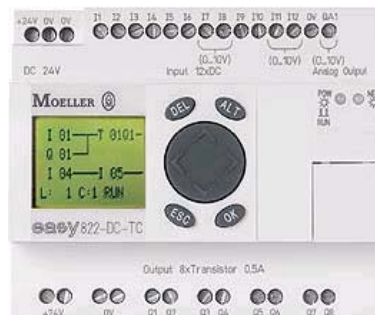


Application Note

Indicator and control panel MI4 easy800 Communication

Version 1.01



06/04 AN2700I08D

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About this description

Topics

This description provides you with comprehensive information on software and hardware requirements for operating the MI4 HMI unit connected with an easy800 device.

Basic information on the MI4 HMI unit is provided in the online manual AWB-C 27-1293D "Hardware and Engineering - MI4 Display and Operator Units".

The programming of MI4 requires you to be familiar with the use of the MI4-CFG-1 MI4 configurator.

Basic information on the MI4 configurator is provided in the online manual AWB-C 27-1294GB "Configuration Software".

From version 6.02 (Service pack 2) the easy800 driver is part of the MI4 configurator.

The **ZB4-03B-AD1** easy MI4 adapter (article no 257176) is also required for communication in addition to the easy-PC programming cable. This is fitted on the PLC port of the MI4.

Chapter 1 provides general information as well as information on how to install the MI4 configurator and establish the communication link between the MI4 and the easy800.

Chapter 2 provides instructions on how to create a project with easy800 operands.

Notes:

Write accesses from the MI4 to an easy800 device can only be implemented with marker operands! Operands such as Inputs and Outputs (Q, S, <station>Q and <station>S) can only be read by the MI4.

If you wish to implement write access from both the MI4 and from the easy circuit diagram to individual marker bits, you must organise these markers so that each device accesses marker bytes exclusively reserved for the device in question.

Example: In the circuit diagram you use M1, M2 and M6 to M8 in marker byte 1 (MB 1) for write and read access in order to store certain operating states. For a write access from the MI4, you should now define in the MI4 configurator marker bits in a marker byte that is only read by the easy circuit diagram such as M9 to M11 in MB 2.

On no account should you use the free marker bits M3 to M5 in marker byte 1!

1 Hardware and software notes

1.1 General

All MI4 devices can be connected to an easy800. The MI4 can be used to visualize and modify easy800 data.

Hardware requirements:

MI4, easy800		
ZB4-24A-KP1	Article no.: 200625	PC-MI4 configuration cable (for all MI4s)
ZB4-510-EG1	Article no.: 230617	Drive for Smart Media card (optional for MI4 with SSFDC)
Easy800-PC-CAB	Article no.: 256277	Easy-PC programming cable
ZB4-03B-AD1	Article no.: 257176	Easy MI4 adapter

Software requirements:

MI4 configurator MI4-CFG-1 from version 6.02 (Service pack 2).
An update to this version can be implemented with all MI4 configurator versions from 6.01.
EASY-SOFT from version 4.0

Chapter 1 describes the following sections:

- Installation of the MI4 configurator
- Selection of the easy800 controller and controller driver
- Selection of the HMI unit
- How to establish the programming connection between the PC and MI4 device and the communication link between easy800 and MI4 device and
- How to transfer the panel parameters from the MI4 device to your project

1.2 Installation of MI4 configurator

The latest version of the MI4 configurator can be downloaded via the Internet from the Moeller website.

