Click **Ok** to write the translated text to the keypad.



HMI Designer

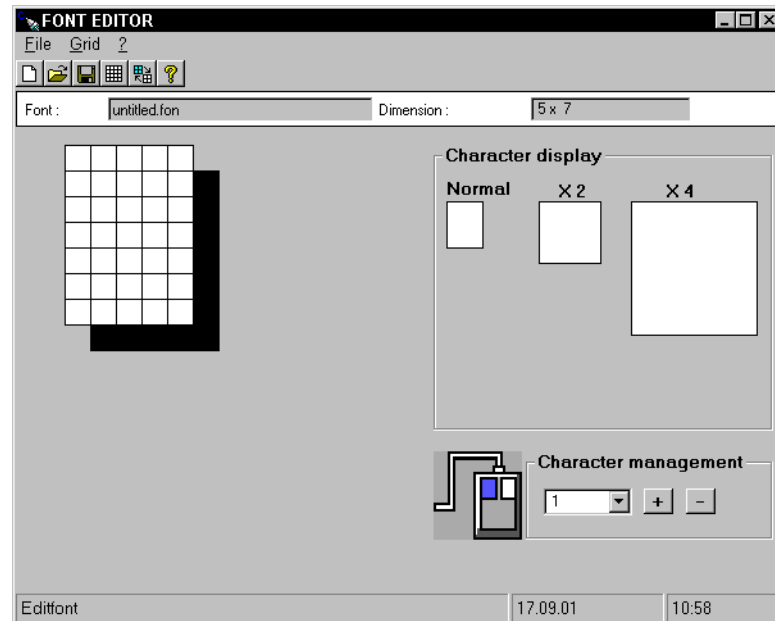
Project editor



4 Font Editor

The **Font Editor** provides you with a tool that you can use for the comfortable creation and editing of fonts for keypads that have a graphical display, to be able to display country- or customer-specific characters.

- The **Font Editor** can be started directly from **Project Editor** by using the **Tools→Font Editor...** command.



4.1 Menu reference

File

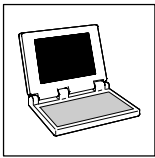
	New...	Create a new font.
	Open...	Open an existing font.
	Save...	Save the font.
	Exit	Exit Font Editor.

Character

	Delete	Delete all the points (pixels) that were set in the raster.
	Invert	Invert the character colors.

? (Help)

	Help topics...	Show the contents/index of the online help.
	Info...	Show information about Font Editor.



HMI Designer

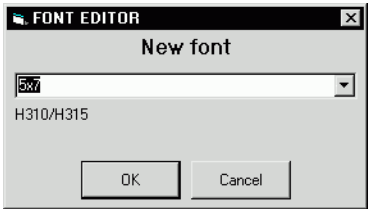
Font-Editor

4.2 Create a new font.

Select **File→New** to create a new font.

Define character size

In *New Font* , select the size for the new font, and confirm with **OK**.

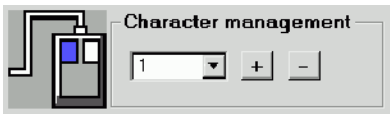


Tip!

In the dialog box *New Font* , below the list box, you can see the keypads to which the selected character size can be applied.

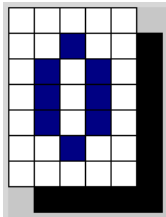
Define character number

In the **Character number** , select the position (1 - 255) within the table of characters for the character that you want to create.

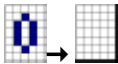


Create character

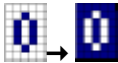
Create the character for the character number that you selected, by setting the appropriate points (pixels) in the raster.



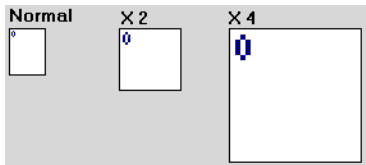
- Use the **left mouse button** to set a point, use the **right mouse button** to remove a point that was set.
- Use the command **Character→Delete** to delete all the points that were set in the raster:



- Use the command **Character→Invert** to show the character in inverted colors:



- In the group field **Character view** you see the current character displayed at various levels of magnification:





Tip!
After you have created the character, you can carry on creating new characters (or editing existing characters), by simply entering the **character number** in the group field with the same name.

Save font

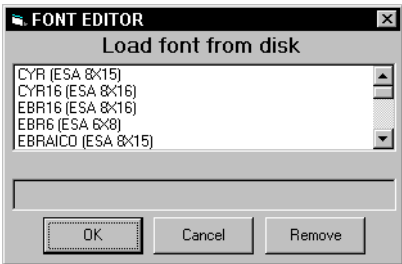
Select **File→Save** and confirm it, in the dialog box *Save font* with **OK** to save the font under the name that is presented.



- The font is saved under this name in HMI Designer, in the subdirectory "Font".

4.3 **Edit an existing font**

Select **File→Open** to open the dialog box *Open existing font*, where all the available fonts are listed.

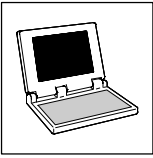


Select the font which you want to edit, and confirm with **OK**.



Tip!
You can now edit characters from this font, by simply entering the **Character number** in the group field with the same name.

You can also use an available font as the basis for a new font, by simply giving the font a new name when you save it.



