

# ABB i-bus® EIB / KNX Display and Control Tableau MT701.2

Intelligent Installation System



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## 1 Introduction

The display and control tableau MT701.2 is an ABB i-bus® EIB product for the

- display and visualisation of switching states, status and fault signals on an LCD panel,
- central control of EIB devices,
- setting of lightscapes and switching times,
- issue of visual and acoustic warning signals,
- display of measured values and setting of limit values for measured-value monitoring as well as
- execution of timers, logic functions and multiplexer functions.

The display and control tableau is intended for flush-mounted or cavity wall installation. The flush-type box UP-KAST 2 is available for this purpose. The look of the display and control tableau is completed with the cover frame T-RAHM.

Both the display and control tableau and the cover frame T-RAHM are available in white and silver.

The connection to the EIB is established via a bus connecting terminal. The device requires an additional 230 V AC power supply.

The display and control tableau is parameterised via a plug-in in the ETS program. The parameterisation is downloaded directly to the device via an RS 232 interface. Minor changes can also be downloaded to the device via the EIB.

The backlighting of the LCD display can either be switched on or off via an operator button on the device, via an EIB telegram or automatically once a set period has elapsed. The contrast setting can be adjusted directly via operator buttons on the device.

Up to 16 display elements can be indicated on the LC display with 240 x 128 pixels. These display elements can be arranged in lines or freely positioned on the panel.

Up to 50 freely programmable pages can be created per device. It is possible to jump from one page to another using a freely programmable menu structure. Access to a page can be protected via a password. A “.bmp” graphic can also be stored on each page as a background image. It is therefore also possible to carry out simple visualisation functions.

Limit values including hysteresis can be set for measured-value monitoring. When the value exceeds or falls below a set limit value, EIB telegrams can be sent or a message can be displayed e.g. via a fault message page.

The display and control tableau manages up to 50 fault signals. When an alarm occurs, a fault message page can be retrieved and a warning tone is emitted. The alarms can be acknowledged. The acknowledgement can be sent as a telegram via the EIB. The last 100 alarm events are stored in the message list.

On the timer page, there are 16 channels available for entering up to 8 switching times per channel. Switching or value telegrams can be generated on the EIB as an event for a switching time.

Up to 24 lightscapes with a total of 32 group addresses can be set and modified directly on the display and control tableau and via the EIB.

Up to 80 logic operations, 40 timing elements and 12 multiplexers are available as logic functions as well as disable and filter functions. The result of a logic function can either be sent as a telegram via the EIB or displayed as a message e.g. also via an alarm page.

The date and time can be set on the display and control tableau or received via the EIB. The display and control tableau can also be used as a master clock and send the date and time via the EIB.

## 2 Device technology

The display and control tableau MT701.2 is an ABB i-bus® EIB product for the

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- central control of EIB devices,
- setting of lightscapes and switching times,
- issue of visual and acoustic warning signals,
- display of measured values and setting of limit values for measured-value monitoring as well as
- execution of timers, logic functions and multiplexer functions.

The display and control tableau is intended for flush-mounted or cavity wall installation. The flush-type box UP-KAST 2 is available for this purpose. The look of the display and control tableau is completed with the cover frame T-RAHM.

The connection to the EIB is established via a bus connecting terminal. The device requires an additional 230 V AC power supply.

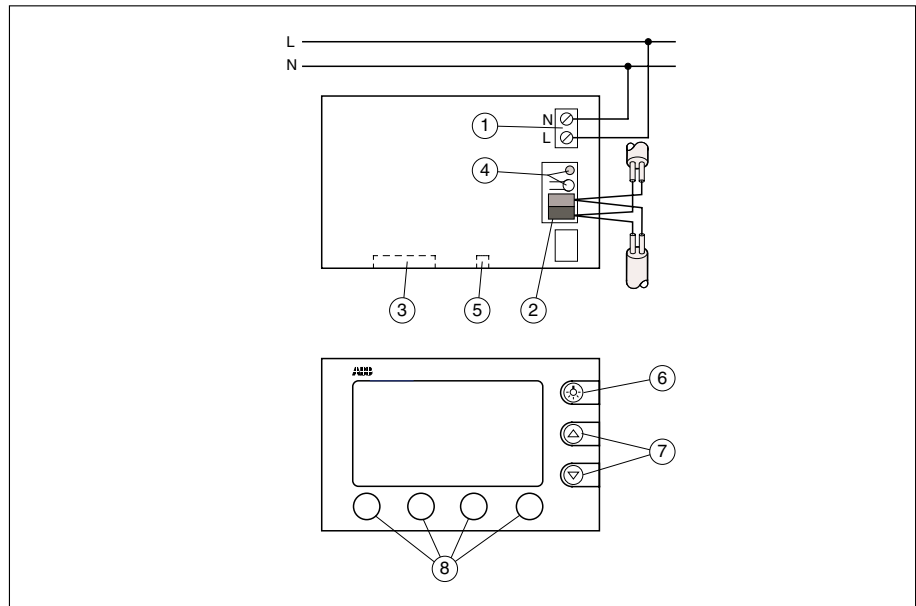
### Technical data

<b>Power supply</b>	– Mains connection	230 V AC, +/- 10 %, 50 ... 60 Hz
	– Power consumption	typ. 10 mA
<b>Operating and display elements</b>	– Light button	LCD lighting ON/OFF
	– 2 cursor keys	UP/DOWN or FORWARD/BACK
	– 4 shift keys	Switching between display pages or selection of menu items
	– Red LED and push button	For entering the physical address
	– Reset button	For resetting the device
<b>Connections</b>	– 230 V AC	2 screw terminals for L and N Wire range: Finely stranded: 0.2 – 2.5 mm <sup>2</sup> Single-core: 0.2 – 4.0 mm <sup>2</sup>
	– EIB	Bus connecting terminal
<b>Type of protection</b>	– IP 43, EN 60 529	
<b>Ambient temperature range</b>	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 45 °C
	– Transport	– 25 °C ... + 45 °C
<b>Design</b>	– Flush-mounted housing for insertion in flush-type box	
<b>Colour</b>	– MT701.2, WS	white
	– MT701.2, SR	silver
<b>Installation</b>	– Flush-mounted for installation in cavity walls	
<b>Dimensions</b>	– 125 x 213 x 68 mm (H x W x D)	
<b>Mounting depth</b>	– 75 mm incl. flush-type box	
<b>Weight</b>	– 0.86 kg	
<b>Certification</b>	– EIB-certified	
<b>CE norm</b>	– in accordance with the EMC guideline and the low voltage guideline	

**Application programs**

	Max. number of communication objects	Max. number of group addresses	Max. number of associations
Display and control tableau /2			

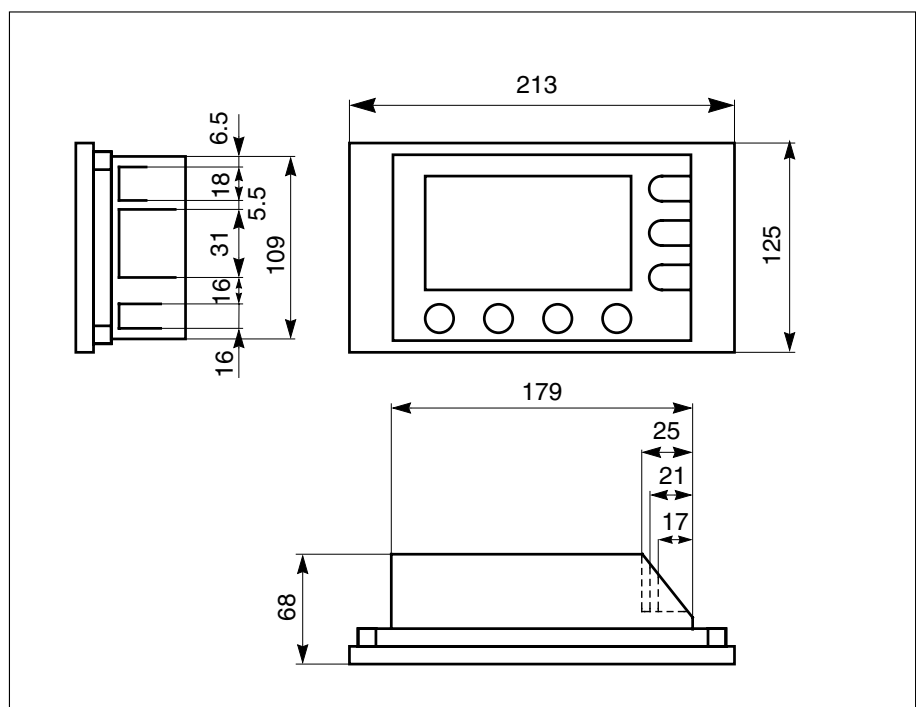
**Circuit diagram**



- 1 Power supply 230 V AC
- 2 Bus connecting terminal
- 3 RS 232

- 4 Programming button/LED
- 5 Reset button

**Dimension drawing**



**Note**

The programming is carried out with ETS2 V1.2 from version ETS2 V1.2a onwards as well as ETS2 V1.3. The installation file “MT701\_2\_SOW\_de\_... .exe” contains the application program as a file with the name “MT701\_2.vd2”. The installation file must be executed before the product data is imported.

The plug-in is installed in the directory “.../ETS.../2/MT701/...” via a setup dialog while the product data (“MT701\_2.vd2” file) is stored in a directory of your choice. The product data (“MT701\_2.vd2” file) can now be imported into the ETS database.

The application program is downloaded directly into the display and control tableau via an RS 232 connection. If a download via a direct RS 232 connection can only be carried out from the ETS project design module, it means that the commissioning PC has a second RS 232 interface which cannot be accessed by the ETS software.

The application program can also be downloaded into the display and control tableau via the EIB. As the download via the EIB takes place at a relatively slow rate, it is only recommended for carrying out minor changes. A download via the EIB is carried out from the ETS commissioning module.



### 3 Application and planning

#### 3.1 General

##### 3.1.1 Page setup

Up to 50 freely definable display pages can be created in each project. The structure of a freely definable display page is shown in Fig. 1.

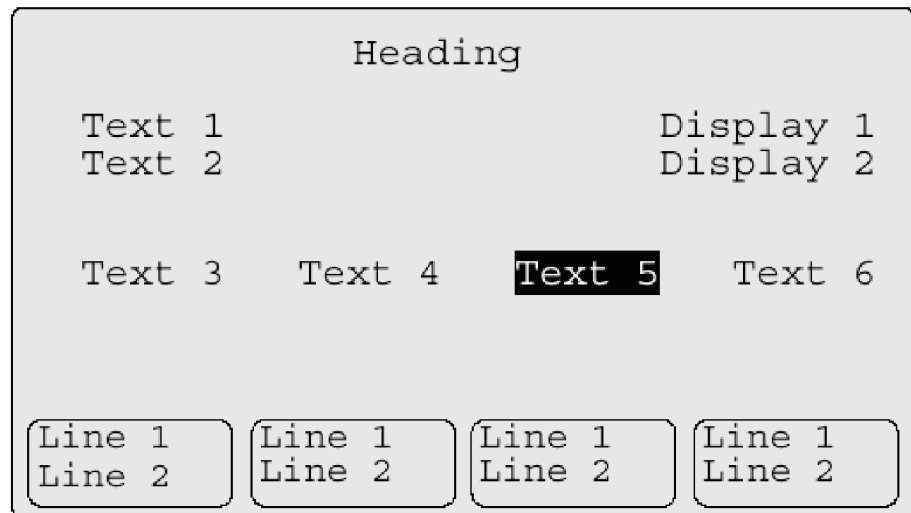


Fig. 1: Structure of a freely definable display page

All the text can be freely parameterised. The heading is centred at the top of the page. There are two lines of text available for the push buttons in the respective push button field. All other text can be freely positioned in the eight lines between the heading and the buttons.

The cursor is moved from one text element to the next via the arrow keys on the device. Depending on which text element is selected by the cursor, another function and label can be stored for the push buttons.

It can be set via a parameter whether the text can be selected with the cursor via the arrow keys. If the text cannot be selected, there are no functions stored for this text.

It is possible to display a background image on each page. It is therefore possible to create a simple visualisation screen by positioning the text and display elements accordingly (see Fig. 2).

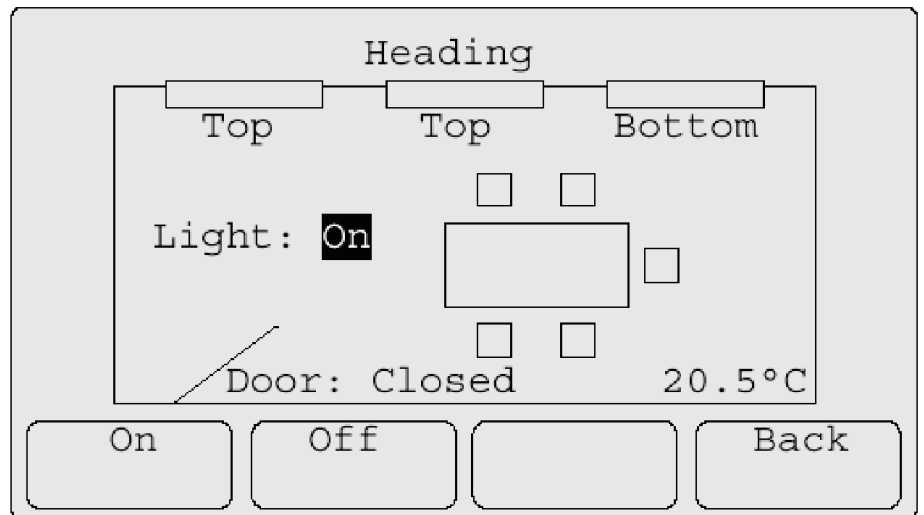


Fig. 2: Simple visualisation screen

User-defined characters can also be displayed instead of the text. It is therefore possible for example to create a light bulb or an open/closed blind using pixels.

Up to 25 background images can be used in total per project. A background image can be displayed on an unlimited number of pages.

### 3.1.2 Menu structure

It is possible to switch from one page to another as required. The predefined pages can also be retrieved from the freely defined pages.

When creating the menu structure, it should be ensured that the user can easily comprehend which menu he is in and how he can find and execute the required function. A tree structure with a main menu and function pages or submenus is often the most suitable method for giving a clear overview of the menu structure (see Fig. 3).