- ▶ www.moeller.net under Support → Quick search: MI4

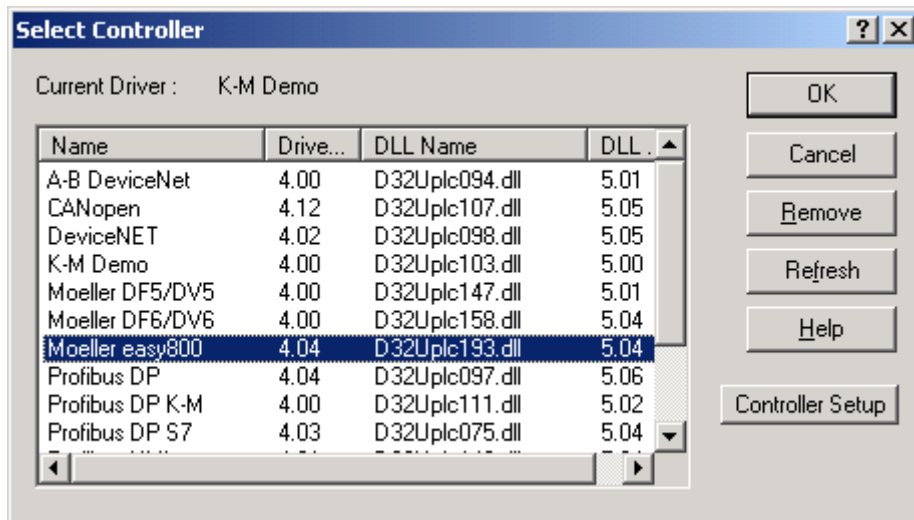
1.3 Selection of the easy800 controller and controller driver

- ▶ Start the MI4-configurator
- ▶ Click the appropriate button or choose **Project** → **Controller Configuration...** to open the **Controller Configuration** dialog.

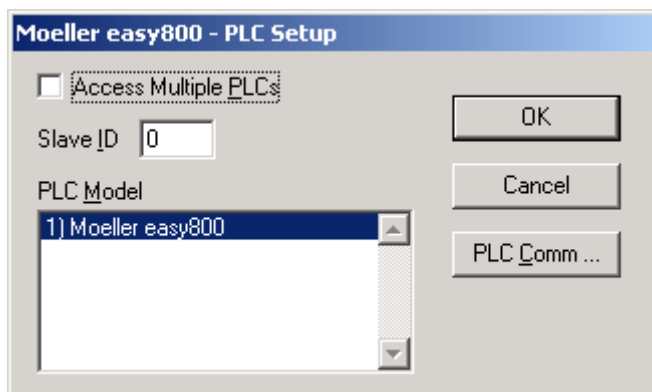
- ▶ Click



This will open the **Controller Auswahl** (Controller Selection) dialog.

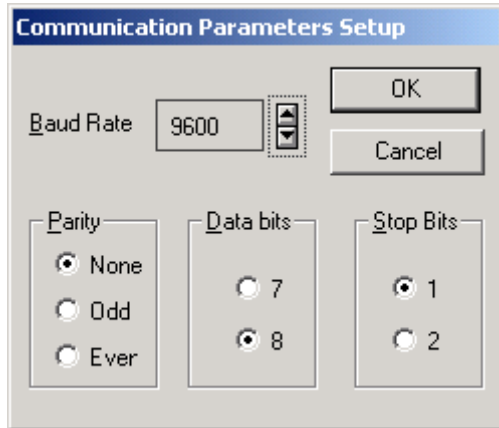


- ▶ Select the Moeller easy800 driver from the driver list
- ▶ Then click the OK button and select 0 as slave ID in the dialog that opens.
- ▶ Don't activate Access Multiple PLCs (MI4 can only communicate with easy800 via point to point communication).
Moeller easy800 must be displayed as the PLC Model.



For a safe communication between MI4 and easy800 please select **9600 Baud** and Parity = none, Data bits = 8, Stop Bits = 1.

- ▶ If necessary please select the communication parameters. Press the button PLC Comm.



- ▶ Then click the OK button and close the Controller Driver selection via the OK button in the Select Controller dialog.

The next time you start the MI4 configurator, the new project configuration will be accepted so that the MI4 and easy800 parameters will not have to be entered again.