HMI Designer

Font-Editor

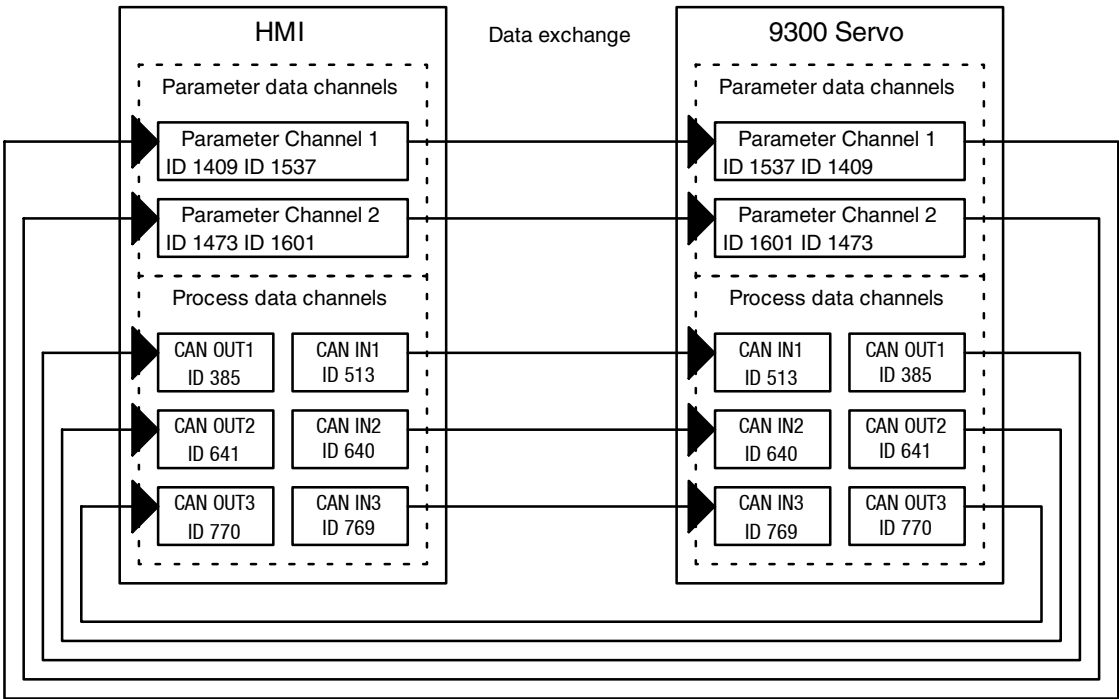
5 Appendix

5.1 Communication via the System bus (CAN)

Lenze keypads can exchange information with the relevant participants across the system bus (CAN).

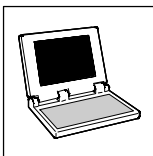
- Parameter data (SDO Service - writing/reading codes) and Process data (PDO Service - e.g. speed setpoint) can be exchanged.
- The maximum number of devices is 63.

Example: Layout principles for a CAN network with HMI and 9300 servo controller:



Tip!

Further information about the system bus can be found in the system manual “9300 project planning” in the chapter “Automation” (Part H).



HMI Designer

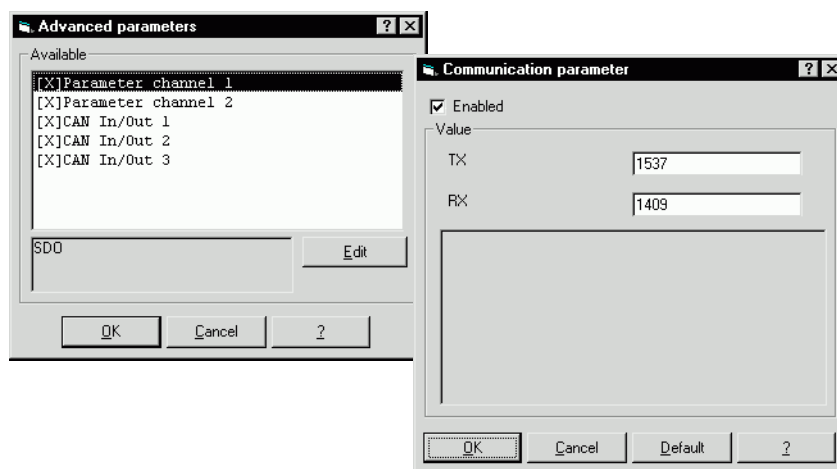
Appendix

5.1.1 CAN communication settings

ID address

The ID address is determined automatically by the participant address. There is also an option for designating an ID address that is independent of the participant address:

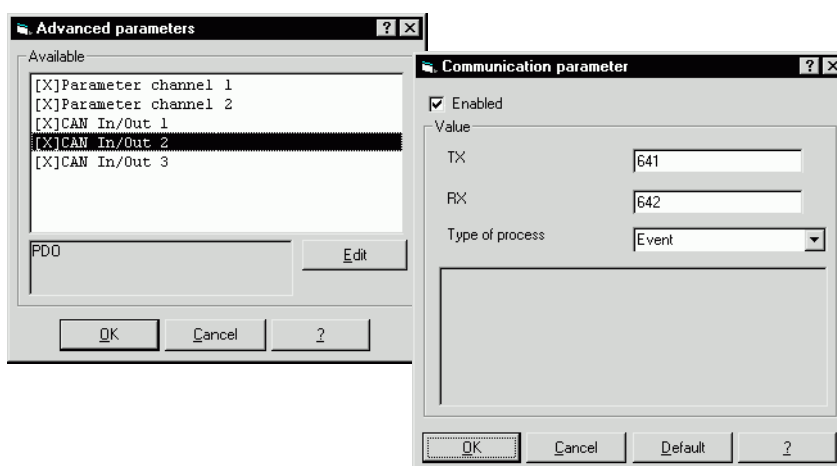
1. Mark the device (e.g. LENZE:DEVICE_CAN_MASTER_a) in the HIM Project Manager, and select **Edit→Parameters....**
2. Confirm, in the *Device Parameters* dialog box, using **Other....**
3. In the dialog box *Parameter*, select the corresponding parameter channel, and confirm by using the **Configure** button to define the ID address:



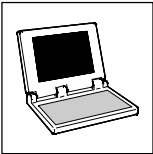
The dialog box **Activate** can be used to activate or deactivate the corresponding communication channel.

Transfer process data: event-triggered or cyclically

It is also possible to transfer the process data from CAN-IN2 and CAN-IN3, with either event-triggered or cyclical transfer. These settings are also made in the *Parameter* dialog box:



Data transmission via CAN-IN1 depends on the sync telegram. Only the data that are associated with this sync telegram are output to /received from the bus by the keypad.



Master/Slave

The selection of the appropriate driver in Project Manager defines the keypad as the *Master* or *Slave*:

- DEVICE_CAN_SLAVE: the keypad is the *Master*
- DEVICE_CAN_MASTER: the keypad is a *Slave*

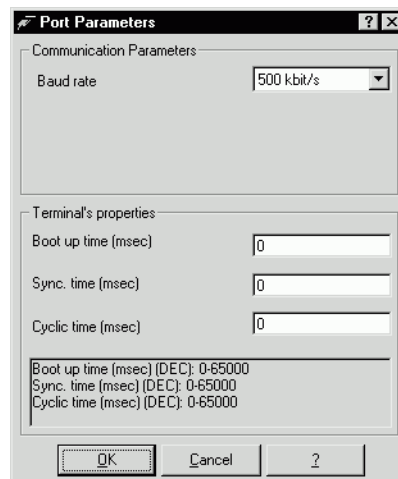
In order to implement a data exchange through process data, all the CAN participants must be switched to the *Operational* CAN status.

- If the keypad has been declared as the *Master*, then it will transmit the telegram for the change of status after switching on, and after the elapse of the *Boot-up time*.
- If the keypad has been declared as the *Slave*, then the telegram for the change of status must be transmitted by another participant (e.g. the drive controller).

Sync time

A SYNC telegram is required for data exchange through CAN-IN1 and CAN-OUT1.

- The SYNC telegram is activated through the dialog box *Interface Parameters* which can be called up by a double-click on the CAN-Port in HMI Project Manager:



- Enter the baud rate of the controller in the field *Sync time (ms)* with a value higher than “0”, to activate the SYNC telegram (0 = SYNC telegram deactivated)

Cycle time

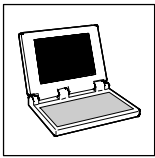
The communication channels CAN-IN2/3 and CAN_OUT2/3 can transfer the process data, either by event triggering, or at a predefined **Cycle time**.