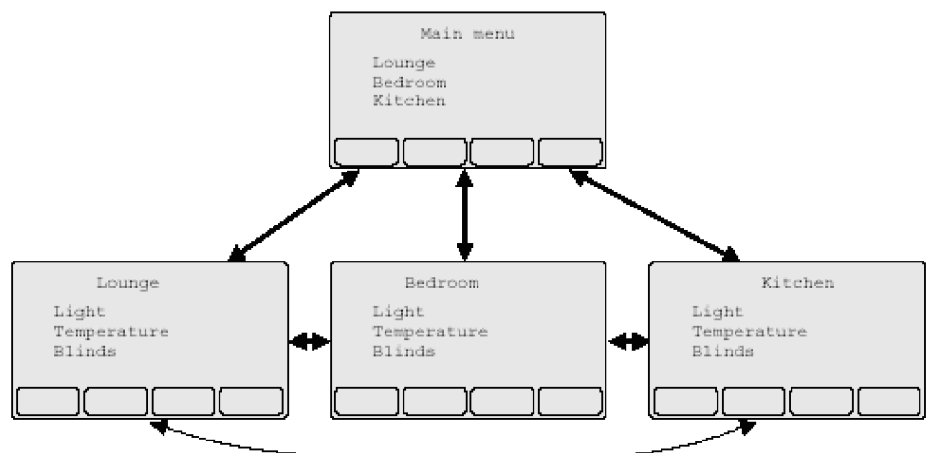


Fig. 3: Menu structure

A freely defined page can be parameterised as a start page. If the device is not operated for a set time, the display and control tableau automatically jumps to the start page so that the same page is always visible at the start of the operation.

### 3.1.3 Functions

Each display element can consist of the following six parts (see Fig. 4):

- parameterised text,
- display,
- button 1 to button 4.

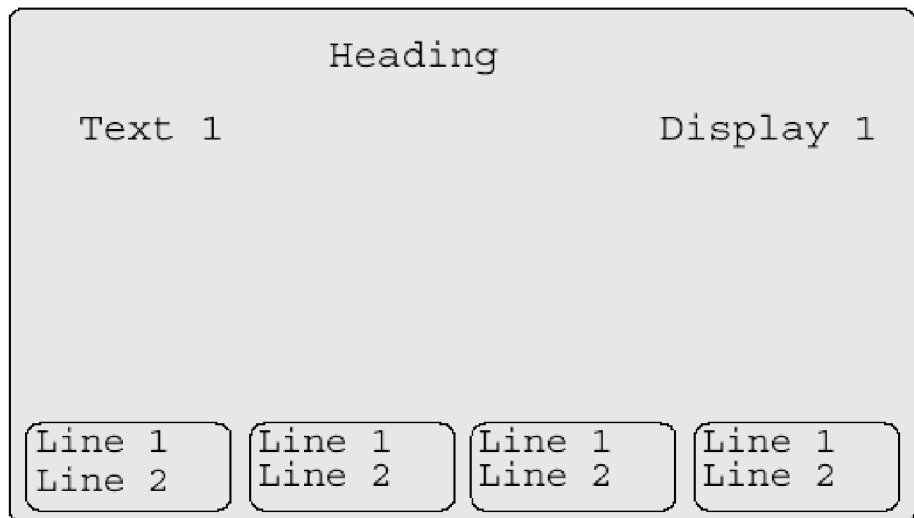


Fig. 4: Parts of a display element

Not all the parts of a display element need to be used. A display element can for example only contain fixed text and no display or push button function or can only contain a display without any explanatory text or push button function.

Each of the six parts of a display element can be parameterised independently. As the individual parts frequently form a unit, a display element can also be configured as a functional module e.g.:

- Text: Shutter,
- Display: Open/closed,
- Key 1: Up
- Key 2: Down
- Key 3: Any (e.g. Move to position 1)
- Key 4: Any (e.g. Move to position 2)

In the case of a functional module, a standard assignment of the individual parts of the display element is suggested and common communication objects are available for the display element as a whole.

A display element can execute or indicate the following functions and displays:

- Text display,
- Switching,
- Dimming,
- Shutter,
- Value,
- Lightscape,
- Date,
- Time,
- ASCII text,
- Operator prompting
- Page call.

### 3.1.4 Password protection

Individual display pages can be protected with passwords against access by unauthorized persons. There are five password levels. The level “no password protection” enables the user to retrieve the page without entering a password. There is a password for each of the password levels 1 to 4.

If the user wishes to change to a display page with a higher password level than the current one, he must enter the relevant password. It is possible to change to a page with a lower or identical password level at any time without entering a password.

The password consists of a five-digit number from 1 to 4 and is entered using the buttons on the display and control tableau (see Fig. 5).

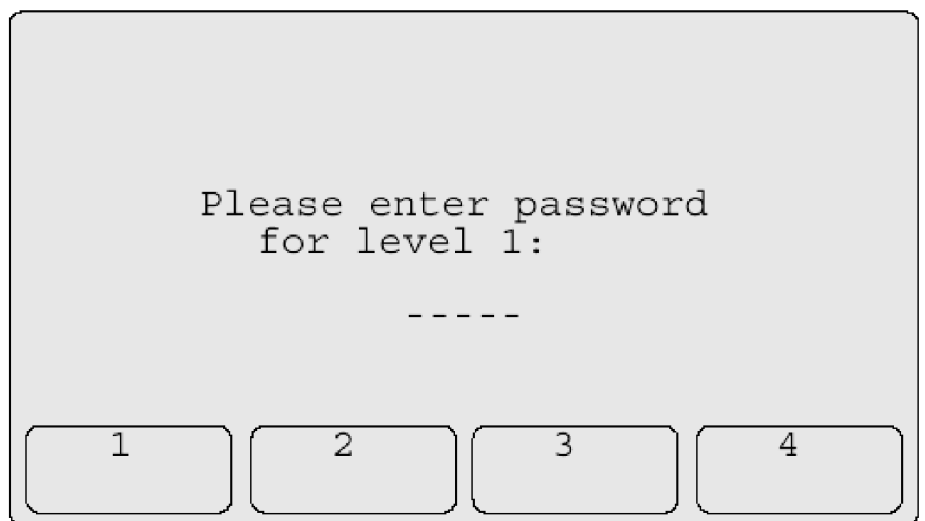


Fig. 5: Entering the password

The passwords can be changed on the system page. The following passwords are selected as preset options after the initial download:

- Password level 1: 11111
- Password level 2: 22222
- Password level 3: 33333
- Password level 4: 44444



The passwords are not overwritten during all subsequent downloads but can only be changed via the system page. The password for the system page must therefore be kept somewhere safe!

### 3.2 Predefined pages and functions

#### 3.2.1 System page

It is possible to carry out the following settings on the system page or view the following information (see Fig. 6):

- Contrast setting,
- Date,
- Time,
- Passwords,
- Message list.

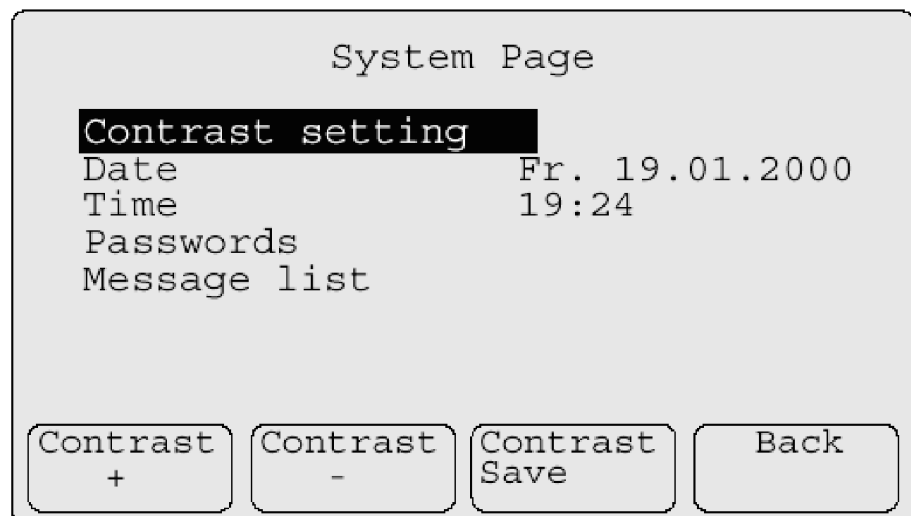


Fig. 6: System page

#### **Contrast setting**

For setting the brightness of the backlighting via button 1 ("Contrast +") and button 2 ("Contrast -") (see Fig. 6). Button 3 ("Contrast Save") must be pressed in order to save the setting.

**Date**

**Time**

For setting the date or time. The “Date” or “Time” page is recalled with button 1 (“Change”) (see Fig. 7). The required digit can be selected via buttons 1 (“<”) and 2 (“>”).

The setting is carried out via the arrow keys. Button 3 (“Set”) must be pressed to save the setting.

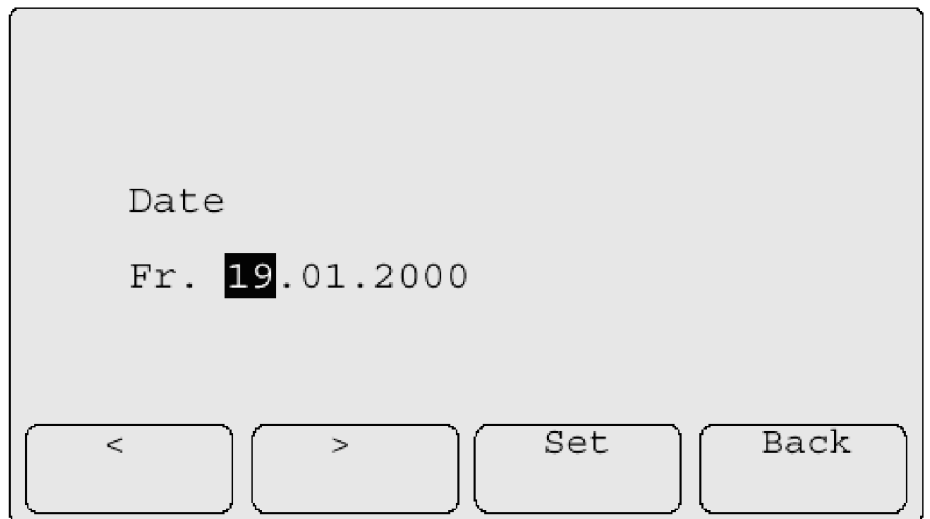


Fig. 7: Change date

**Passwords**

For setting the passwords. The “Passwords” page is retrieved with button 1 (“Change”) (see Fig. 8). Button 3 (“Save”) must be pressed to store the setting.

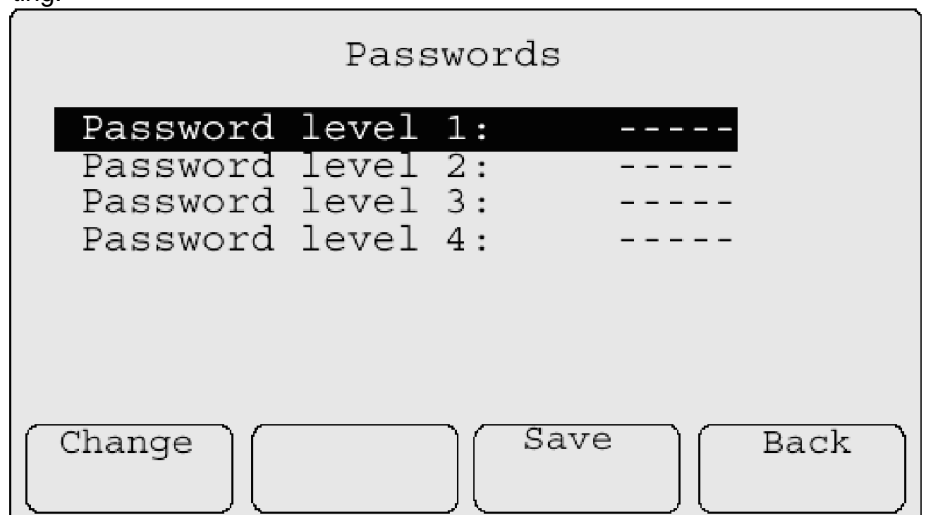


Fig. 8: Change passwords

**Message list**

For displaying the last fault message events. The message list is displayed via button 1 (“Display”) (see Fig. 9).



Fig. 9: Message list

**3.2.2 Timer page**

A timer with up to 16 channels can be created in each project. The required channels must be created in ETS. The switching times are set via the timer page directly on the display and control tableau. The timer page lists all the parameterised channels as well as the switching command which was last sent to the connected group address (see Fig. 10).

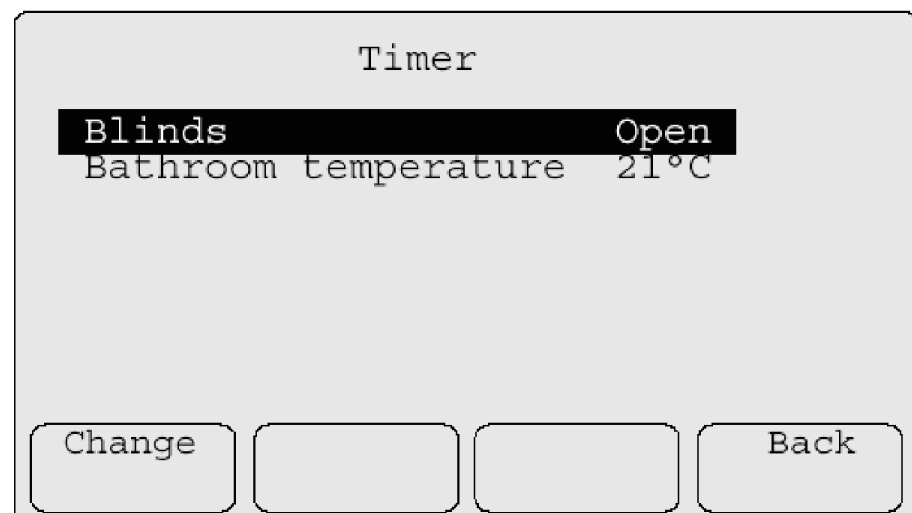


Fig. 10: Timer page

The corresponding switching time page is opened (see Fig. 11) by selecting the required channel and pressing button 1 (“Change”). The time, value and the days of the week can be selected in sequence via button 1 (“>”). The setting is carried out via the arrow keys. Button 3 (“Save”) must be pressed to store the setting.

The switching times are only carried out on the days of the week that are specified on the switching time page.