Note:

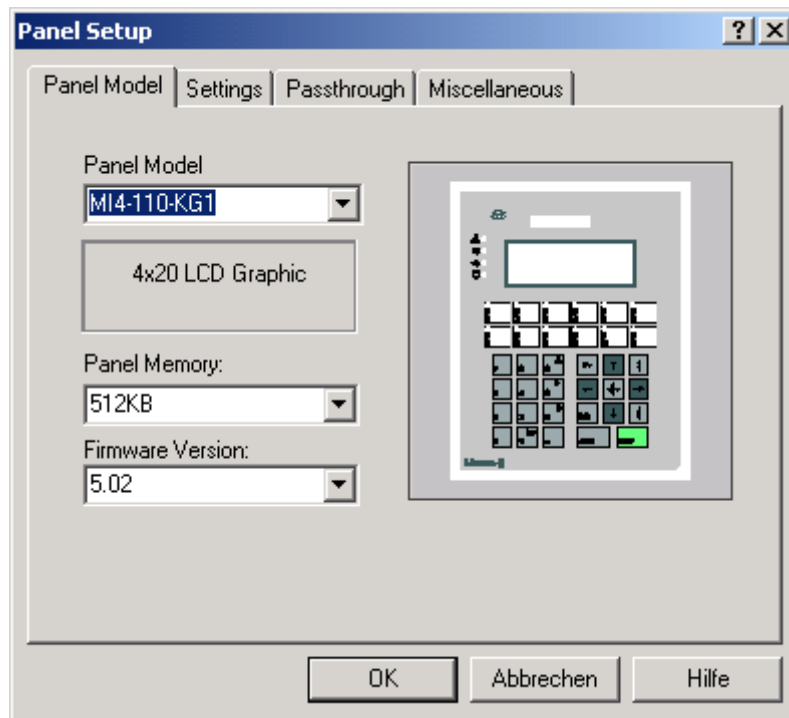
The default setting of the easy800 programming interface is 9600 baud. These baudrate is adjusted after every power up. Please secure that no other baudrate is selected in the EASY-SOFT.

Selecting the HMI device

Define in the MI4 configurator which MI4 HMI device you wish to operate and any additional parameters that apply.

1.3.1 Selecting the MI4 device

- ▶ Click the appropriate toolbar button  or choose **Project → Panel Setup** to open the dialog of the same name.



- ▶ In the **Panel Model** list box select the MI4 device you are using.
- ▶ If required, make additional device settings in the other tabs (description in the manual AWB-C 27-1294GB MI4 configuration software).

1.3.2 Establishing the programming connection between PC and MI4 device

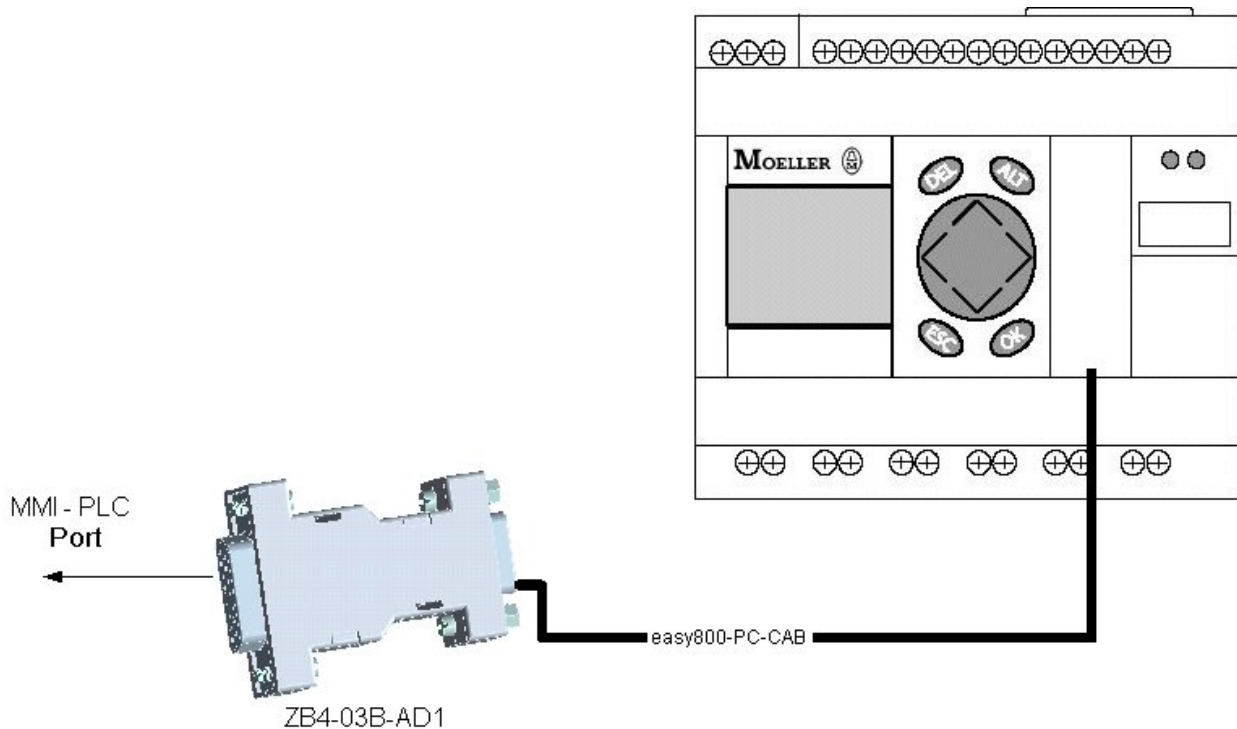
To transfer a project to the MI4 you need the **ZB 4-24A-KP1** configuration cable. Connect the cable to the PC-/PRINTER PORT of the MI4. On MI4 devices without PC/PRINTER PORT the programming cable is connected to the PLC PORT. The adapter supplied with the configurator cable is used for this.