- The **Cycle Time** can be set in the dialog box *Interface Parameters*, which you can call up by a double-click on Interface in HMI Project Manager.

Boot-up time

If the keypad has been declared as the *Master*, then you can set a **Boot-up time**, after which the keypad will transmit the telegram for the change of state from Pre-Operational to Operational.

- The **Boot-up time** can be set in the dialog box *Interface Parameters*, which you can call up by a double-click on Interface in HMI Project Manager.



HMI Designer

Appendix

Terminal Address

If the keypad has been declared as the *Slave*, then a **Terminal Address** must be assigned.

- The **Terminal Address** can be set in the dialog box *Interface Parameters*, which you can call up by a double-click on Interface in HMI Project Manager.

CAN Status

The CAN status provides information on the current operating state of the bus system. Four different states can be distinguished:

0 - Operational	With this status, the bus system is completely operational.
1 - Pre-Operational	with this status, only parameters (codes) can be transmitted across the bus system. It is not possible to exchange data between one drive controller and another. A special signal must be put out on the bus to activate the Operational status. The status can be changed from Pre-Operational to Operational by the following actions: • by the configuration of the keypad as the Master (this causes a Reset Node). • Use code C0352 to define a drive as master. When power is switched on, an automatic status change is carried out for the entire drive group, after the predefined Boot-Up Time C0356/1n. • by code C0358 (Reset Node).
2 - Warning	The Warning status arises if faulty telegrams have been received. The keypad is now only a passive participant, and can no longer transmit any data. The reason could be: • a bus termination is missing • screening is inadequate • potential differences in the ground connections for the control electronics • excessive load on the bus • the keypad is not connected to the bus
3 - Bus Off	The frequency of faulty telegrams has caused the keypad to disconnect itself from the bus. It can be reconnected by: • a Reset Node • a fresh power-on

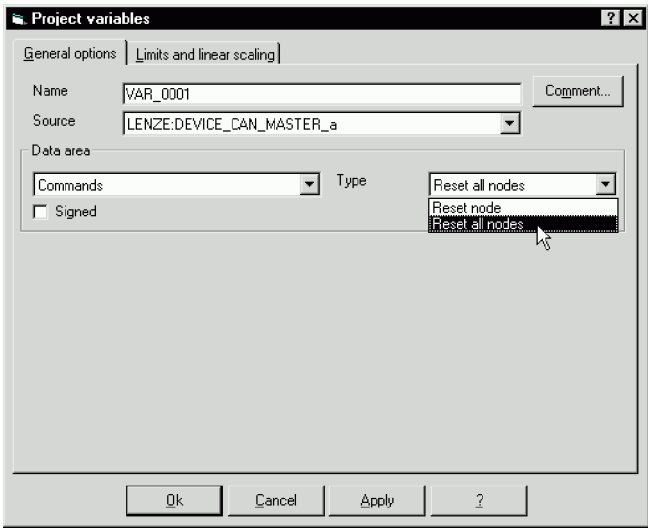
The operational status can be shown with the aid of a variable that you can position at the side of the keypad display. Make the following settings for the variable definition in the *Project Components Variables* dialog box:

- **Device data area:** Status var
- **Type:** Can state

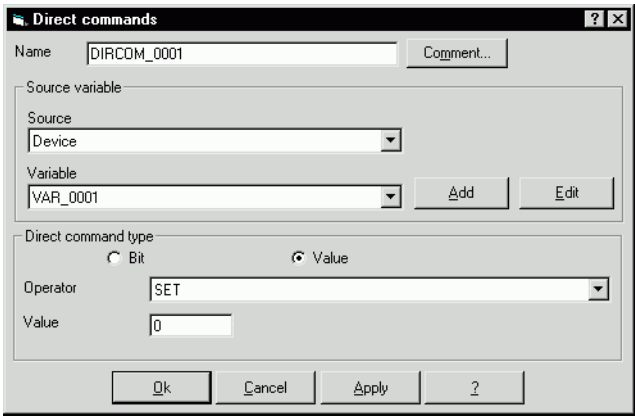
Reset node

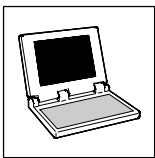
If changes to codes for the CAN communication are to be accepted from a drive controller, or a change of status is to be made from Pre-Operational to Operational, then the command **Reset node** can be used.

- Make the following settings for the variable definition in the *Project Components Variables* dialog box:



- Type is used to select whether the **Reset node** telegram should apply to all the bus participants (Reset all nodes) or only to the participant selected under Device (Reset node).
- In order to transmit the **Reset node** telegram, the function must be assigned to an F (function) key through the project component **Direct commands**. The telegram is transmitted when the F-key is operated.





HMI Designer

Appendix

5.1.2 Application example: Communication via process data channel CAN-IN/OUT 2

The example shows the communication between controller and keypad via process data channel CAN-IN/OUT 2.

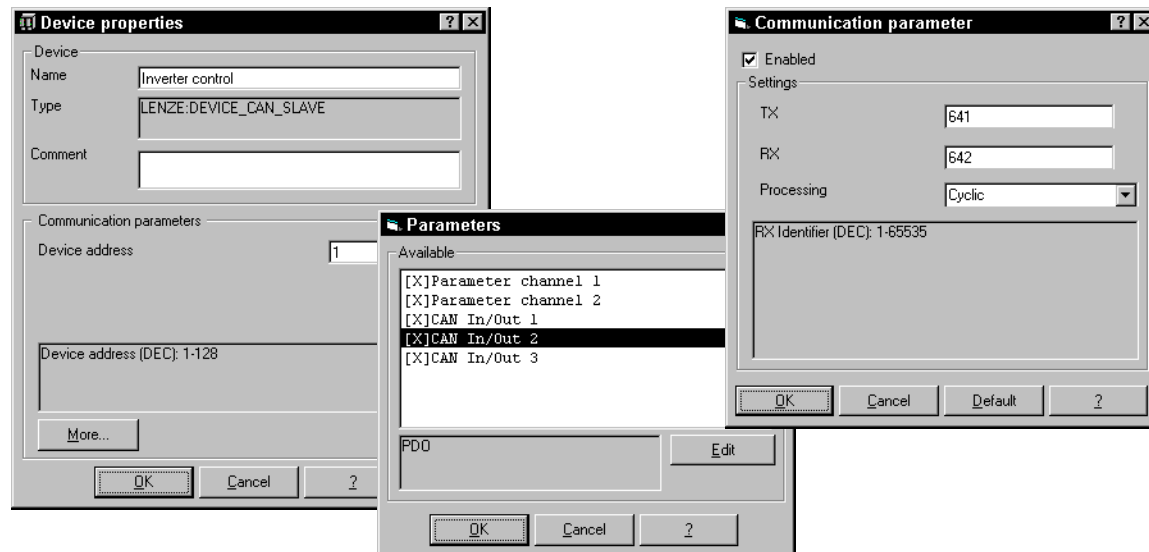


Warning!