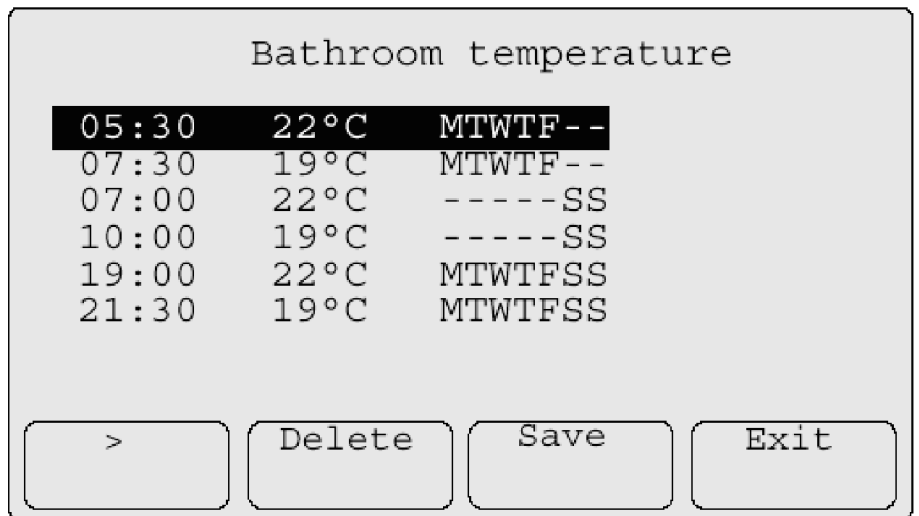


Fig. 11: Switching time page

### 3.2.3 Fault message page

Up to 50 fault message pages can be created in each project. The required fault message pages must be created in the ETS program. If a telegram is received at the associated fault message object, the corresponding fault message page is opened (see Fig. 12).



Fig. 12: Fault message page

The fault message page displays the date and time of the fault message, the parameterised text as well as the number of currently active fault messages. Depending on the parameter settings, an acoustic fault signal is emitted simultaneously when an alarm occurs.

The alarm can be acknowledged via button 3 (“Acknowledge”) which also stops the acoustic alarm signal. The acknowledgement can also be sent via the EIB and entered in the message list. The message window is closed with button 4 (“Back”) and the previously active display page is shown. If the fault message has not yet been acknowledged, it is acknowledged simultaneously.



With the corresponding parameterisation, it is possible to set that the fault message is reported again after an adjustable period even after an acknowledgement, if the cause of the fault message has still not been rectified i.e. no telegrams have been received with the opposite value.

All fault messages, acknowledgements and reset fault messages can be entered in the message list (see Fig. 13). The last 100 fault message events are stored in the message list with the date, time and text as well as information about whether it is an incoming message ("I" – the door has been opened), an acknowledgement ("A" – acknowledgement on the display and control tableau) or an outgoing message ("O" – the door has been closed again). The message list is retrieved via the system page.

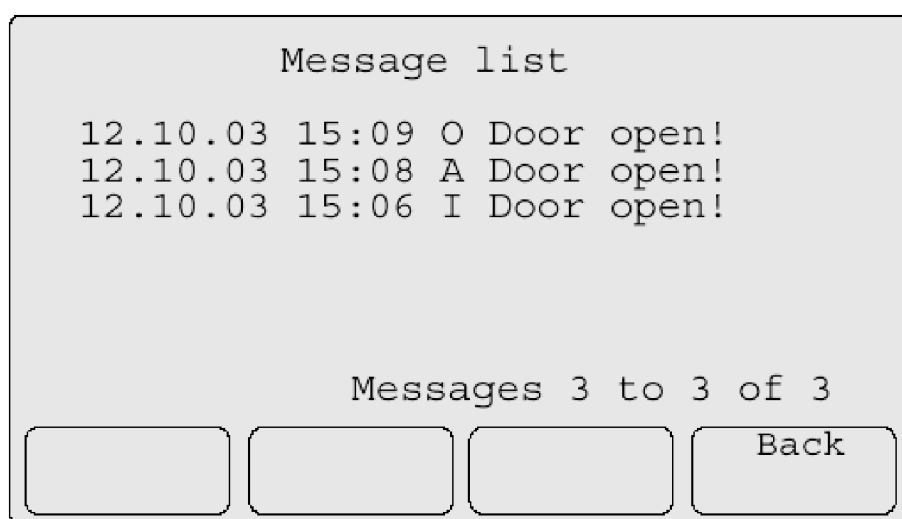


Fig. 13: Message list

### 3.2.4 Timing elements

Up to 40 timing elements can be created in each project. Using a timing element, the routing of a telegram can be delayed (ON and/or OFF delay), inverted and/or disabled via a disable object.

### 3.2.5 Logic

#### Logic gatings

Up to 80 logic gates (AND, OR or EXCLUSIVE OR) can be created in each project. Up to 8 inputs can be parameterised for each logic gate, whereby it is possible to invert all the inputs as well as the output. The logic gate can be blocked via a disable object and the output object can be filtered according to its value (send only "1" telegrams or send only "0" telegrams).

#### Multiplexers

Up to 12 multiplexers (1 to 2 multiplexers or 1 to 4 multiplexers) can be created in each project. Depending on the value of the control object or objects, the value of the input object is only sent to one of the two or four outputs.

Truth table "1 to 2 multiplexers":

Input	Control obj. 1	Output 1	Output 2
Value 0	0	Value	-
Value 1	1	-	Value

Truth table "1 to 4 multiplexers":

Input	Control obj. 1	Control obj. 2	Output 1	Output 2	Output 3	Output 4
Value 0	0	0	Value	-	-	-
Value 0	0	1	-	Value	-	-
Value 1	1	0	-	-	Value	-
Value 1	1	1	-	-	-	Value

### 3.2.6 Lightscapes page

Up to 24 lightscapes can be created in each project. There is a total of 32 group addresses available for all the lightscapes. The lightscapes are retrieved and modified via the "Lightscapes" page (see Fig. 14).



Fig. 14: Lightscapes page

To recall a lightscape, the cursor must be positioned on the required lightscape and button 1 ("Call/Save") must be pressed briefly (< 5 seconds). If button 1 is held down for longer than 5 seconds, a status query is started via the EIB for all the lightscape group addresses and the current switching states are adopted as new lightscape values. Alternatively, the lightscape values can be modified via button 2 ("Lightsc. Change") (see Fig. 15). The name of the lightscape is modified via button 3 ("Text Change") (see Fig. 16).

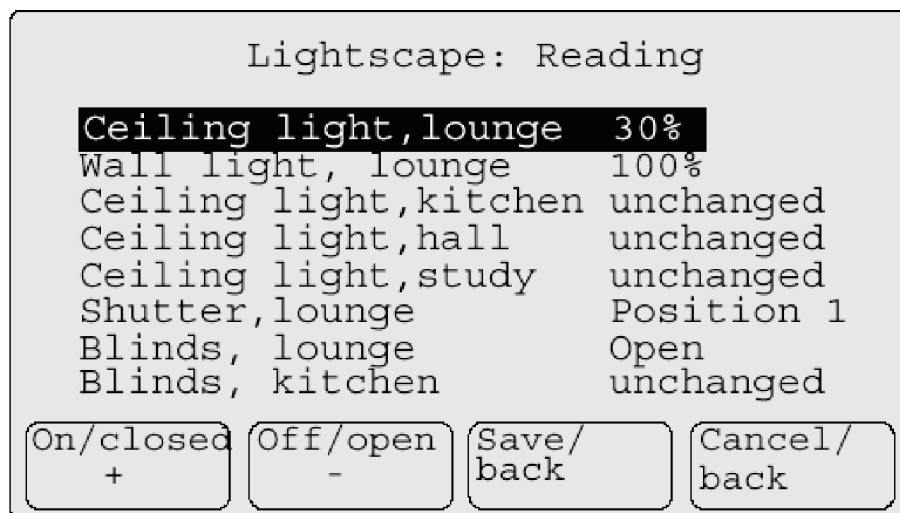


Fig. 15: Change lightscape

It can be set for each lightscape on the display and control tableau which value is sent via the connected group address when the lightscape is retrieved. The cursor is placed on the corresponding group address and the required lightscape value is set via buttons 1 (“On/Shut/+”) and 2 (“Off/Open/-”). If the buttons 1 or 2 are pushed more than once, the option “unchanged” is set.

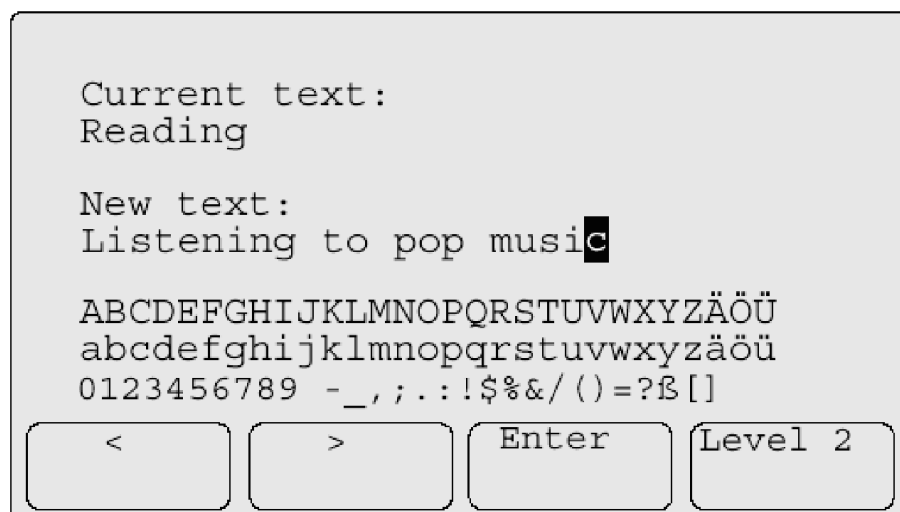


Fig. 16: Change lightscape text

To change the name of the lightscape, a character is selected via buttons 1 (“<”) and 2 (“>”) as well as the arrow keys and transferred into the text field with button 3 (“Enter”). The function of the 4 buttons is changed by pressing button 4 (“Level 2”).

In level 2, the marked character is deleted with button 1 (“Back”) and the cursor is moved one character forwards. The new text is stored with button 3 (“Save”) and the change to the text is cancelled with button 2 (“Cancel”). The push button functions can be changed again by pressing button 4 (“Level 1”).

A lightscape that is parameterised in the display and control tableau can also be retrieved via a push button action directly from any freely parameterisable page or via the EIB for example using an external push button. The same applies for the status query of all the lightscape group addresses and storing as a new lightscape value. Lightscares can thus be retrieved and reconfigured without the lightscape page.

## 4 Configuration and programming

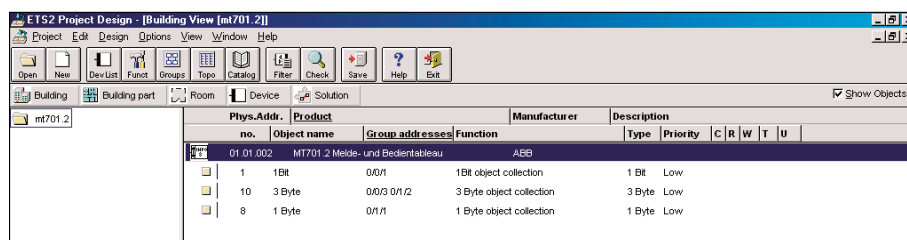
### 4.1 Application program

The display and control tableau MT701.2 is downloaded with the application program "Display and control tableau/2" via the ETS software from version ETS2 V1.2a onwards. The installation file "MT701\_2\_SOW\_de\_... .exe" contains the application program as a file with the name "MT701\_2.vd2". The installation file must be executed before the product data is imported.

The tool software is installed in the directory ".../ETS.../2/MT701/..." via a setup dialog while the product data ("MT701\_2.vd2" file) is stored in a directory of your choice. The product data ("MT701\_2.vd2" file) can now be imported into the ETS database.

The product data is inserted into the project in the Building View of the ETS program. All the parameter settings and links are not programmed directly in ETS but in a plug-in. The plug-in is a small subroutine to ETS which is used to configure and program the device. The parameters and links that are set in the plug-in are automatically adopted in the ETS program.

The communication objects of the display and control tableau are only displayed as group objects in the Building View of ETS. They can only be edited in the plug-in (see Fig. 17).



no.	Object name	Group addresses	Function	Type	Priority	C	R	W	T	U
01.01.002	MT701.2 Melde- und Bedientableau		ABB							
1	1Bit	0/0/1	1Bit object collection	1 Bit	Low					
10	3 Byte	0/0/0 0/1/2	3 Byte object collection	3 Byte	Low					
8	1 Byte	0/1/1	1 Byte object collection	1 Byte	Low					

Fig. 17: Building View in ETS

Click on the device with the right mouse button and select the option "Parameters" or double click on the device and select the "Parameters" button. The plug-in window opens (see Fig. 18).

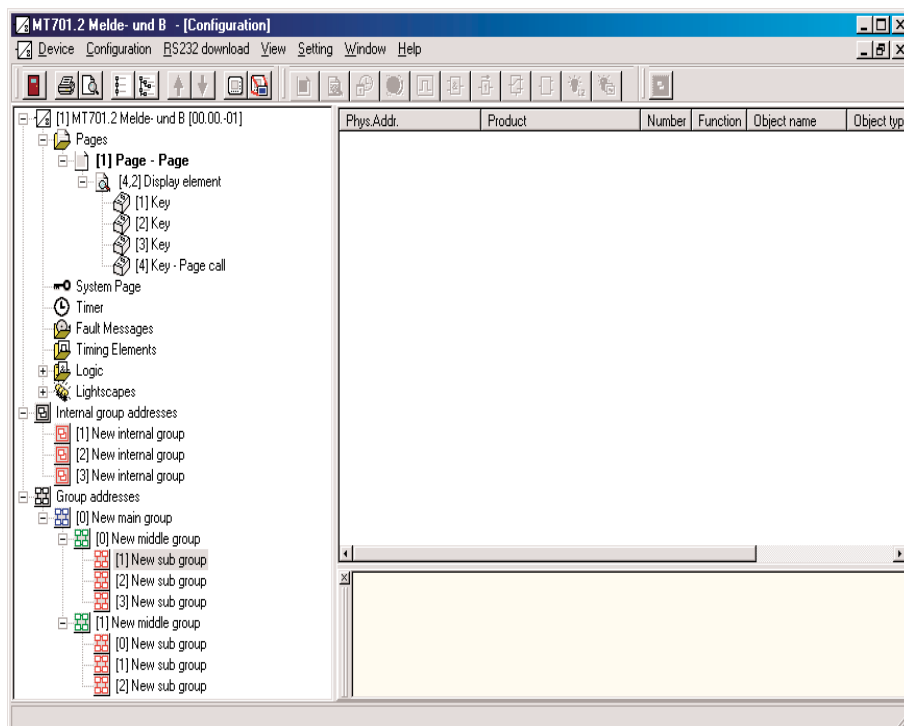


Fig. 18: MT701.2 plug-in

In addition to the name of the plug-in, the title bar also contains information about whether the plug-in has been opened from the 'Project Design' module or the 'Commissioning/Test' module of ETS.

The menu bar and taskbar are located directly underneath the title bar. The plug-in configuration window is divided into three sections. All the configuration elements are listed in the left-hand section, such as the freely programmable pages with all the display elements and push button assignments as well as the internal and external group addresses. The parameters for the configuration element that is marked on the left are shown in the top right-hand section. The context-sensitive hints or help information for the marked parameter are located in the bottom right-hand section (yellow).