Ensure that the configuration cable is connected to the correct COM interface of the PC and the interface parameters are correctly set.

- ▶ If required select suitable transmission parameters via the menu **Transfer → Options**.

1.3.3 Establishing a communication link between easy800 and MI4

The communication of an easy800 device with the MI4 is implemented with the RS 232 interface (PC interface) of the easy800 device. To do this connect the easy800 device with the **PLC Port** of the MI4 via the **easy800-PC-CAB** cable and the **ZB4-03B-AD1** adapter.



1.3.4 Get panel resources to MI4-configurator

The following conditions must be fulfilled for the automatic detection of an MI4 to be possible:

1. There must be a functional connection established between the MI4 and the PC by using the **ZB4-24A-KP1** data cable.
2. The MI4 must be in configuration mode.
The MI4 is factory set to automatically start up in configuration mode when the 24V DC power supply voltage is connected.
If this is not the case, you can set this mode in the following way:
 - ▶ On an MI4 with keys, press the Enter key for a few seconds. On a touch panel touch the display for a few seconds.

The MI4 display will show the System menu.

- ▶ Use the arrow buttons to select Configuration mode (CFG) and confirm your selection with Enter. The MI4 is now in configuration mode and is now open for a project transfer.

- ▶ Choose **Transfer** → **Get Panel Parameters** to open the **MMI Parameter** dialog.

The screenshot shows a dialog box titled "Panel Resources" with a blue header. It contains a list of parameters in a table-like format, each with a label and a value. At the bottom, there is a question "Copy resources to current project ?" and four buttons: "Yes", "No", "Cancel", and "Help".

Panel Model :	MI4-110-KG1
Panel FW version :	4.40
Controller type :	Moeller easy800
FW driver version :	4.04
Project in panel :	Yes
Display type :	4x20 LCD Graphic
Max. num. of rows :	32
External keyboard :	Attached
Internal memory:	448K
Recipe memory :	16K
Event list length :	256
Support for graphics :	Yes
Color display :	No
Touchscreen present (code) :	No
Pixel/Vector Graphics Support :	No
Double Protocol Support:	No

Copy resources to current project ?

Yes No Cancel Help

- ▶ Select **Yes** to copy the MMI parameters to your project.

If the controller driver on the MI4 is different to the software setting, a prompt will ask whether you wish to transfer this driver to your project.

2 Creating an MI4 project with easy800 operands

The easy800 controller driver provides different operands with which the current states and settings of the easy800 can be displayed and modified via the MI4.