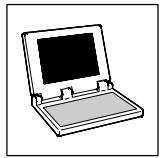
- The communication between keypad and controller via process data channels is not monitored. The user does not know whether process data are written to the controller or whether the keypad updates process data from the controller.
- Communication is however monitored if a code is shown on one side of the keypad (e.g. via "Parameter channel 1 WORD" code C0359: CAN status of the controller).
 - In the event of a communication error or BUS-OFF the keypad replaces all variable values of parameter and process data by "?".

Settings in the Project Manager

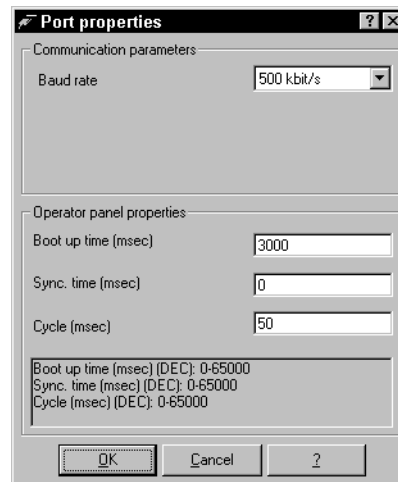
- Communication via process data channel CAN-IN/OUT 2 is only possible if both devices connected to the bus are in CAN status *Operational*.
- Here the keypad is declared as *Master*. The controller must therefore be configured as slave (LENZE:DEVICE_CAN_SLAVE).
 - After switch on and the corresponding *boot-up time* the keypad sends the telegram for status change and sets all devices connected to the bus to *operational*.



1. Mark LENZE:DEVICE_CAN_SLAVE_a (here "Controller"), and select **Edit→Parameters....**
2. Confirm, in the *Device Parameters* dialog box, using **Other....**
3. Go to *Parameter* and select parameter channel "CAN In/Out 2" and click **Configure**.
4. Select the category wanted with a mouse click or by means of the arrow keys from the left side under *Type of process* "Cyclical" since all process data are to be transmitted cyclically.



With cyclic process data transmission, a cyclic transmission interval must be set for the CAN port.



1. Mark the CAN-Port and select **Edit→Parameters...** to open the dialog box *Interface Parameters*.
2. Go to *Cycle time (msec)* and enter "50".
3. Confirm the entry with **Ok**.



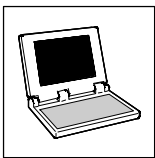
Tip!

The sync telegram is not necessary (only for process data channel CAN-IN/OUT 1). The field *Sync time (msec)* is "0".

Settings in the Project Editor

The Project Editor is used to declare the variable for the *page*. Every data word from and to the controller requires a variable.

1. Open the Project Editor.
2. Open the dialog box *Project components* and click the entry **Variables, New** to declare variables.



HMI Designer

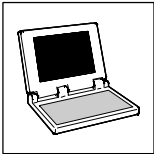
Appendix

Declaration of variables for input data

- Open the dialog box *Project Components Variables* and enter the values according to the figure.
 - Controller data can only be displayed on the keypad if the *Device data area* **CAN Out 2 WORD** type **WORD** has been selected.
 - Open the *Offset* and enter “0” for the first data input word W1.
 - For all other variables to be declared for input data the offset must be increased by 2 (e.g. the offset for the second input data word W2 is 2).

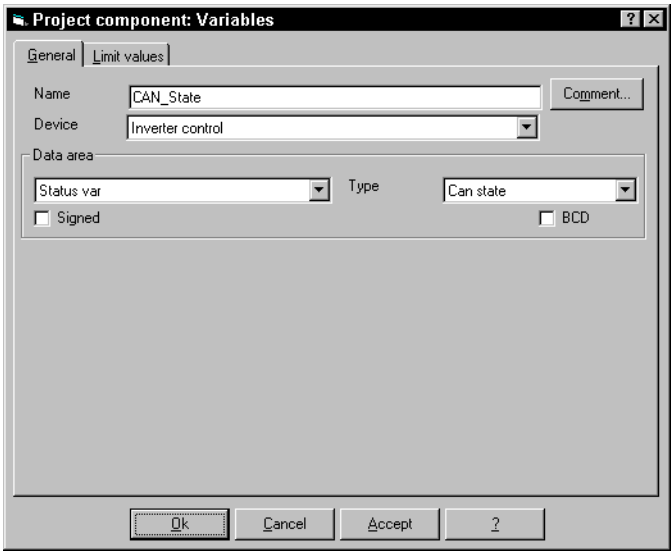
Declaration of variables for output data

- Open the dialog box *Project Components Variables* and enter the values according to the figure.
 - Data can only be sent from the keypad to the controller if *Device data area* **CAN In 2 WORD** type **WORD** has been selected.
 - Open *Offset* and enter “0” for the first data output word W1.
 - For all other variables to be declared for output data the offset must be increased by 2 (e.g. the offset for the second output data word W2 is 2).

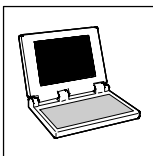


Declaration of variables for the CAN status of the keypad

The display of the CAN status (BUS-OFF, warning, pre-operational, operational) requires the declaration of a system variable.



- Open the dialog box *Project Components Variables* and enter the values according to the figure.
 - The CAN status can only be indicated if *Device data area* **Status var** type **Can state** has been selected.



HMI Designer

Appendix

5.2 Application example: Programming Function keys

The function key **F1** is to be used to momentarily set bit 0 of the free code C0470/Subcode 1:

Define the variable for code C0470/Subcode 1:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Variables** to open the dialog box *Project Components Variables* to define a new variable.
2. In the dialog box *Project Components Variables* , make the following settings:

3. Accept the settings with **OK**.

Define direct command

With the aid of the project component Direct commands you can define memory positions which are directly accessible.