By clicking on a configuration element in the left-hand section, the associated parameters are displayed in the top right-hand section and the corresponding icons are activated in the taskbar. If you click for example on the configuration element "Pages" followed by the symbol "Insert page", a new page is created e.g. "[1] Page – Page". By clicking on the configuration element "[1] Page – Page", the associated parameters appear next to it on the right-hand side.

By clicking on a parameter, the context-sensitive help information for the parameter appears in the bottom right-hand section. It is advisable to open the help window by selecting "Help" from the menu bar and placing it next to the working area of the plug-in. Explanatory help text is thus available during the configuration. It is also possible to search for keywords via the help index and display the corresponding help text.

By clicking on the symbol "Back to the ETS", you exit the plug-in and return to the ETS project. Changes can then no longer be reversed.

### 4.2 Menu bar and taskbar

#### 4.2.1 “Device” option

##### Export template Import template

A project that has been created with the plug-in can be saved as a file and imported into another project as a copy. All the text and parameter settings are thereby retained.

When importing the template, you are asked whether the import should be carried out with the same group addresses or without existing links. It is therefore possible to just copy the template. The group addresses must then be linked again.



##### Print Print preview

For printing or viewing the configuration documentation of the project on screen including all the parameter settings and connections.

##### Save backup data now

For saving the project.

##### Restore backup

To restore the project to the status at the time of the last save. The settings that have been made since the last save are undone.



##### Back to the ETS

For exiting the plug-in module. The current configuration status is automatically stored and the data is transferred to the ETS project.



All changes are saved when you exit the plug-in. It is no longer possible to undo any changes!

#### 4.2.2 “Configuration” option

##### New configuration window

For opening a further configuration window. When working in two or more configuration windows, it is possible to work on the project in several places at the same time without having to scroll up and down. This function is particularly suitable for linking group addresses and communication objects.



##### Fold out all Fold up all

For displaying the configuration elements in full including all the subdivisions or for displaying the top level of all the configuration elements.



##### Jump to object

With this function, a defined object can be selected directly.

##### Reset settings

To return the settings to the default options at the start of the configuration.



All the parameter settings and connections that have been carried out are deleted. This command can only be undone (“Restore backup” in the “File” menu) if no save is carried out.

#### 4.2.3 “RS232 download” option

##### Setup

For setting the COM port and the baud rate.

##### Start download

For downloading the configuration into the display and control tableau via the direct RS 232 connection. If a download via a direct RS 232 connection can only be carried out from the Project Design module in ETS, the commissioning PC has a second RS 232 interface which cannot be accessed from the ETS program.

A download via the EIB is carried out in the ‘Commissioning/Test’ module of the ETS program.

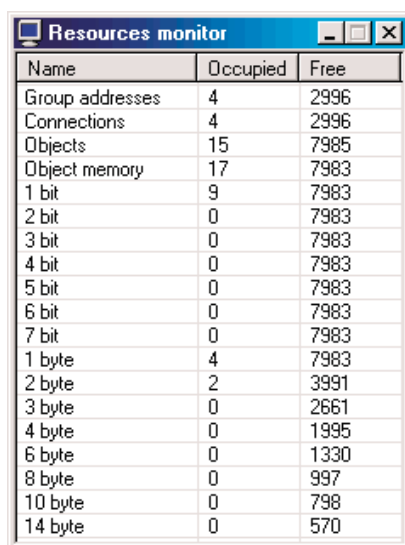
#### 4.2.4 “View” option

##### New configuration window

For opening a further configuration window. When working in two or more configuration windows, it is possible to work on the project in several places at the same time without having to scroll up and down. This function is particularly suitable for linking group addresses and communication objects.

##### Resources monitor

The resources monitor indicates the group addresses, communication objects and connections that have already been used and those that are still available.



Name	Occupied	Free
Group addresses	4	2996
Connections	4	2996
Objects	15	7985
Object memory	17	7983
1 bit	9	7983
2 bit	0	7983
3 bit	0	7983
4 bit	0	7983
5 bit	0	7983
6 bit	0	7983
7 bit	0	7983
1 byte	4	7983
2 byte	2	3991
3 byte	0	2661
4 byte	0	1995
6 byte	0	1330
8 byte	0	997
10 byte	0	798
14 byte	0	570

Fig. 19: Resources monitor

##### Character set

For displaying the available characters (see Fig. 20).

The characters in the grey area are fixed and cannot be modified. User-defined characters can be created and modified in the white area.

Via the option “File” in the menu bar, individual characters can be imported into the project (“Import”), user-defined characters can be exported for use in other projects (“Export”) and the “Character set” dialog window can be closed (“Exit”).

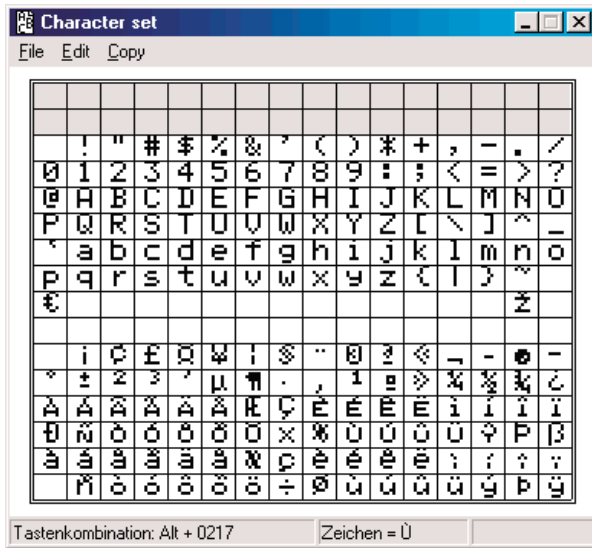


Fig. 20: Character set

By marking a character with a white background and selecting the option “Edit” from the menu bar, the “Edit character” dialog window opens (see Fig. 21) and a character can be adapted by clicking on individual pixels.

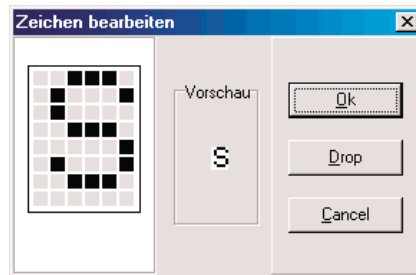


Fig. 21: “Edit character” dialog window

To insert the character for example in a line of text or a heading, the character can either be copied via the option “Copy” in the menu bar of the “Character set” dialog window and then inserted via the right mouse button (“Paste”) or inserted in the appropriate parameter using the relevant push button combination (see the status line in the “Character set” dialog window).



#### Preview

To show the preview screen (see Fig. 22). The edited display page is shown in the preview exactly as it will later appear on the device. The cursor can be controlled via the keys and any page links that have already been programmed can be implemented.



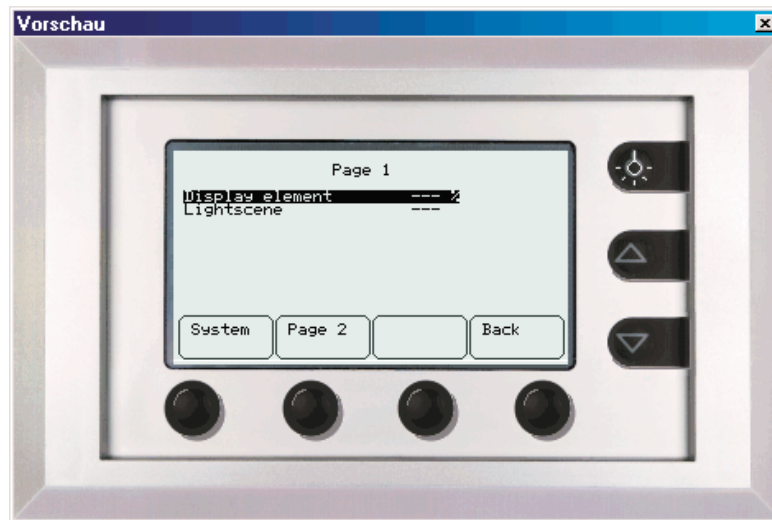


Fig. 22: Preview

**Preview (small)**

For showing/hiding the push buttons in the preview (see Fig. 23).

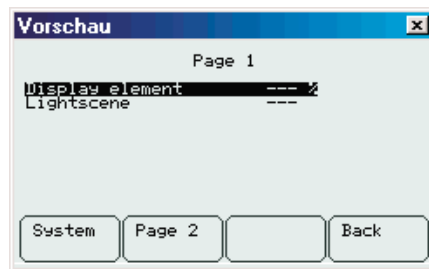


Fig. 23: Preview (small)

**4.2.5 “Setting” option**

**Options**

To activate the “Options” dialog window with the tabs “Table”, “Options” and “Hardware”.

**Table**

For setting the column width and colour settings for the parameter entries as well as for defining which line of the parameter table should be activated when marking a configuration element (see Fig. 24).

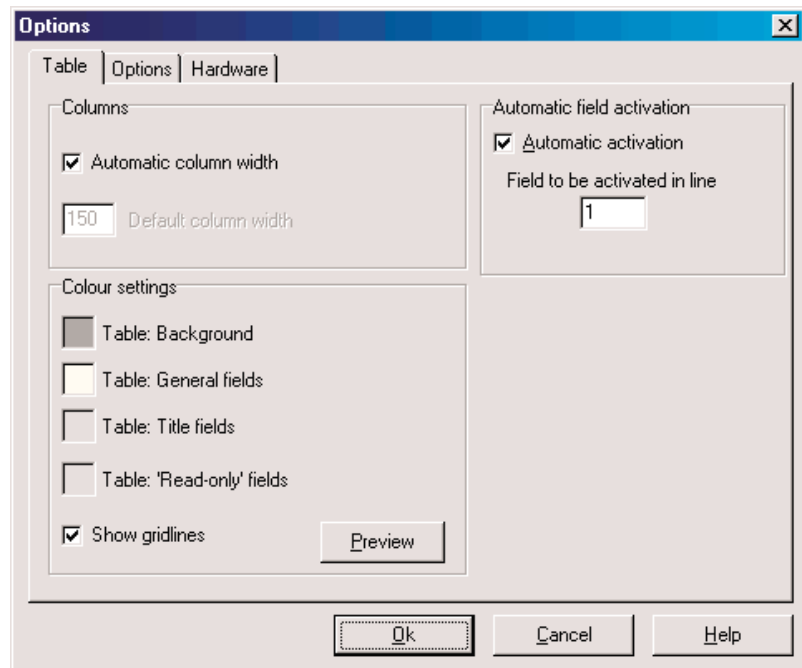


Fig. 24: "Options - Table" dialog window

### Options

For setting the automatic save, for activating the database check as well as for setting the options for optimising the speed when working with the plug-in, particularly when opening and closing the module (see Fig. 25).

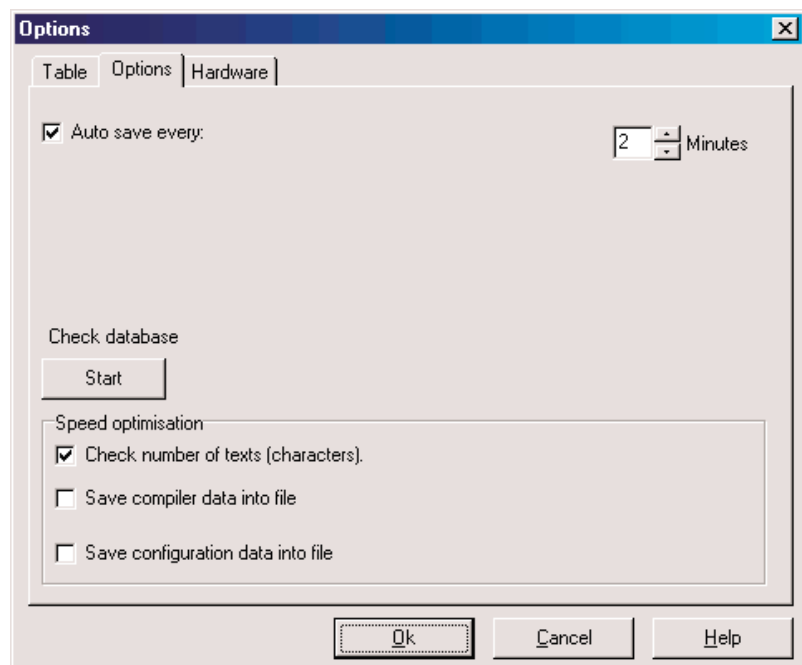


Fig. 25: "Options - Options" dialog window

The automatic save is carried out in a "\*.mts" file in the subdirectory ".../ETS.../2/LkExt/MT701/AutoSave/..." both at the set intervals and when closing the plug-in.

Via the function "Check database", the data of the plug-in is compared with the data in the ETS database. Any deviations are corrected automatically.

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If the option “Check number of texts (characters)” is activated, a check is continually made during the configuration as to whether the maximum number of characters that can be loaded into the display and control tableau has been exceeded. If the option is deactivated, the number of characters is only checked during the download and the plug-in can process entries at a faster rate.

It is also possible to speed up work with the plug-in by activating the options “Save configuration data into file” and “Save compiler data into file”. To convert the data between the plug-in and ETS, configuration data is stored in a “\*.blob” file in the subdirectory “.../ETS.../2/LkExt/MT701/ProjectFiles/...” and compiler data is stored in a “\*.cmp” file in the subdirectory “.../ETS.../2/LkExt/MT701/Compiler/...”. If one of these options is selected, the project should always be copied from the ETS software via the project export option. If only the database is copied, the project file and compiler data must always be copied as well.

#### Hardware

For setting the download options (see Fig. 26).

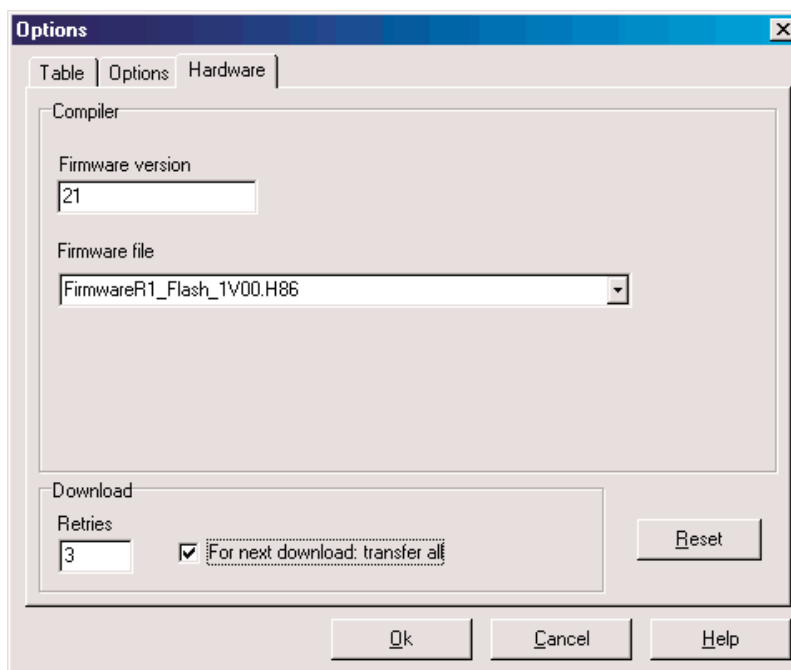


Fig. 26: “Options” dialog window

The entry “Retries” indicates how often an attempt is made to establish a connection to the display and control tableau when there are communication problems.