The operands are selected in the MI4 configurator (see chapter Dynamic Data Fields).

2.1 Operands for display in dynamic data fields

Dynamic data fields are used to read data from the easy800 and display it on the MI4.

Note:

The data fields show the operand image and can only be read.

The data fields are positioned in the MI4 configurator on a page as they are to be output in the MI4 display during operation.

Dynamic data fields (variables) can be displayed in the following forms:

- Numeric data fields
- Bargraphs
- Text messages
- Attributes.

The data format and data range of a data field can be defined and a scaling function implemented as required, depending on the type of data field used.

The MI4 configurator automatically assigns placeholders to display the data field concerned on the page. The placeholders used are shown in the last column of the table **Available easy800 operands**.

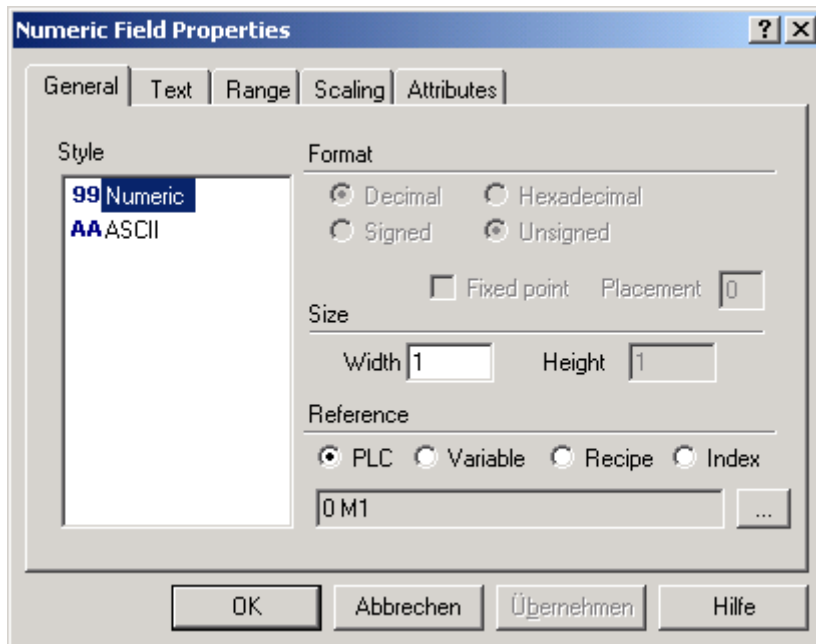
The displayable operands of the easy800 can be divided into image and date/time operands.


2.1.1 Use of image operands

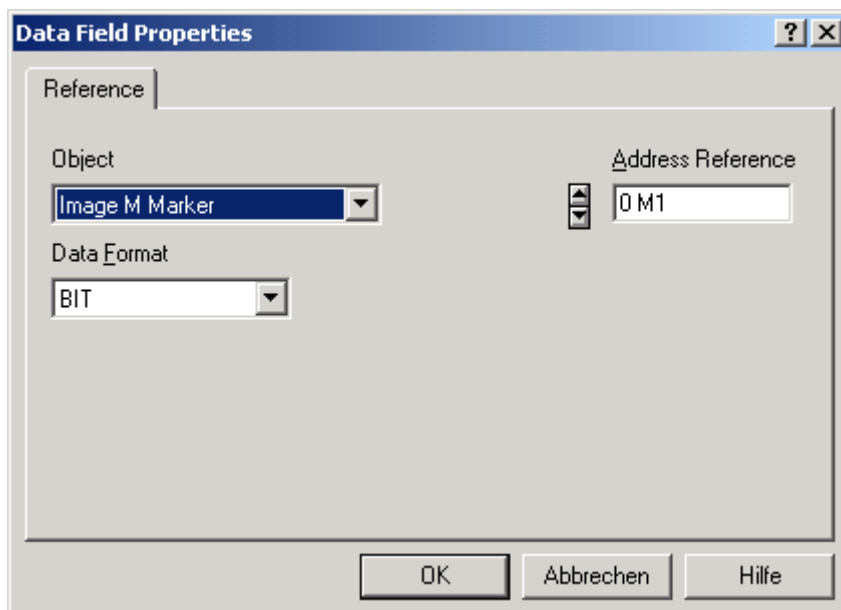
The image operands show the actual states of inputs, outputs, markers etc.