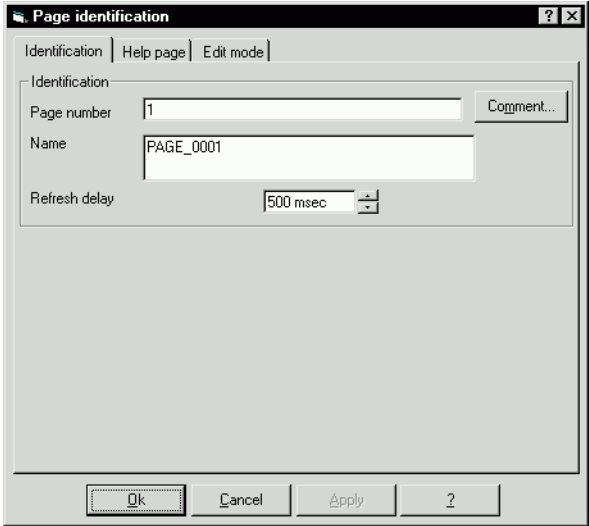
1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Direct commands** to open the dialog box *Project components, Direct commands* to define an new direct command.
2. In the dialog box *Project components, Direct commands*, make the following settings:

3. Accept the settings with **OK**.

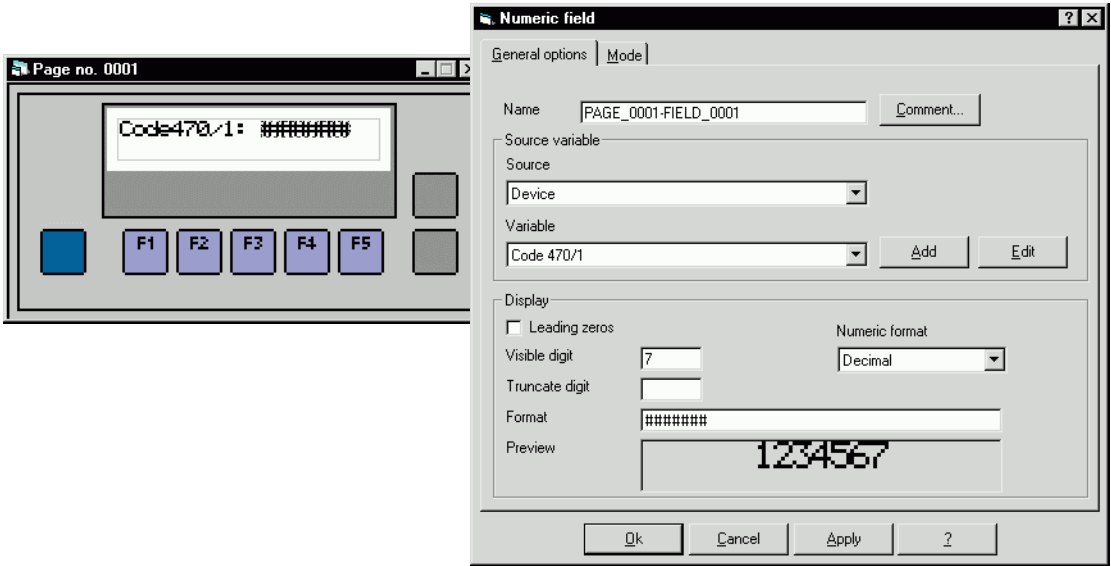
Define page

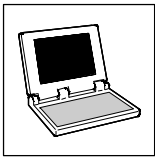
With the aid of the project component Direct commands you can define memory positions which are directly accessible.

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Pages** to open the dialog box *Project components, Pages* to define a new page:



2. Accept the settings with **OK**.
3. In the keypad display you can, as a option, have the value displayed for code C0470/1:
 - Select **Fields→Label** and position the mouse pointer on the display of the page that is indicated, to enter the label “Code470/1:”.
 - Select **Fields→Number** and position the mouse pointer on the display of the page that is indicated, to place a numerical field there .
 - In the dialog box *Field settings, Number* make the following settings, and confirm them with **OK**.

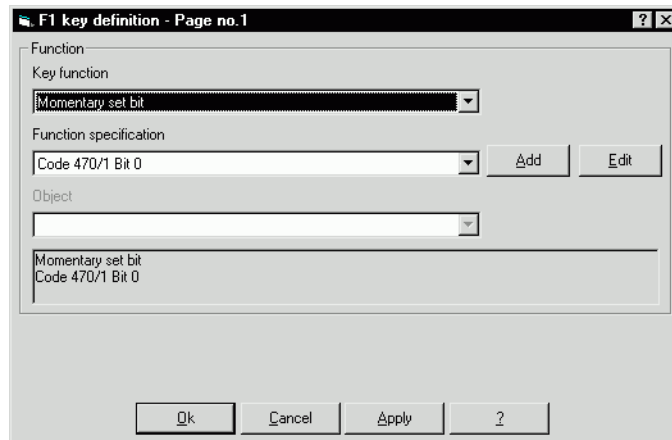




HMI Designer

Appendix

- On the page that is shown, double-click on the function key F1, to configure it as follows:



- Accept the settings with **OK**.
- Compile the project and transfer it to the keypad.

Function test

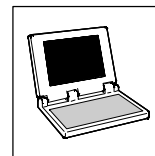
If the function is OK, then bit 0 of code C0470/Subcode will remain set to 1 as long as the function key F1 is held down.



Tip!

If a user-defined code has to be accessed, (only possible with 9300 Servo PLC and Drive PLC), then the following conditions must be fulfilled in Drive PLC Developer Studio:

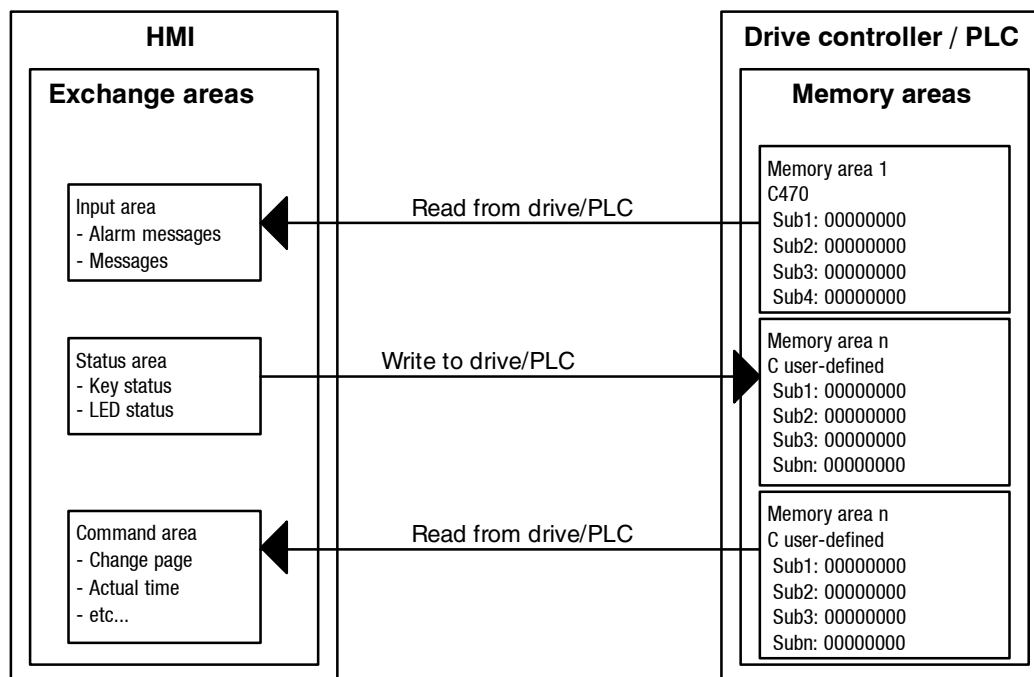
- The corresponding variable must be of type **Bool**.
- In the Instance Parameter Manager the external data type for the code must be defines as "16bit unsigned" .