If the option “For next download: transfer all” is deactivated, only those changes that have been made since the last download are transferred. The duration of the download is thereby shortened considerably. This function should be deactivated in particular if changes are downloaded via the EIB.

Via the “Reset” button, all the settings on the “Hardware” tab are reset to the default values.

#### Language

For selecting the programming language. After changing the language the Plug-In must be shut down and opened again. Only then, the language change becomes active.

#### 4.2.6 Other symbols



#### Load system text

For translating the pre-defined system texts. The dialogue box “Select device language file” opens and the desired language can be selected.

#### Move up node

#### Move down node

For moving configuration elements e.g. to change the order of two lines within a page.



#### Add page

For inserting a new page in a project. This symbol is only active if the configuration element “Pages” is marked.



#### Add display element

For inserting a new display element on a page. This symbol is only active if the configuration element “[...] Page – Page ...” is marked.



#### Add fault message

For inserting a new fault message in a project. This symbol is only active if the configuration element “Fault messages” is marked.



#### Add timing element

For inserting a new timing element in a project. This symbol is only active if the configuration element “Timing elements” is marked.



#### Add timer channel

For inserting a new channel in the timer. This symbol is only active if the configuration element “Timer” is marked.



#### Add logic gate

For inserting a new logic gate in the project. This symbol is only active if the configuration element “Logic gatings” is marked.



#### Add logic gate input

For inserting a new input in the logic gate. This symbol is only active if the configuration element “[...] Logic gating - ...” is marked.



#### Add lightscape

For inserting a new lightscape in the project. This symbol is only active if the configuration element “Lightscape collection” is marked.



#### Add group

For inserting a new lightscape group in the project. This symbol is only active if the configuration element “Groups” is marked.



#### Add multiplexer

For inserting a new multiplexer in the project. This symbol is only active if the configuration element “Multiplexers” is marked.



#### Add multiplexer channel

For inserting a new multiplexer channel in the multiplexer. This symbol is only active if the configuration element “[...] Multiplexers – 1 to ...” is marked.



#### Create internal group

For inserting a new internal group address in the project. This symbol is only active if the configuration element “Internal group addresses” is marked.

### 4.3 Device parameters

By marking the configuration element “MT701.2” in the left-hand section of the window, the parameters for setting the device (see Fig. 27) appear in the top right-hand section.

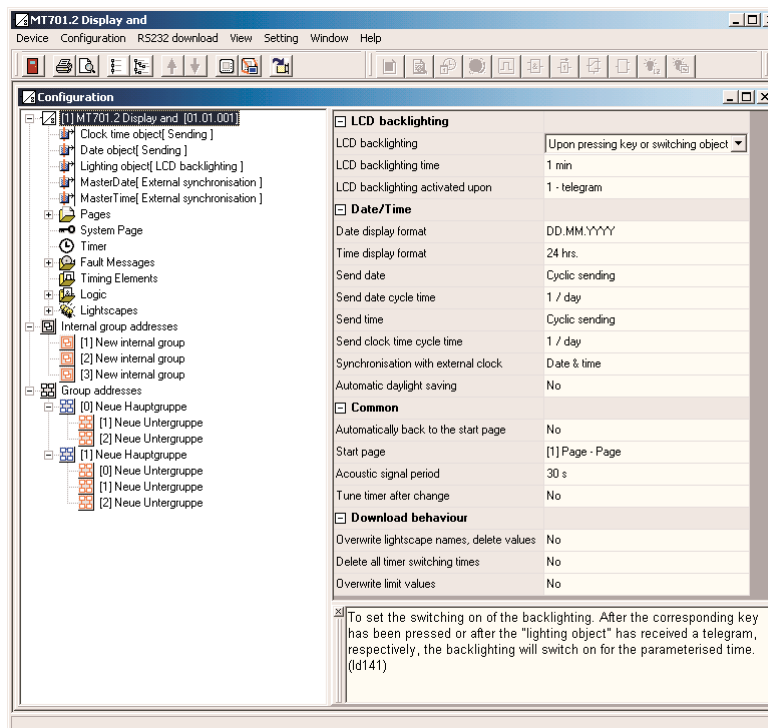


Fig. 27: MT701.2 plug-in

#### LCD backlighting

- Options:
- Upon pressing key
  - Upon switching object
  - Upon pressing key or switching object

For setting the activation of the backlighting. The backlighting lights up after a push button action or on receipt of an EIB telegram at the “Lighting object” for the set “LCD backlighting time”.

If the option “Upon switching object” or “Upon pressing key or switching object” is selected, the communication object “Lighting object” appears under the configuration element “MT701.2” as well as the parameter “LCD backlighting activated upon”.

**LCD backlighting time**

Options: – 1/3/5/10/15/30 min

For setting the duration of the LCD backlighting.

**LCD backlighting activated upon**

Options : – 0 telegram  
– 1 telegram

If the option “1 telegram” is selected, the backlighting is switched on upon receipt of a telegram with the value “1” at the “Lighting object”. It is switched off on receipt of a telegram with the value “0”.

If the option “0 telegram” is selected, the backlighting is switched on upon receipt of a telegram with the value “0” at the “Lighting object”. It is switched off on receipt of a telegram with the value “1”.

**Date display format**

Options : – DD.MM.YYYY  
– DD.MM.YY  
– MM.DD.YY  
– MM.DD.YYYY

For setting the display format for the date. “DD” stands for the day, “MM” for the month and “YY” or “YYYY” for the year.

**Time display format**

Options : – 12 hrs.  
– 24 hrs.

For the setting the display format for the time.

**Send date****Send time**

Options : – Not sending  
– Cyclic sending

If the option “Cyclic sending” is selected, the parameter “Send date cycle time” or “Send time cycle time” appears as well as the communication object “Date object” or “Time object”.

**Send date cycle time****Send time cycle time**

Options : – 1/minute (once per minute)  
– 1/hour (once per hour)  
– 1/day (once per day)

For setting the cyclic period for the cyclical sending of the date via the “Date object” or the time via the “Time object”.

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#### Synchronisation with external clock

- Options:
- No
  - Date & time
  - Date
  - Time

It is defined via this parameter whether the device can receive the date and/or the time via the EIB. If the options “Date”, “Time” or “Date & time” are selected, the communication objects “MasterDate” or “MasterTime” appear.

#### Automatic daylight saving

- Options:
- No
  - Yes

For activating the automatic daylight saving function. If the option “yes” has been set, the internal clock of the MT701.2 is switched ahead for 1 hour on the last sunday in march and switched back for 1 hour on the last sunday in october (european daylight saving change).

#### Automatically back to the start page

- Options:
- No
  - 2/5/10/30/60 min

It is defined via this parameter whether the device automatically returns to the start page if no buttons are pressed on the device for the set period. The automatic return to the start page is not carried out, in case a fault message page is currently opened.

#### Start page

- Options:
- [1] Page – Page
  - [...] Page – Page

For setting the start page of the project.

#### Acoustic signal period

- Options:
- 10/30 s
  - 1/3/5 min

For setting the duration of the acoustic signal emitted by the buzzer once a fault message has occurred. The warning tone stops once the set period has elapsed.

#### Tune timer after change

- Options:
- Yes
  - No

It is defined via this parameter whether all the switching states are set automatically according to the switching times after a change in the switching times. If it was set e.g. at 16.00 that the light is switched on each day at 14.00, an ON telegram is sent after a change if the option “Yes” has been selected (and no further switching times are programmed between 14.00 and 16.00). If the option “No” has been set, no telegrams are sent and the new switching time is carried out for the first time on the following day.

### Overwrite lightscene names, delete values

### Delete all timer switching times

### Overwrite limit values

Options:    – Yes  
              – No

This parameter determines whether any changes that have been made on the display are overwritten during the download.

## 4.4 General parameters

### 4.4.1 Page parameters

By marking the configuration element “Pages” in the left-hand section and pressing the button “Insert page” in the taskbar, up to 50 pages can be inserted in the project.

The page parameters (see Fig. 28) appear in the top right-hand section by clicking on the configuration element “[...] Page – Page”.

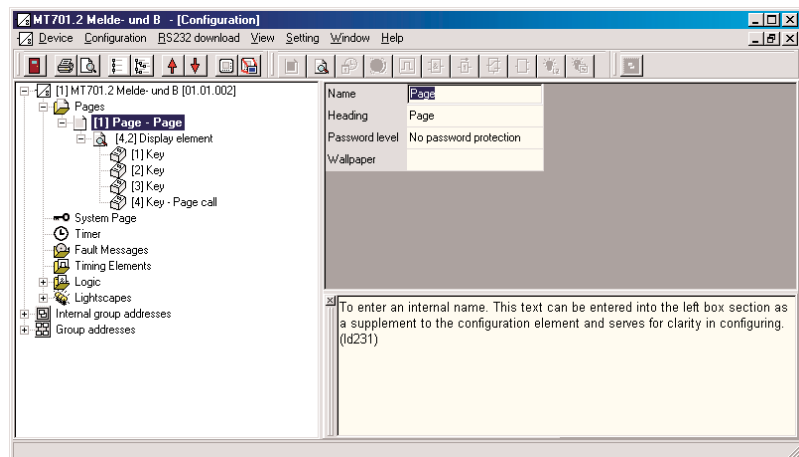


Fig. 28: Parameter page

#### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

#### Heading

For entering the page heading. This heading is displayed in the header line in the top centre of the display page.

#### Password level

Options:    – No password protection  
              – Password level 1  
              – Password level 2  
              – Password level 3  
              – Password level 4

For setting the password level.

#### Wallpaper

It is set via this parameter whether a background image is used and which image is selected. When this parameter is retrieved, the dialog window “Image list” opens (see Fig. 29).



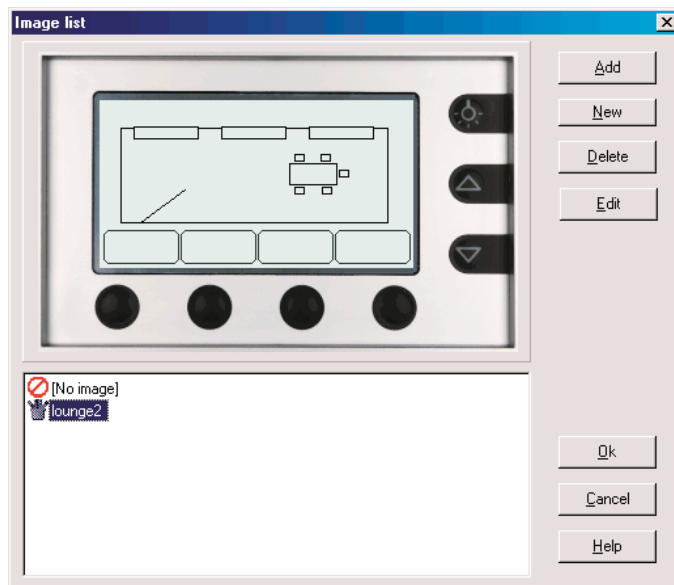


Fig. 29: "Image list" dialog window

In this dialog window, all the images that are known to the plug-in are listed in the bottom section of the window. This list can be supplemented by further existing files via the "Add" button. With the "New" button, an image can be created using MS Paint. It is possible to remove an entry from the image list with the "Delete" button and modify an image from the list in MS Paint via the "Edit" button.

#### 4.4.2 Display parameters

By selecting the configuration element "[...] Page – Page" in the left-hand section and pressing the button "Insert display element" in the taskbar, it is possible to insert up to 16 display elements per page.

The display parameters appear in the top right-hand section (see Fig. 30) by selecting the configuration element "[...,...] Display element".

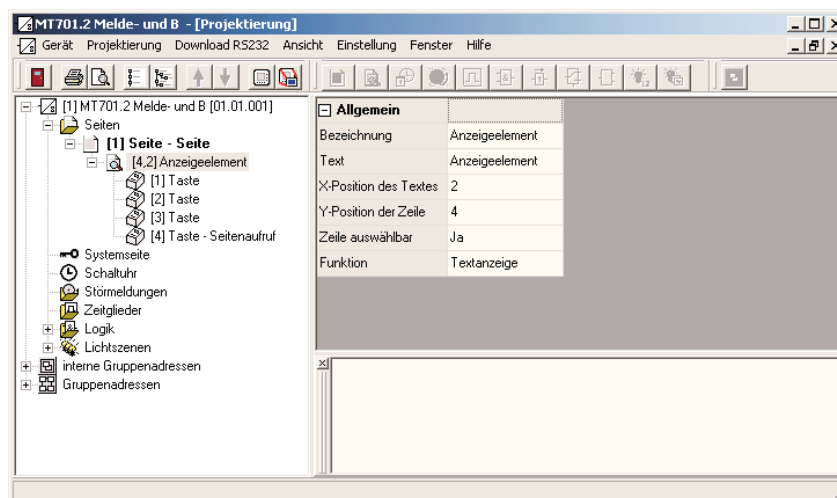


Fig. 30: Parameter page

**Name**

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

**Text**

For entering the text. This text is shown on the display in the parameterised position.

**Text X position****Line Y position**

For positioning the text on the display.

**Line selectable**

Options:    – Yes  
              – No

This parameter sets whether the display element is just used for representation or whether it can execute a function. If the option “No” is selected, the display element cannot be selected via the cursor keys and the stored functions cannot be carried out.

**Function**

Options:    – Text display  
              – Switching  
              – Dimming  
              – Shutter  
              – Value  
              – Lightscape  
              – Date  
              – Time  
              – ASCII Text  
              – Operator prompting

For setting the function of the display element. Different communication objects and parameters are displayed or hidden depending on the selected function.

**4.4.2.1 “Text display” function**

In this selection, only the parameterised “Text” is shown without a display value.

**4.4.2.2 “Switching” function**

For displaying a switching state (ON/OFF) as well as for sending switching telegrams. If the option “Switching” is selected, the “Switching object” communication object appears as well as the additional selection “Line switching function” as an optional push button function.

**Display text for 1****Display text for 0**

For entering the text which should be displayed on receipt of a telegram.

**Value X position**

For setting the X position of the display value.