In the following example the status of the Boolean marker M1 is to be displayed as a numerical value:

- ▶ Select the Numeric data field
- ▶ In the current page then open a frame with the required number of places. This will open the **Numeric Field Properties** dialog box.



- ▶ Click the  button to select an object (an easy800 operand). This will open the **Data Field Properties** dialog box.



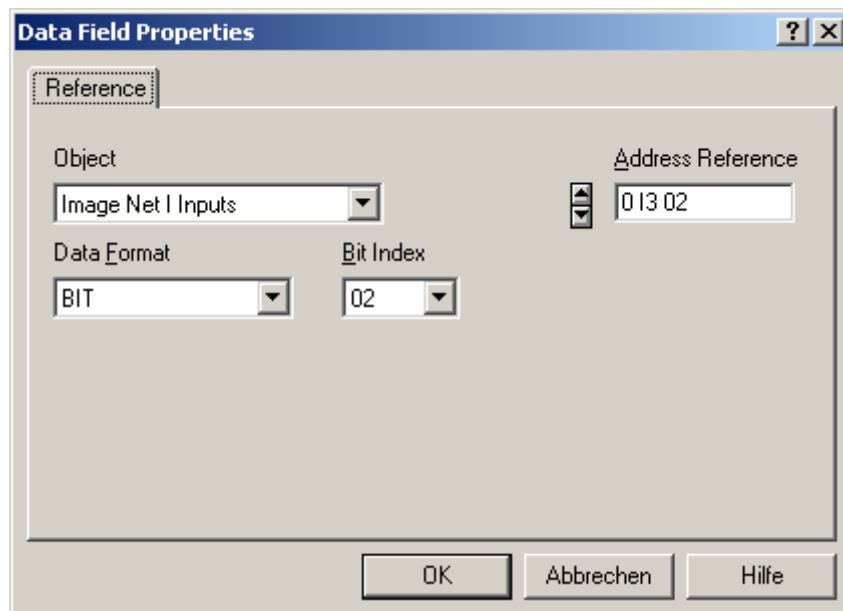
- ▶ In the **Object** list box select the Image M Marker type, which will automatically activate the BIT data format.

- ▶ In the **Address Reference** list box select the required operand number using the arrow buttons.
- ▶ Then click the OK button and once again in the subsequent dialog. The new numeric output field will appear in the required size on the current page.

This example illustrates the allocation of an easy800 operand to a Numeric data field. You assign an available easy800 operand to the other data field types in the same way. easy800 operands that can be assigned are shown in the following table **Available easy800 operands**.

Example: Using Easy-Net Input Operand 2 from Net slave 3

- ▶ Select in the list box **Object** the type Image Net I Inputs
- ▶ Select in the list box **Address Reference** the Net-Slave number 3
- ▶ Select in the list box **Bit Index** the operand number 2
- ▶ Then click the OK button and once again in the subsequent dialog. The new numeric output field will appear in the required size on the current page