5.3 Memory and data exchange areas

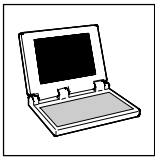
The memory and data exchange areas can be used to implement functions such as: alarm messages, information messages, read out date/time etc.

The following summary shows the relationship between the memory and data exchange areas:



Memory areas:

- A memory area corresponds to a WORD code. The number of words that are a code must make available as a memory area is determined by the data exchange areas.
 - If, for instance, 64 messages have to be displayed, then 4 words must be available for the code. These 4 words must be available as subcodes of one single code.
- Information about the status areas areas can be written to the memory areas from the keypad.
- Information that is evaluated by the keypad can be written to the memory areas from the 9300 Servo PLC or Drive PLC .
- Any number of memory areas can be defined (only for 9300 Servo PLC or Drive PLC).



HMI Designer

Appendix

Data exchange areas:

- The contents of the memory areas are evaluated in the data exchange areas.
- There is a cyclical exchange of data between the memory and the data exchange areas.
- There are three types of data exchange area, divided into read and write areas:

Read areas

- **Input area** (Alarm messages, information messages)
- **Command area** (e.g. change page, read actual date/time etc.)

The read areas are updated after a time interval that is defined by the programmer.

Write areas

- **Status area** (e.g. key status, LED status, recipe status etc.)

The write area is only updated after a change of status.

5.3.1 Example: input area

64 messages are to be evaluated via the input area.

Definition of the memory area in Drive PLC Developer Studio (DDS):

In order to be able to evaluate 64 messages, a memory area of 64 bits (4 words) must be available. The user must define this memory area as a code in DDS.

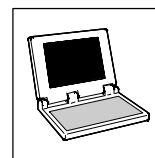
Example:

```
C3000      Sub1: 00000000 00000000
           Sub2: 00000000 00000000
           Sub3: 00000000 00000000
           Sub4: 00000000 00000000
```

The variable must be defined as an ARRAY:

```
VAR
Variable_name_any: ARRAY [0 ... 3] OF WORD;
END_VAR
```

The corresponding code must be assigned through the parameter manager (in this example: C3000, external data type 16-bit unsigned).



Definition of the memory area in HMI Designer:

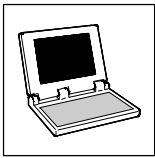
1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Device memory areas** to open the dialog box *Project memory areas* to define a new memory area.
2. In the dialog box *Project memory areas*, make the following settings:

3. Accept the settings with **OK**.

Definition of the data exchange area in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Exchange areas** to open the dialog box *Project components, Data exchange areas* to define a new data exchange area.
2. In the dialog box *Project components, Data exchange areas*, make the following settings:

3. Accept the settings with **OK**.

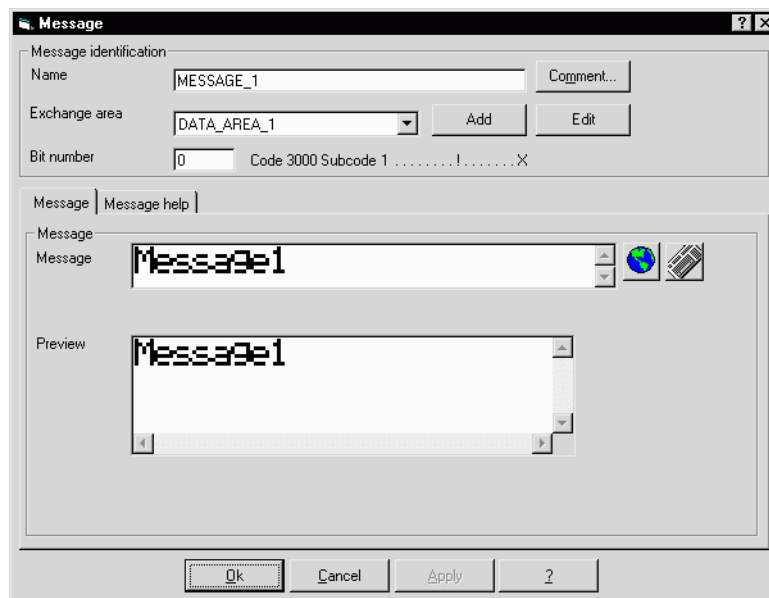


HMI Designer

Appendix

Definition of the message texts in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Information messages** to open the dialog box *Text* to enter a new message text.
2. In the dialog box *Text* select the bit that is to trigger the message, and enter the appropriate message:



3. Accept the settings with **OK**.
4. Repeat steps 1 to 3, to enter further message texts

5.3.2 Example: Status area

The current key status is to be read out through the status area.

Definition of the memory area in Drive PLC Developer Studio (DDS):

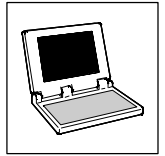
A memory area of 16 bits (1 word) must be made available for the evaluation of the key status. The user must define this memory area as a code in DDS.

Example: C3000

The variable must be defined as an WORD:

```
VAR
Variable_name_any: WORD;
END_VAR
```

The corresponding code must be assigned through the parameter manager (in this example: C3000, external data type 16-bit unsigned).



Definition of the memory area in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Device memory areas** to open the dialog box *Project memory areas* to define a new memory area.
2. In the dialog box *Project memory areas*, make the following settings:

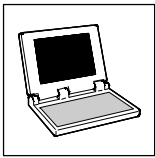
3. Accept the settings with **OK**.

Definition of the data exchange area in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Exchange areas** to open the dialog box *Project components, Data exchange areas* to define a new data exchange area.
2. In the dialog box *Project components, Data exchange areas*, make the following settings:

3. Accept the settings with **OK**.

The key status can now be read out through the code C3000.



5.3.3 Example: Command area

A page change on the keypad is to be controlled by the device.

Definition of the memory area in Drive PLC Developer Studio (DDS):

In order to be able to change pages, a memory area of 64 bits (4 words) must be available. The user must define this memory area as a code in DDS.