#### 4.4.2.3 “Dimming” function

For displaying the lighting status (ON/OFF or brightness value) as well as for sending switching and dimming telegrams or brightness values. If the “Dimming” option is selected, the communication objects “Switching object” and “Dimming object” appear as well as the additional selection “Line dimming function” as an optional push button function.

##### Display

Options: – Switching state  
– Brightness value

This parameter determines whether the lighting should be switched on or off with this display element, dimmed with a relative value or whether the brightness value should be sent and displayed. If the option “Switching state” is selected, the communication objects “Switching object” and “Dimming object” appear. If the option “Brightness value” is selected, the communication object “Value object” appears.

Different parameters are available depending on the selected option.

##### Display text for 1

##### Display text for 0

For entering the text which should be displayed on receipt of a telegram.

##### Time base between switching and dimming

##### Time factor between switching and dimming

For setting the time difference (time base x time factor) between switching (short operation) and dimming (long operation) for a push button action. The parameterised interval applies to all four keys of this display element. Any time variations are set via the “Dimming” function.

##### Value display type

Options: – 0 ... 100 %  
– 0 ... 255

For setting the display type of the brightness value.

##### Value X position

For setting the X position of the display value.

#### 4.4.2.4 “Shutter” function

For displaying the shutter position (UP/DOWN) as well as for sending UP/DOWN or STOP/louvre adjustment telegrams. If the option “Shutter” is selected, the communication objects “Long-time object” and “Short-time object” appear as well as the additional selection “Line shutter function” as an optional push button function.

##### Display text for shutter UP

##### Display text for shutter DOWN

For entering the text which should be displayed on receipt of a telegram.

##### Time base between short-time and long-time mode

##### Time factor between short-time and long-time mode

For setting the time difference (time base x time factor) between a long operation (UP/DOWN) and short operation (STOP/louvre adjustment) of the push buttons. The parameterised interval applies to all four keys of this display element. Any time variations are set via the “Shutter” function.

##### Value X position

For setting the X position of the display value.

#### 4.4.2.5 “Value” function

For displaying a value. If the option “Value” is selected, the corresponding communication object “EIS ... object” appears for the selected EIS type as well as the additional selection “Line value display” as an optional push button function.

##### **Value display**

For setting the required EIS type. The communication object “EIS ... object” appears depending on the selected option. Various parameters are available depending on the selection.

##### **Offset**

##### **Gain**

For setting an offset and a gain. The displayed value is equal to the received value multiplied by the gain plus the offset e.g.:

Offset:            50  
Gain:             2  
Value:            100  
Displayed value:  $(100 \times 2) + 50 = 250$

##### **Format**

For setting the format in which the value should be displayed.

##### **Unit**

For entering text which should be displayed as a unit.

##### **Display format** (only EIS 6 (rel. value))

Options:    – 0 ... 100 %  
              – 0 ... 255  
              – 0 ... 360°  
              – Custom  
              – Bit-oriented

For setting the display format.

##### **Bit to be evaluated**

##### **Display text for 0**

##### **Display text for 1**

For selecting the bit whose value should be displayed as well as entering the text which should be shown on receipt of a telegram.

##### **Value X position**

For setting the X position of the display value.

##### **Limit value monitoring**

Options:    – Yes  
              – No

It is defined via this parameter whether limit value monitoring should be carried out for this value. If the option “Yes” is selected, the following parameters appear:

##### **Upper limit value**

##### **Lower limit value**

Options:    – Yes  
              – No

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This parameter determines whether an upper or lower limit is used. If the option “Yes” is selected, the communication objects “Upper limit value object” or “Lower limit value object” appear.

#### Value

##### Hysteresis

For setting the limit value and the hysteresis. With the help of the hysteresis, the limit value can be extended into a limit value range. The upper limit value is exceeded if the value is greater than the limit value. If the value is smaller than the limit value minus the hysteresis, then it falls below the upper limit. The value falls below the lower limit value if it is smaller than the limit value. The lower limit is exceeded if the value is greater than the limit value plus the hysteresis.

##### Limit value changeable

Options:    – Yes  
              – No

It is defined via this parameter whether the limit value can be changed on the display and control tableau.

##### Behaviour when limit value is overrun

##### Behaviour when upper limit value is underrun - hysteresis

##### Behaviour when limit value is underrun

##### Behaviour when lower limit value is overrun + hysteresis

Options :    – No response  
              – 0 telegram  
              – 1 telegram

For setting the behaviour when the value exceeds or falls below the limit value or limit value range.

##### Transmit delay

Options :    – No delay  
              – 1/3/5/10/15/30 s  
              – 1/3/5 10/15/30/60 min

For setting the period during which the value must exceed or fall below the limit value before an action is carried out.

#### 4.4.2.6 “Lightscape” function

For retrieving a lightscape.

##### Value X position

For setting the X position of the display value.

#### 4.4.2.7 “Date/Time” function

For displaying the date or the time.

##### Source

Options :    – Internal  
              – EIB

It is set via this parameter whether the internal date/time that is used in the MT701 should be displayed as a date or time or another value that has been displayed via the EIB. If the option “EIB” is selected, the communication object “Date object” or “Time object” appears.

**Value X position**

For setting the X position of the displayed date or time.

**Offset** (only for "Time" function)

For setting a time adjustment of the displayed time in hours compared to the internal time or the time received via the EIB.

**4.4.2.8 "ASCII text" function**

For displaying text in ASCII format that has been received via the EIB. If the option "ASCII text" is selected, the communication object "ASCII text object" appears.

**ASCII text length****Value X position**

For setting the length and X position of the display of the received ASCII text.

**4.4.2.9 "Operator prompting" function**

For displaying the current value of a 2 bit positive control telegram. If the option "Operator prompting" is selected, the communication objects "Switching object" and "Operator prompting object" appear as well as the additional selection "Line operator prompting function" as an optional push button function.

**Text for operator-prompted ON****Text for operator-prompted OFF****Text for not operator-prompted ON****Text for not operator-prompted OFF**

For entering the text that should be displayed on receipt of a telegram.

If operator prompting is not activated, the text is displayed according to the value of the "Switching object". If operator prompting has been activated, the text is displayed according to the "Operator prompting object".

**Value X position**

For setting the X position of the display value.

**4.4.2.10 "Mode change" function**

For displaying the actual operation mode of the temperature controller.

**Operation mode**

Options:           – Single objects (1bit)  
                      – Konnex

For setting the sending format of the mode change function. If the option "Konnex" is selected, the 1 byte communication object "Operation mode Konnex" appears. If the option "Single objects (1bit)" is selected, the 1 bit communication objects "Frost/ heat protection", "Comfort mode", "Night shut down" and "Standby" appear.

A key table with the coding of the 1 byte communication object "Operation mode Konnex" is printed in the appendix.

### Text for comfort mode

### Text for standby mode

### Text for night-time shut-down

### Text for frost/ heat protection

### Text for automatic mode

For entering text which should be displayed when a telegram with the actual operation mode is received via EIB. The parameter "Text for automatic mode" only appears when the option "Konnex" is selected for the parameter "Operation mode".

### Value X position

For setting the X position of the display value.

#### 4.4.3 Push button parameters

The push button parameters appear in the top right-hand section (see Fig. 31) by selecting the configuration element "[...] Key".

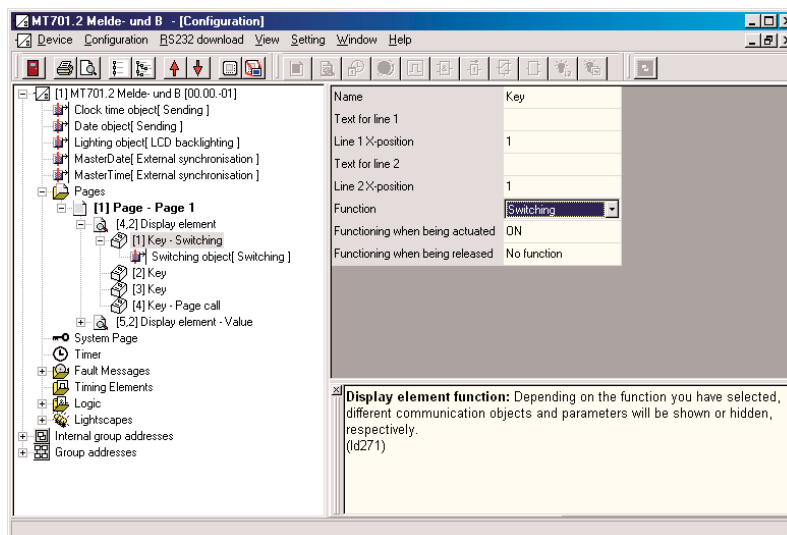


Fig. 31: Push button parameters

### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

### Text for line 1

### Line 1 X position

### Text for line 2

### Line 2 X position

For entering and positioning a push button label. Two lines are available for each button for labelling.

**Function**

- Options:
- No function
  - Switching
  - Line switching function
  - Shutter
  - Line shutter function
  - Dimming
  - Line dimming function
  - Value
  - Line value display
  - Lightscape
  - Operator prompting
  - Line operator prompting function
  - Page call

For setting the function of the display element. Different communication objects and parameters are displayed or hidden depending on the selected function.

**4.4.3.1 “Switching” function**

For sending switching telegrams. If the option “Switching” is selected, the communication object “Switching object” appears.

**Functioning when being actuated****Functioning when being released**

- Options :
- No function
  - ON
  - OFF
  - Change

For setting the push button function when the button is pressed or released.

**4.4.3.2 “Line switching function”**

For sending switching telegrams. This option is only available if the “Switching” function has been selected for the display element.

**Functioning when being actuated****Functioning when being released**

- Options :
- No function
  - ON
  - OFF
  - Change

For setting the push button function when the button is pressed or released.

**4.4.3.3 “Shutter” function**

For sending UP/DOWN or STOP/louvre adjustment telegrams. If the option “Shutter” is selected, the communication objects “Short-time object” and “Long-time object” appear.

**Shutter function**

- Options:
- UP
  - DOWN
  - CHANGE

For setting the push button function. If the option “CHANGE” is selected, a push button action causes UP and DOWN telegrams to be sent alternately.



**Time base between short-time and long-time mode****Time factor between short-time and long-time mode**

For setting the time difference (time base x time factor) between a long operation (UP/DOWN) and a short operation (STOP/louvre adjustment) of the buttons.

**4.4.3.4 “Line shutter function”**

For sending UP/DOWN or STOP/louvre adjustment telegram. This option is only available if the “Shutter” function has been selected for the display element.

**Shutter function**

Options: – UP  
– DOWN  
– CHANGE

For setting the push button function. If the option “CHANGE” is selected, a push button action causes UP and DOWN telegrams to be sent alternately.

**4.4.3.5 “Dimming” function**

For sending switching and dimming telegrams or brightness values. If the “Dimming” option is selected, the communication objects “Switching object” and “Dimming object” appear.

**Dimming key function**

Options: – Darker (OFF)  
– Brighter (ON)  
– Brighter/darker (CHANGE)  
– Brightness value

For setting the push button function. If the option “Darker”, “Brighter” or “Brighter/darker” is selected, the communication objects “Switching object” and “Dimming object” appear. If the button is pressed briefly, a switching telegram is sent to the “Switching object”. After a long operation, a dimming telegram is sent to the “Dimming object”.

If the option “Brightness value” is selected, the communication object “Value object” appears. The parameterised brightness value is sent with a push button action.

**Time base between switching and dimming****Time factor between switching and dimming**

For setting the time difference (time base x time factor) between a long operation (dimming) and a short operation (switching) of the push button.

**Value**

For setting the value which should be sent when the button is pressed.

**4.4.3.6 “Line dimming function”**

For sending switching and dimming telegrams. This option is only available if the “Dimming” function has been selected for the display element.

**Dimming key function**

Options: – Darker (OFF)  
– Brighter (ON)  
– Brighter/darker (CHANGE)

For setting the push button function. A switching telegram is sent to the “Switching object” with a short push button action. A dimming telegram is sent to the “Dimming object” after a long operation.

**4.4.3.7 “Value” function**

For sending a parameterised value.

**Value display**

Options:

- EIS 5 (value)
- EIS 6 (rel. value)
- EIS 9 (IEEE float)
- EIS 10 (16-bit counter, signed)
- EIS 10 (16-bit counter)
- EIS 11 (32-bit counter, signed)
- EIS 11 (32-bit counter)
- EIS 14 (8-bit counter, signed)
- EIS 14 (8-bit counter)

For setting the value type which should be sent. If the option “EIS 6” is selected, the “Display format” parameter appears.

**4.4.3.8 “Line value display”  
function**

For sending value telegrams. This option is only available if the “Value” function has been selected for the display element.

**Value function**

Options:

- Send
- Edit

This parameter defines whether a parameterised value should be used or a value which can be set on the display and control tableau. If the option “Send” is selected, the parameter “Value to be sent” appears. If the option “Edit” is selected, the parameters “Minimum value” and “Maximum value” appear.

**Value to be sent**

For setting the value which should be sent when the button is pressed.

**Minimum value****Maximum value**

For setting the limits within which a value can be set on the display and control tableau and sent.

**4.4.3.9 “Lightscape” function**

For retrieving a parameterised lightscape.

**Lightscape**

It is defined via this parameter which lightscape should be retrieved when a button is pressed. All the previously parameterised lightscapes are available as options.

#### 4.4.3.10 “Operator prompting” function

For sending operator-prompted and free switching telegrams. If the option “Operator prompting” is selected, the communication objects “Switching object” and “Operator prompting object” appear.

##### Key function

- Options:
- No function
  - ON
  - OFF
  - CHANGE
  - Operator-prompted ON
  - Operator-prompted OFF
  - Operator prompting OFF

For setting the value which should be sent when the button is pressed. If the option “ON”, “OFF” or “CHANGE” is selected, a telegram with the value “1” or “0” is sent to the “Switching object”. If the option “Operator-prompted ON” or “Operator-prompted OFF” is selected, only a telegram with the value “3” (binary “11”) or “2” (binary “10”) is sent to the “Operator prompting object”. If the option “Operator prompting OFF” is selected, the operator prompting function is deactivated via the “Operator prompting object”.

#### 4.4.3.11 “Line operator prompting function”

For sending operator-prompted and free switching telegrams. This option is only available if the function “Operator prompting” has been selected for the display element.

##### Key function

- Options:
- No function
  - ON
  - OFF
  - CHANGE
  - Operator-prompted ON
  - Operator-prompted OFF
  - Operator prompting OFF

For setting the value which should be sent when the button is pressed. If the option “ON”, “OFF” or “CHANGE” is selected, a telegram with the value “1” or “0” is sent to the “Switching object”. If the option “Operator-prompted ON” or “Operator-prompted OFF” is selected, only a telegram with the value “3” (binary “11”) or “2” (binary “10”) is sent to the “Operator prompting object”. If the option “Operator prompting OFF” is selected, the operator prompting function is deactivated via the “Operator prompting object”.