Data field type	Linkable controller objects (easy800 operands)	Meaning (placeholder)
Numerical/ASCII 	Local, binary operands: I1..16, Q1..8, R1..16, S1..8, ID1..16, P1..4 Binary operands of the EASY-NET with preceding station number x: 0Ix 01..16, 0Qx 01..08, 0Rx 01..16, 0Sx 01..08 Byte or multiple byte operands: IA1 .. 4, QA, MB1..96, MW1..96, MW1..96, TP BYTE 1..4, CT BYTE 1..4	For the display of one of the easy operands in numerical or ASCII format shown on the left. (placeholder 99 or AA)
Bargraph 	Byte or multiple byte operands: IA1 .. 4, QA, MB1..96, MW1..96, MW1..96, TP BYTE 1..4, CT BYTE 1..4	Bargraphs represent numerical values of the easy operands shown on the left in the form of vertical and horizontal bars in any size. (Bargraph preview)
Text messages 	Local, binary operands: I1..16, Q1..8, R1..16, S1..8, ID1..16, P1..4 Binary operands of the EASY-NET with preceding station number x: 0Ix 01..16, 0Qx 01..08, 0Rx 01..16, 0Sx 01..08 Byte or multiple byte operands: IA1 .. 4, QA, MB1..96, MW1..96, MW1..96, TP BYTE 1..4, CT BYTE 1..4	Display of text messages at a position in the display. The content depends on the numerical value of the easy operand read. (placeholder MM)
Attribute (dynamic) 	Local, binary operands: I1..16, Q1..8, R1..16, S1..8, ID1..16, P1..4 Binary operands of the EASY-NET with preceding station number x: 0Ix 01..16, 0Qx 01..08, 0Rx 01..16, 0Sx 01..08 Byte or multiple byte operands: IA1 .. 4, QA, MB1..96, MW1..96, MW1..96, TP BYTE 1..4, CT BYTE 1..4	For the visual highlighting of an important message or a specific area on the display.
Dynamic graphic 	Byte or multiple byte operands: IA1 .. 4, QA, MB1..96, MW1..96, MW1..96, TP BYTE 1..4, CT BYTE 1..4	Display of different bitmaps at a position in the display. The displayed bitmaps depend on the value of one of the easy operands shown on the left. (Dynamic Graphic Preview)

Table: Available easy800 operands

2.1.2 Use of date/time operands

The time and date of the **easy800 real-time clock** can be displayed in numeric fields with the help of the **CT BYTE 1..5** objects. The easy800 real-time clock cannot be changed from the MI4.

Note:

The **Time field**  and the **Date field**  provided by the MI4 configurator obtain their data from the real-time clock of the MI4 and not from the easy800.

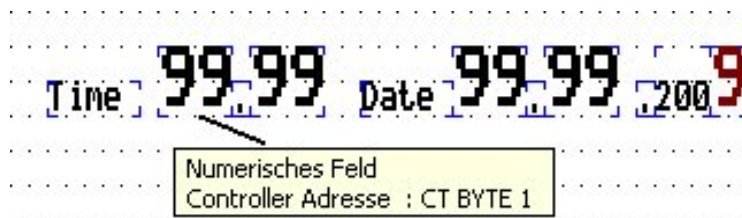
Operand (Object)	Data format	Number format	Meaning/Value range
CT BYTE1	Byte	Decimal	Hour/0 - 23
CT BYTE2	Byte	Decimal	Minute/0 - 59
CT BYTE3	Byte	Decimal	Day/1 - 31
CT BYTE4	Byte	Decimal	Month/1 - 12
CT BYTE5	Byte	Decimal	Year

Table: Date/time operands (Clock/Time) of easy800 device

Example: Time and date display

Time and date should be displayed using numeric fields. The display of the explanatory texts Time, Date and year number base (200) should be implemented using text fields.

- ▶ Drag the necessary number of **Text message** and **Numeric field** data fields onto the current page and select a suitable number of places.
- ▶ Assign the objects **CT BYTE 1** to **CT BYTE 5** to the numeric fields for hour, minute, day, month and year.



2.1.3 Use of time parameter operands

Only the TP BYTE1 of the time parameter operands indicates whether the DST setting is activated on the easy800 device and the type of DST used. The DST setting cannot be changed from the MI4.