Example:

```
C3000      Sub1: 00000000 00000000
           Sub2: 00000000 00000000
           Sub3: 00000000 00000000
           Sub4: 00000000 00000000
```

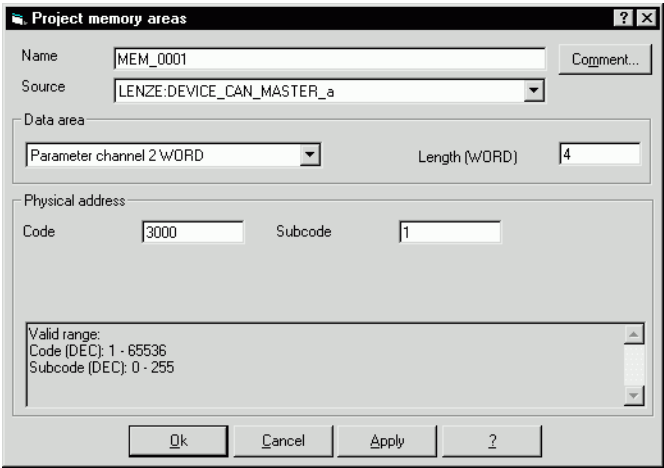
The variable must be defined as an ARRAY:

```
VAR
Variable_name_any: ARRAY [0 ... 3] OF WORD;
END_VAR
```

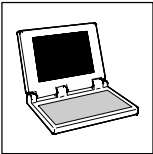
The corresponding code must be assigned through the parameter manager (in this example: C3000, external data type 16-bit unsigned).

Definition of the memory area in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Device memory areas** to open the dialog box *Project memory areas* to define a new memory area.
2. In the dialog box *Project memory areas*, make the following settings:

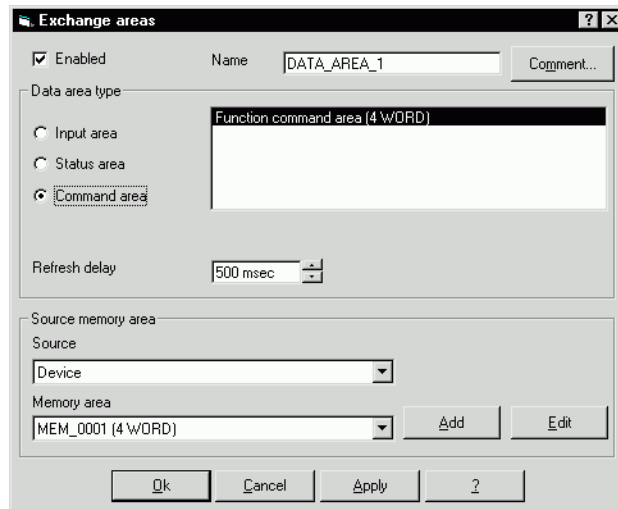


3. Accept the settings with **OK**.



Definition of the data exchange area in HMI Designer:

1. In HMI Project Editor, in the dialog box *Project components* double-click on the project component **Exchange areas** to open the dialog box *Project components, Data exchange areas* to define a new data exchange area.
2. In the dialog box *Project components, Data exchange areas* , make the following settings:



3. Accept the settings with **OK**.

Page change carried out through the command area

The command area consists of 4 fixed words (subcode 1 ... 4).

- Subcode 1 is used to define the command that the keypad should carry out.
- Subcodes 2 to 4 are used to define the parameters that are required for the command.

If, for instance, a change is to be made from 1 to page 3, then the following values must be entered in code C3000:

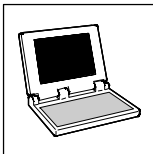
C3000	Sub1: 2dec	(2 = command for page change)
	Sub2: 3dec	(3 = page to which the change is made)
	Sub3: 0dec	(not used for a page change command)
	Sub4: 0dec	(not used for a page change command)



Tip!

The command is executed as soon as subcode 1 is not equal to 0.

- For this reason, the parameters must first be written to the subcodes, to ensure that no information is lost.
- After the command has been executed, subcode 1 will be reset to zero.



HMI Designer

Appendix

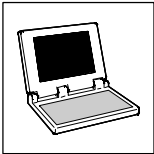
5.3.4 Command list

Command	Name	H310	H315	H410	H502	H505	H510/H520
01	Modify sequence	•	•	•			
02	Modify page	•	•	•	•	•	•
03	Modify current field	•	•	•			
04	Bit protection mask	•	•	•	•	•	•
05	Modify system context	•	•	•	•	•	•
06	Set auto-scroll for messages	•	•				
07	Set current language	•	•	•	•	•	•
08	Message priority	•	•		•	•	
09	Message mode	•	•	•	•	•	•
10	Set auto-scroll timeout for messages	•	•	•	•	•	•
11	Set auto-scroll timeout for alarms			•			•
12	Set screen saver time				•	•	•
13	Set idle timeout			•	•	•	•
14	Read present time			•	•	•	•
15	Read present date			•	•	•	•
16	Set time			•	•	•	•
17	Set date			•	•	•	•
18	Read trend			•			•
19	Clear alarm history			•	•		•
20	Synchronous recipe			•	•	•	•
21	Request recipe			•	•	•	•
22	Transfer recipe, without overwriting			•	•	•	•
23	Transfer recipe, with overwriting			•	•	•	•
24	Switch internal LEDs on/off		•	•			
25	Activate blinking of internal LEDs		•	•			
27	Clear trend buffer			•			•
28	Read one sample			•			•
29	Stop trend			•			•
30	Start trend			•			•
31	Switch on red LEDs			•			
32	Blink red LEDs			•			
35	Print report			•			•
36	Print alarm register			•			•
37	Screen - Hardcopy				•		
38	Sheet feed			•	•		•
39	General page reset			•	•		•
40	Switch-on and blinking of internal LEDs		•	•			
41	Combined command for switch-on and blinking of the red LEDs			•			
43	Command to acknowledge/cancel all alarms			•	•		•
45	Save Alarmhistory				•		



Tip!

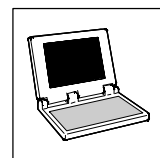
Please see the Online Help for more detailed information.



5.4 Printers and interfaces to be used

The table shows the coordination between printers and interfaces to be used.

Printers	To be used with
Epson LX-1050Plus	Epson parallel
Epson LX-400	Epson parallel
Epson Stylus Pro XL-Plus	Epson parallel
Fujitsu DX2250	Fujitsu/Olivetti Deskjet parallel
HP Deskjet 1120C Professional series	HP Laserjet
HP Deskjet 1125C Professional series	HP Laserjet
HP Deskjet 690C	HP Laserjet
HP Deskjet 840C	HP Laserjet
HP Deskjet 2100	HP Laserjet
HP Deskjet 4 Plus	HP Laserjet
HP Deskjet 4P	HP Laserjet
HP Deskjet 4V	HP Laserjet
IBM 2381	IBM Proprinter
Lexmark 2381 Plus Forms Printer	Lenze parallel user defined
Lexmark 238/239	IBM Proprinter
Olivetti JP350ws	Fujitsu/Olivetti Deskjet parallel
Siemens PT88 parallel	Lenze parallel user defined
Siemens PT88 serial	Lenze serial user defined