#### 4.4.3.12 “Page call” function

To change from the current display page to another page.

##### Goto page

- Options:
- Return
  - [1] Page - Page
  - System Page
  - Timer
  - Lightscares

For setting the page which should be selected when the button is pressed. The predefined and all the previously parameterised pages are available as options. If the option “Return” is selected, the display changes to the page which was retrieved prior to the current page.

### Display format

- Options:
- 0 ... 100 %
  - 0 ... 255
  - 0 ... 360°

For setting the display format.

### Value to be sent

For setting the value which should be sent when the button is pressed.

## 4.5 Parameters for predefined functions

### 4.5.1 System page

By marking the “System Page” configuration element, the corresponding parameters appear in the top right-hand section of the window (see Fig. 32).

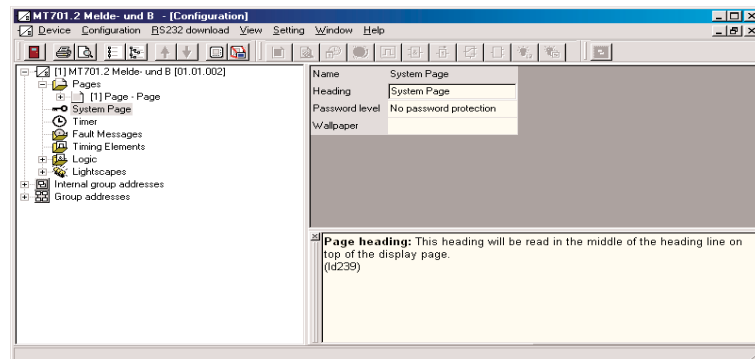


Fig. 32: Parameters for system page

### Name

The name “System Page” is preset and cannot be modified.

### Heading

For entering the page heading. This heading is displayed in the header line in the top centre of the display page.

### Password level

- Options:
- No password protection
  - Password level 1
  - Password level 2
  - Password level 3
  - Password level 4

For setting the password level.

### Wallpaper

It is set via this parameter whether a background image is used and which image is selected. When this parameter is retrieved, the dialog window “Image list” opens (see Fig. 29).

### 4.5.2 Timer page

By marking the “Timer” configuration element, the corresponding parameters appear in the top right-hand section of the window (see Fig. 33).

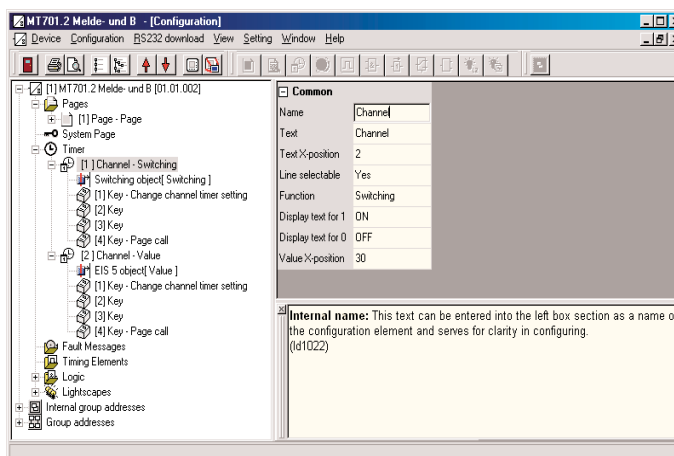


Fig. 33: Parameters for timer page

#### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

#### Text

For entering the text. This text is shown in the display in the parameterised position.

#### Text X position

For positioning the text on the display.

#### Line selectable

Options: – Yes  
– No

This parameter determines whether the timer channel can be modified by the user. If the option “No” is selected, the timer channel cannot be selected via the cursor keys and therefore no switching times can be entered.

#### Function

Options: – Switching  
– Value  
– Lightscape  
– Mode change

For setting the function of the timer channel. Different communication objects and parameters are displayed or hidden depending on the selected function.

#### 4.5.2.1 “Switching” function

For displaying a switching state (ON/OFF) as well as for sending switching telegrams. If the option “Switching” is selected, the communication object “Switching object” appears as well as the additional option “Line switching function” as an optional push button function.

#### Display text for 1

#### Display text for 0

For entering the text which should be displayed on receipt of a telegram.

**Value X position**

For setting the X position of the display value.

**4.5.2.2 “Value” function**

For displaying a value as well as for sending value telegrams. If the option “Value” is selected, the corresponding communication object “EIS ... object” appears for the selected EIS type as well as the additional selection “Line value display” as an optional push button function.

**Value display**

For setting the required EIS type. The communication object “EIS ... object” appears depending on the selected option. Various parameters are available depending on the selection.

**Format**

For setting the format in which the value should be displayed.

**Unit**

For entering text which should be displayed as a unit.

**Display format**

Options:

- 0 ... 100 %
- 0 ... 255
- 0 ... 360°
- Custom
- Bit-oriented

For setting the display format.

**Value X position**

For setting the X position of the display value.

**4.5.2.3 “Lightscape” function**

For retrieving a lightscape.

**Value X position**

For setting the X position of the display value.

**4.5.2.4 “Mode change” function**

For toggling between the operating modes of a temperature controller. If the option “Mode change” is selected, the communication objects “Comfort mode” and “Night shut-down” appear as well as the additional option “Line mode change” as an optional push button function.

**Text for comfort mode****Text for standby mode****Text for night-time shut-down**

For entering the text which is displayed when

- a “1” is received at the “Comfort mode” communication object (“Text for comfort mode”),
- a “1” is received at the “Night shut-down” communication object (“Text for night-time shut-down”) or
- a “0” is received at both communication objects (“Text for standby mode”).

**Value X position**

For setting the X position of the display value.

### 4.5.3 Timer buttons

By marking the configuration element “[...] Key”, the corresponding parameters appear in the top right-hand section of the window (see Fig. 34).

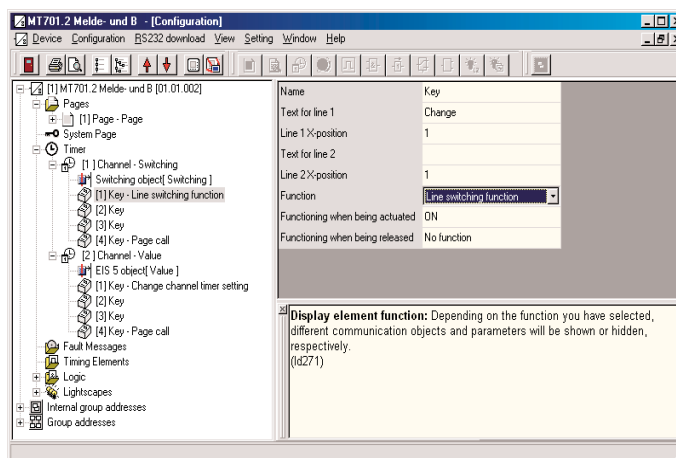


Fig. 34: Parameters for timer buttons

#### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

#### Text for line 1

#### Line 1 X position

#### Text for line 2

#### Line 2 X position

For entering and positioning a push button label. There are two lines available for each button.

#### Function

- Options:
- No function
  - Line switching function
  - Line value display
  - Line lightscape
  - Line mode change
  - Change channel timer setting
  - Page call

For setting the function of the display element. Different communication objects and parameters are displayed or hidden depending on the selected function.

#### 4.5.3.1 “Line switching function”

For sending switching telegrams. This option is only available if the “Switching” function has been selected for the timer channel.

#### Functioning when being actuated

#### Functioning when being released

- Options:
- No function
  - ON
  - OFF

For setting the push button function when the button is pressed or released.

#### 4.5.3.2 “Line value display” function

For sending value telegrams. This option is only available if the “Value” function has been selected for the timer channel.

##### **Value function**

Options:    – Send  
              – Edit

This parameter defines whether a parameterised value should be used or a value which can be set on the display and control tableau. If the option “Send” is selected, the parameter “Value to be sent” appears. If the option “Edit” is selected, the parameters “Minimum value” and “Maximum value” appear.

##### **Value to be sent**

For setting the value which should be sent when the button is pressed.

##### **Minimum value**

##### **Maximum value**

For setting the limits within which a value can be set on the display and control tableau and sent.

#### 4.5.3.3 “Line lightscape” function

For retrieving a parameterised lightscape. This option is only available if the “Lightscape” function has been selected for the timer channel.

##### **Lightscape**

It is defined via this parameter which lightscape should be retrieved when a button is pressed. All the previously parameterised lightscapes are available as options.

#### 4.5.3.4 “Line mode change” function

For sending operating mode telegrams to a temperature controller. This option is only available if the function “Mode change” has been selected for the timer channel.

Functioning when being actuated

Options:    – No function  
              – Comfort  
              – Standby  
              – Night-time shut-down

For setting the push button function when the button is pressed.

The following are sent:

- no telegram (“No function”),
- a “1” to the “Comfort mode” communication object (“Comfort”),
- a “1” to the “Night shut-down” communication object (“Night-time shut-down”) or
- a “0” is received at both communication objects (“Standby”).



**4.5.3.5 “Change channel timer setting” function** For setting the switching times on the display and control tableau.

**4.5.3.6 “Page call” function** For changing from the current display page to another.

### Goto page

Options: – Return  
– [1] Page – Page

For setting the page which should be selected when the button is pressed. All the previously parameterised pages are available as options. If the option “Return” is selected, the display changes to the page which was retrieved prior to the current page.

### 4.5.4 Fault messages

By marking the configuration element “Fault Messages” and pressing the button “Add fault message” in the taskbar, up to 50 fault messages can be created with the associated communication object “Fault message object”.

By marking the configuration element “[...] Fault message”, the corresponding parameters appear in the top right-hand section of the window (see Fig. 35).

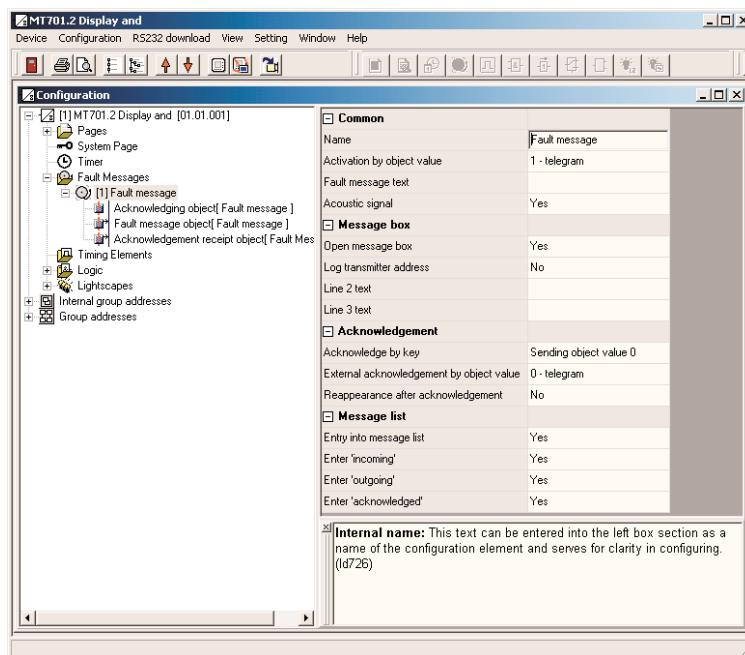


Fig. 35: Fault message parameters

### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

### Activation by object value

Options: – 0 - telegram  
– 1 - telegram

It is set via this parameter which value triggers a fault message. If the option “1 - telegram” is set, a fault message is triggered on receipt of a “1” and an outgoing alarm is registered on receipt of a “0”. If the option “0 - telegram” is set, a fault message is triggered on receipt of a “0” and an outgoing alarm is registered on receipt of a “1”.

#### **Fault message text**

For entering the text which should be displayed in the message window or in the message list in the event of a fault message.

#### **Acoustic signal**

Options:    – Yes  
              – No

This parameter determines whether an acoustic signal is started when a fault message occurs.

#### **Open message box**

Options:    – Yes  
              – No

It is set via this parameter whether a message window is opened when a fault message occurs.

#### **Log transmitter address**

Options:    – Yes  
              – No

This parameter determines whether the physical address of the transmitter should be indicated on the display when a fault message occurs.

#### **Line 2 text**

#### **Line 3 text**

For entering the text that should be displayed in the event of a fault message.

#### **Acknowledge by key**

Options:    – only has an internal effect  
              – Sending object value 0  
              – Sending object value 1  
              – Disabled

It is set via this parameter whether an acknowledgement is used and whether this should be sent via the EIB. If the option “Sending object value ...” is selected, the communication object “Acknowledging object” appears. If the option “Disabled” is selected, the acknowledgement of the fault message is not processed any further or stored.

#### **External acknowledgement by object value**

Optionen:   – disabled  
              – 1-telegram  
              – 0-telegram

It is set via this parameter whether an acknowledgement for a fault message can be received via EIB. If the option “1-telegram” or “0-telegram” is selected, the communication object “Acknowledgement receipt object” appears.

#### Reappearance after acknowledgement

- Options:    – Yes  
              – No

It is set via this parameter whether an acknowledged fault message is displayed again after a reappearance period, if the fault still exists. If the option “Yes” is selected, the parameter “Reappearance after” appears.

#### Reappearance after

- Options:    – 1/5/10/30 min  
              – 1/2 h

For setting the reappearance time.

#### Entry into message list

- Options:    – Yes  
              – No

This parameter determines whether a fault message should be entered in the message list. If the option “Yes” is selected, the parameters “Enter ‘incoming’”, “Enter ‘outgoing’” and “Enter ‘acknowledged’” appear.

#### Enter ‘incoming’

#### Enter ‘outgoing’

#### Enter ‘acknowledged’

- Options:    – Yes  
              – No

This parameter defines which information about a fault message should be entered in the message list.

### 4.5.5 Timing elements

By marking the configuration element “Timing Elements” and pressing the button “Add timing element” in the taskbar, up to 40 timing elements can be created with the associated communication objects “Input object” and “Output object”.

By marking the configuration element “[...] Filtering/time”, the corresponding parameters appear in the top right-hand section of the window (see Fig. 36).