Operand (Object)	Data format	Number format	Meaning/Value range
TP BYTE1	Byte	Decimal	Selected easy800 algorithm for DST setting: 0 = NONE, 1 = MANUAL, 2 = EU, 1 = GB or 4 = US
TP BYTE2	Byte	Decimal	-
TP BYTE3	Byte	Decimal	-
TP BYTE4	Byte	Decimal	-
TP BYTE5	Byte	Decimal	-


Table: Time parameter operands (Time/Parameter) of easy800

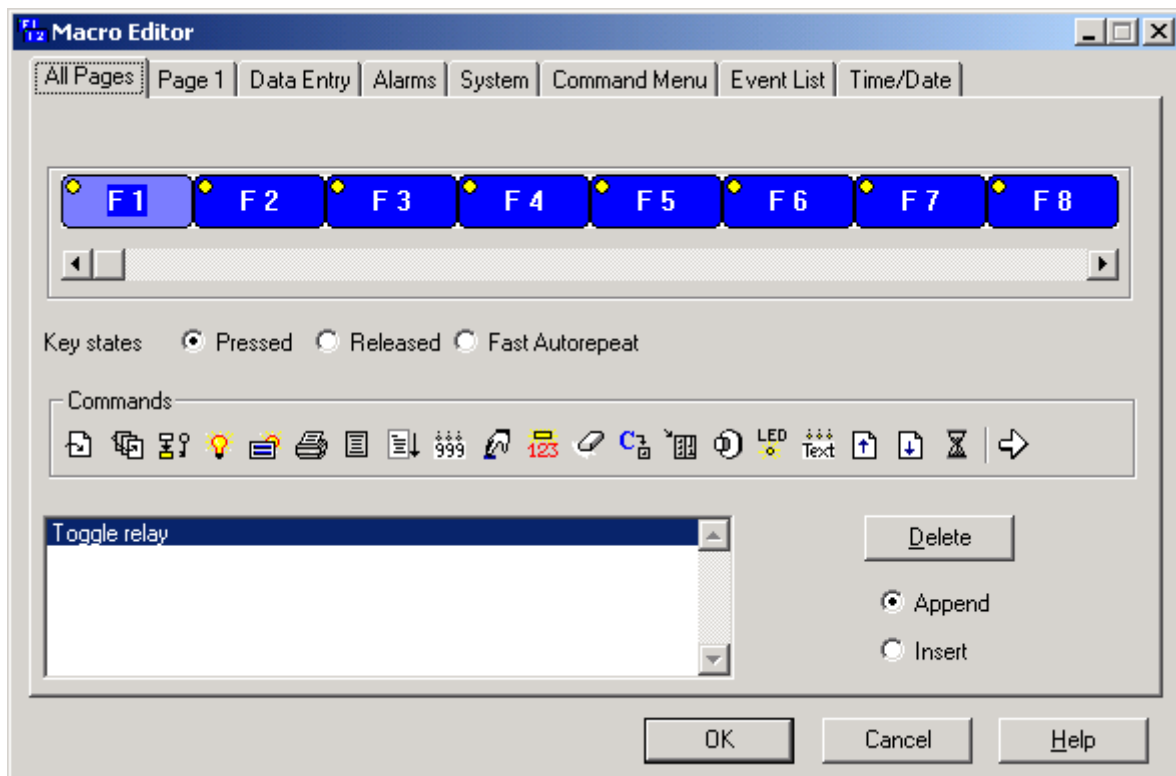
2.2 Operands for changes via MI4 keys/touch zones


The keys/touch zones of the MI4 can be assigned with functions which change the value of easy800 markers. To do this, you create a macro for any key/touch zone required. This macro is used to link several functions in sequence. These new key functions can be defined using the **Keyboard Macro Editor** in the MI4 configurator.

Example:

Function key F1 is to be used to activate or deactivate the marker bit **M96** on all pages to be created.

- ▶ Click the  button or choose **Project → Keyboard Macro Editor...** to open the dialog for creating macros.
- ▶ Select the **F1** key in the **All Pages** tab
- ▶ Select the Pressed key status



- ▶ Select the required command in the **Commands** area. This example uses the **Toggle relay**  command. The **Data Field Properties** dialog will open.
- ▶ In the **Object** list box select the Image M Marker type, which will automatically activate the BIT data format.
- ▶ In the **Address Reference** list box select the operand address **M96** using the arrow keys.



- ▶ Then click the OK button and then the OK button again in the subsequent **Macro Editor** dialog.

The function key **F1** of the MI4 can now toggle the marker bit **M96** of an easy800 device on all the pages created.