6 Index

A

Access rights, 3-30, 3-60, 3-108, 3-109
Access to codes, 3-15
Add an object to a component, 3-10
Alarm field, 3-28
Alarm messages, 3-27
Analog display, 3-85
Automatic display of the alarm page, 3-120
Automatic jump, 3-18
Automatic operations, 3-53
Automatic scrolling, 3-120

B

Background bitmap, 3-33
Background color, 3-17
Bar chart, 3-69
Beep (signal tone), 3-119
Bit, Internal registers (bit), 3-13
Bit Number, 3-24
Bit protection, 3-60
Boot-up time, 5-3

C

CAN, 5-1
CAN communication, 5-2
CAN Status, 5-4
Codes, 3-13, 3-15
Colors, 3-9
Command area, 3-22, 5-14
Command list, 5-20
Comment, 3-9
Communication, 5-1
 via CAN-IN/OUT 2, 5-6
Compilations, 3-7
Component area, 2-2
Component list, 3-10
Components, 3-10
Configuration, 3-109
Context menu, 2-3, 3-2

Conventions used, 1-2
Create character, 4-2
Cycle time, 5-3

D

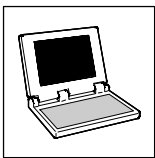
Data exchange areas, 3-22
Data memory structure, 3-124
Date, 3-81
Date format, 3-120
DDS, 3-16
Define character number, 4-2
Define character size, 4-2
Define direct command, 5-10
Define font for supported languages, 3-117
Define page, 5-11
Definition of the data exchange area, 5-17
Definition of the memory area, 5-14
Definition of the message texts, 5-16
Definitions, 1-1
Delete a component object, 3-11
Device memory areas, 3-21
Direct command type, 3-36
Direct commands, 3-36
Drive PLC Developer Studio, 3-16
Duplicate, 3-11, 3-57
Duplicate a component object, 3-11

E

Edit component objects, 3-10
Entry limits, 3-14
Equations, 3-52

F

Field Index, 3-59
Field keypad, assignment to variable types, 3-114
Fields, 3-57
Firmware
 save, 3-128
 Undo, 3-129
First steps, 1-2
Font, select, 3-117, 3-118



HMI Designer

Appendix

Font Editor, 1-1
 Footer, 3-47
 Free sequence, 3-20, 3-47
 Function key assignment, 3-112
 Function keys, 5-10
 Function list, 3-42
 Function parameter, 3-31, 3-108, 3-112

H

Header, 3-47
 Header/Footer, 3-123
 Header/footer, 3-48
 Help key, 3-25
 Help page, 3-25

I

ID address, 5-2
 Idle Timeout, 3-119
 Import/Export, 3-123
 Indicator, 3-85
 Information messages, 3-24
 Input area, 3-22, 5-14
 Installation, 1-2
 interface, 5-21
 IR, Internal registers, 3-13
 ISA-1A standard, 3-27

K

Key picture, 3-33

L

Label, 3-32, 3-57
 Language, 3-116
 Languages, 3-116
 Linear correction, 3-14
 Logout page / logout sequence, 3-110
 Logout Timeout, 3-110

M

Macros, 3-42
 Master/Slave, 5-3

Memory, Area for bitmaps, 3-115
 Memory and data exchange areas, 5-13
 Menu bar, 2-1, 3-1
 Message area, 3-24, 3-27
 Message field, 3-25
 Mobile symbolic, 3-78

N

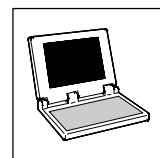
Number, 3-58

O

Offset, 3-13

P

Page, after switch on, 3-119
 Page change carried out through the command area, 5-19
 Page number, 3-17
 Pages, 3-17
 Parameter data, 5-1
 Password, 3-110
 PDO, Communication via CAN-IN/OUT 2, 5-6
 PDO Service, 5-1
 Permit changes, 3-60
 Picture list, 3-39, 3-74
 Pictures, 3-41
 Memory area for, 3-115
 Polling interval, 3-51
 Print alarm message, 3-29
 Print attribute, 3-44, 3-48
 Print options, 3-26
 Print pages, 3-44
 Print parameters, 3-45, 3-122
 Printer, 3-49, 3-122, 5-21
 Process data, 5-1
 Process data channel CAN-IN/OUT 2, Communication via, 5-6
 Programming function keys, 5-10
 Project, Undo, 3-129
 Project area, 2-2
 Project components, 3-2, 3-10
 Project Editor, 1-1
 Project information, 3-109
 Project Manager, 1-1



Project settings, 3-119
 Page after switch on, 3-119

Projects, 1-1
 exported as ASCII text, 3-130
 imported as ASCII text, 3-131
 save, 3-128

R

Raster, 3-57
Read areas, 5-14
Recipe, 3-124
Recipe structure, 3-125
Recipes
 save, 3-128
 Undo, 3-129
Refresh delay, 3-17, 3-23, 3-55
Reports, 3-46
Reset node, 5-5
Rotary potentiometer, 3-101
Rotary switch, 3-97

S

Sampling mode, 3-51
Save
 Project and firmware, 3-128
 Recipes, 3-128
Save font, 4-3
Screen divider, 2-3
Screen saver, 3-119
SDO Service, 5-1
Send form feed at the end of a page/footer, 3-47
Sequences, 3-19
Short reference menu, 2-4, 3-3
Sign, 3-13
Slide potentiometer, 3-93
Slide switch, 3-89
Software installation, 1-2
Special characters, 3-8
Standard radio buttons, 3-7
Start/stop sequence, 3-20, 3-46
Status area, 3-22, 5-14
Status bar, 2-3, 3-2
Storage procedure, 3-51
Store alarm message in buffer, 3-29

Subcodes, 3-13
Switch on, Page, 3-119
Switch on LED, 3-20
Symbol bar, 3-1
Sync telegram, 5-2
Sync time, 5-3
System bus, 5-1
System messages, 3-113
System requirements, 1-2

T

Terminal Address, 5-4
Text, 3-63
Text list, 3-66
Text lists, 3-37
Time format, 3-120
Timer, 3-55, 3-111
Toolbar, 2-1
Tools, 3-128
Touch area, 3-107
TouchKeys, 3-30, 3-105
Transfer process data, 5-2
Translations, 3-116
 Projects exported as ASCII text, 3-130
 Projects imported as ASCII text, 3-131
Trend, 3-83
Trend buffer, 3-50
Trend indication, 3-84

U

Undo
 Project and firmware, 3-129
 Recipes, 3-129
Use global settings, 3-45
User interface, 2-1, 3-1

V

Define variable, 5-10
Variables, 3-12
 Assignment to external variables, 3-12
 Assignment to internal variables, 3-12
 Field keypad assignment, 3-114
 Format, 3-13
 internal, 3-12

W

Window, 3-2
Working area, 3-2
Write areas, 5-14