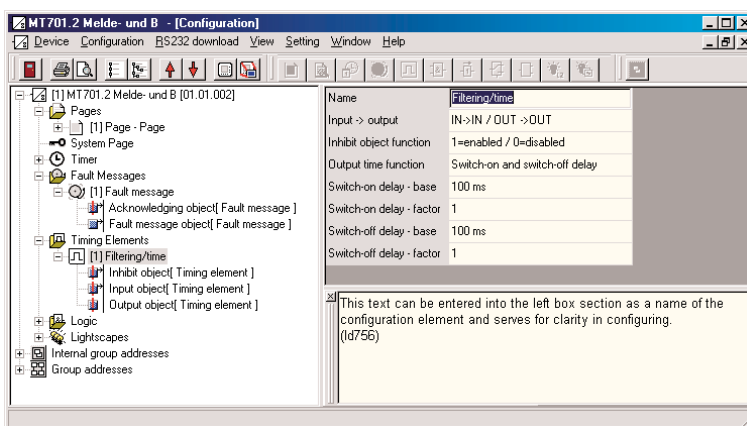


Fig. 36: Timing element parameters

**Name**

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

**Input -> output**

Options:

- ON -> ---/OFF -> ---
- ON -> ON/OFF -> ---
- ON -> ---/OFF -> OFF
- ON -> ON/OFF -> OFF
- ON -> OFF/OFF -> ---
- ON -> ---/OFF -> ON
- ON -> OFF/OFF -> ON
- ON -> CHANGE/OFF -> ---
- ON -> ---/OFF -> CHANGE
- ON -> CHANGE/OFF -> CHANGE

For setting the reaction to an input signal.

Example "ON -> ON/OFF -> ---":

If a "1" (ON) is received as an input signal, a "1" (ON) is sent as an output signal. If a "0" (OFF) is received as an input signal, nothing is sent as an output signal.

**Inhibit object function**

Options:

- No function
- 1 = enabled/0 = disabled
- 0 = enabled/1 = enabled

For blocking a signal. If the option "... = enabled/... = disabled" is selected, the communication object "Inhibit object" appears.

**Output time function**

Options:

- No delay
- Switch-on delay
- Switch-off delay
- Switch-on and switch-off delay

For setting an ON or OFF delay. If the option "Switch-... delay" is selected, the parameters "Switch-... delay base" and "Switch-... delay factor" appear.

**Switch-on delay base****Switch-on delay factor****Switch-off delay base****Switch-off delay factor**

For setting the ON or OFF delay (time base x time factor).

#### 4.5.6 Logic – Logic Gatings

By marking the configuration element “Logic” and pressing the button “Add logic gate” in the taskbar, up to 80 logic functions can be created with the associated communication objects “Input object” and “Output object”.

By marking the configuration element “[...] Logic gating”, the corresponding parameters appear in the top right-hand section of the window (see Fig. 37). By pressing the button “Add logic gate input” in the taskbar, up to 8 inputs can be created per logic gate.

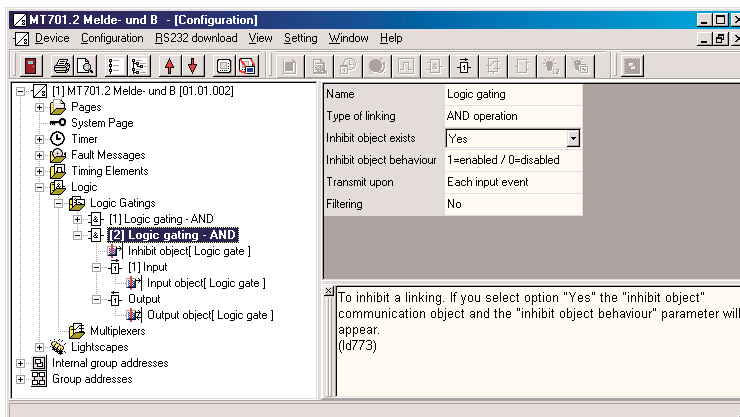


Fig. 37: Parameters for logic gatings

#### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

#### Type of linking

Options: – AND operation  
– OR operation  
– Exclusive OR operation

For setting the type of logic operation.

#### Inhibit object exists

Options: – Yes  
– No

For disabling a logic operation. If the option “Yes” is selected, the communication object “Inhibit object” appears as well as the parameter “Inhibit object behaviour”.

#### Inhibit object behaviour

Options: – 1 = enabled/0 = disabled  
– 0 = enabled/1 = disabled

For setting the behaviour of the inhibit object.

#### Transmit upon

Options: – Each input event  
– Output change

This parameter sets whether the logic result is always sent if a telegram is received at one of the inputs or only if the output value changes.

### Filtering

- Options:
- No
  - Send '1' telegrams only
  - Send '0' telegrams only

It is set via this parameter whether the output is sent in the event of a change at the output or whether the output is only sent after a "1" or "0".

### Name

By marking the configuration element "[...] Input" or "[...] Output", the parameters "Name" and "... behaviour" appear in the top right-hand section of the window.

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

### Input behaviour

### Output behaviour

By marking the configuration element "[...] Input" or "[...] Output", the parameters "Name" and "... behaviour" appear in the top right-hand section of the window.

- Options:
- Normal
  - Inverted

This parameter sets whether the input value or the output value is inverted.

## 4.5.7 Logic – Multiplexers

By marking the configuration element "Multiplexers" and pressing the button "Add multiplexer" in the taskbar, up to 12 multiplexers can be created with the associated communication objects "Control object 1", "Input object 1", "Output object 1" and "Output object 2".

By marking the configuration element "[...] Multiplexers", the corresponding parameters appear in the top right-hand section of the window (see Fig. 38). By pressing the button "Add multiplexer channel" in the task bar, up to 3 channels can be created per multiplexer.

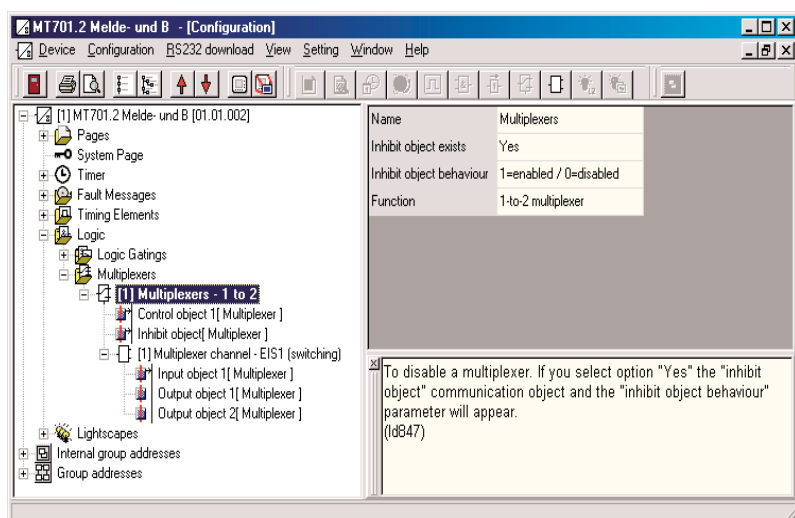


Fig. 38: Parameters for multiplexers

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**Name**

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

**Inhibit object exists**

Options: – Yes  
– No

For disabling a multiplexer. If the option “Yes” is selected, the communication object “Inhibit object” appears as well as the parameter “Inhibit object behaviour”.

**Inhibit object behaviour**

Options: – 1 = enabled/0 = disabled  
– 0 = enabled/1 = disabled

For setting the behaviour of the inhibit object.

**Function**

Options: – 1 to 2 multiplexer  
– 1 to 4 multiplexer

For setting the function of the multiplexer. If the option “1 to 4 multiplexer” is selected, the communication objects “Control object 2”, “Output object 3” and “Output object 4” appear.

**Inputs/outputs object type**

By marking the configuration element “[...] Multiplexer channel”, the parameter “Inputs/outputs object type” appear in the top right-hand section of the window.

Options: – EIS 1 (switching)  
– EIS 2 (dimming)  
– EIS 5 (value)  
– EIS 6 (rel. value)  
– EIS 9 (IEEE float)  
– EIS 10 (16-bit counter)  
– EIS 11 (32-bit counter)  
– EIS 13 (ASCII char)  
– EIS 14 (8-bit counter)

For setting the information type of the multiplexer channel.

### 4.5.8 Lightscapes

Several functions can be retrieved simultaneously with a push button action via a lightscape e.g. the ceiling lighting can be dimmed to a pleasant value and the wall lighting can be switched off for the “Eating” lightscape. Completely different switching states and brightness values can then be assigned to exactly the same loads for another lightscape.

Up to 24 lightscapes can be managed in the MT701.2. When a lightscape is retrieved, telegrams are sent on the EIB via the lightscape objects with the switching values that are set for the lightscape. Each lightscape that is parameterised in the MT701.2 can also be retrieved via an extension object from a telegram that has been received via the EIB.

By marking the configuration element “Lightscapes”, the corresponding parameters appear in the top right-hand section of the window (see Fig. 39).

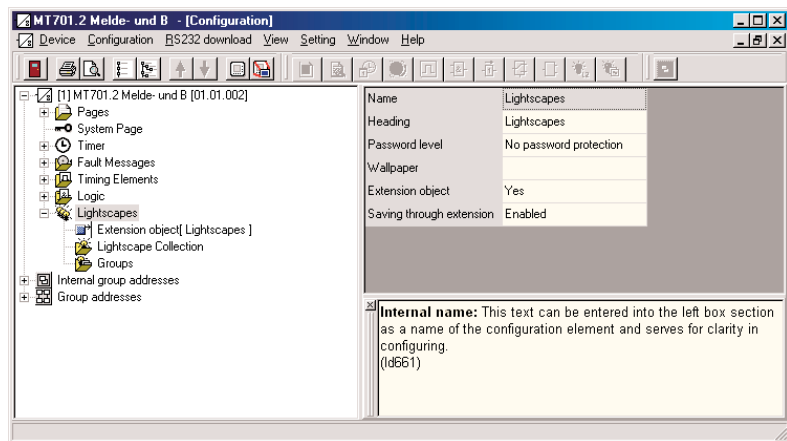


Fig. 39: Lightscape parameters

#### Name

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

#### Heading

For entering the page heading. This heading is displayed in the header line in the top centre of the display page.

#### Password level

Options:

- No password protection
- Password level 1
- Password level 2
- Password level 3
- Password level 4

For setting the password level.

#### Wallpaper

It is set via this parameter whether a background image is used and which image is selected. When this parameter is retrieved, the dialog window “Image list” opens (see Fig. 29).



**Extension object**

Options: – Yes  
– No

This parameter defines whether the lightscapes can be also retrieved via an extension object (e.g. retrieval of the lightscapes via the EIB). If the option “Yes” is selected, the 8 bit communication object “Extension object” appears as well as the parameter “Saving through extension”.

For retrieving the lightscapes via the 8 bit extension object, a telegram is sent with the number of the required lightscape minus 1 (e.g. Lightscape no. 4 = telegram value “3” (4-1)). A table with all the possible combinations of the extension object is printed in the appendix.

**Saving through extension**

Options: – Enabled  
– Disabled

This parameter defines whether the lightscapes can also be saved via an extension object (e.g. saving via the EIB).

To save the lightscape via the 8 bit extension object, a telegram must be sent with the number of the required lightscape plus 127. To save lightscape no. 4, the value “131” (4 + 127) must be sent. A table with all the possible combinations of the extension object is printed in the appendix.

**Name**

By marking the configuration element “Lightscape Collection” and pressing the button “Add lightscape” in the taskbar, up to 24 lightscapes can be created. By marking the configuration element “[...] Lightscape”, the parameter “Name” appears in the top right-hand section of the window.

For entering an internal name. This text is entered in the left-hand section of the window as a supplement to the configuration element and helps to provide clarity during the configuration.

**Name****Lightscape group object type**

By marking the configuration element “Groups” and pressing the button “Add group” in the taskbar, up to 32 lightscape groups can be created with the associated communication object “Lightscape object”. By marking the configuration element “[...] Lightscape group”, the parameters “Name” and “Lightscape group object type” appear in the top right-hand section of the window.

The parameter is used to enter a name (this text is entered both internally in the left-hand section of the window as a name for the configuration element and on the lightscape page) and to set the object type of the lightscape group.

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#### Programming example for lightscapes

In the following example, the lightscapes “Reading” and “TV” are created in a lounge and the lightscapes “Reception” and “Dinner” are created in a dining room.

The following group addresses are used to retrieve the lightscapes:

- Ceiling light, dining room On/Off
- Wall light 1, dining room Dimming
- Wall light 2, dining room Dimming
- Ceiling light 1, lounge Dimming
- Ceiling light 2, lounge Dimming
- Standard lamp, lounge On/Off

First of all, the necessary group addresses are linked to the lightscape communication objects. To do so, the configuration element “Groups” is marked and the button “Add group” is pressed in the taskbar.

The communication object “Lightscape object” that appears is linked to the group address “Ceiling light, dining room On/Off” (see chapter 4.6 for procedure). By marking the configuration element “[...] Lightscape group”, the associated parameters appear. The text “Ceiling light, dining room” is entered in the “Name” parameter and the option “EIS 1 (switching)” is selected in the parameter “Lightscape group object type”.

These steps are carried out in the same way for the five other group addresses.

The lightscapes are then created. The configuration element “Lightscape Collection” is marked and the button “Add lightscape” in the taskbar is pressed. The “Name” parameter appears by marking the configuration element “[...] Lightscape”. The text “Lounge, Reading” is entered here.

These steps are carried out in the same way for the three other lightscapes.

The lightscapes are thus created in an ETS project. To set the lightscapes, the programming must first be downloaded into the display and control tableau MT701.2. The following diagram is displayed when the lightscape page is retrieved (see Fig. 40).

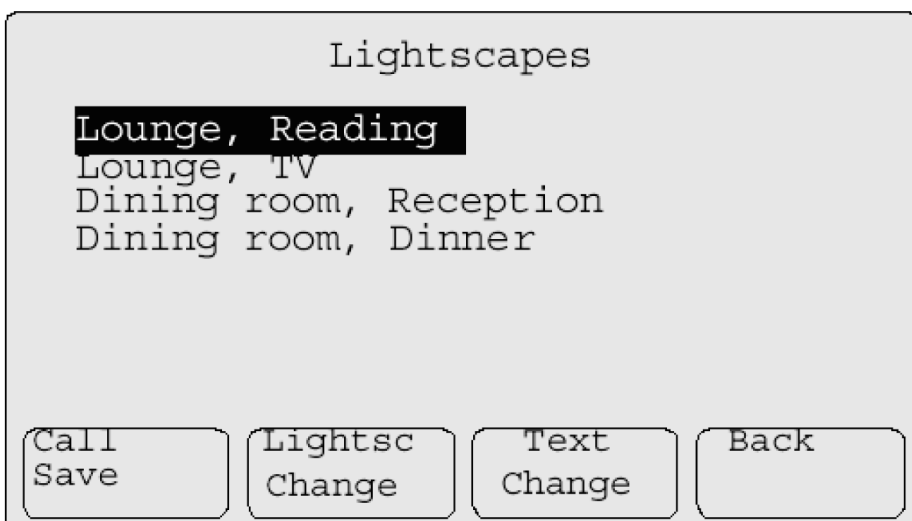


Fig. 40: Lightscape page

## Configuration and programming

### Display and control tableau /2

To set the lightscape, the cursor is first placed on the lightscape “Lounge, Reading” and button 2 (“Lightsc. Change”) is pressed. The following diagram appears (see Fig. 41).

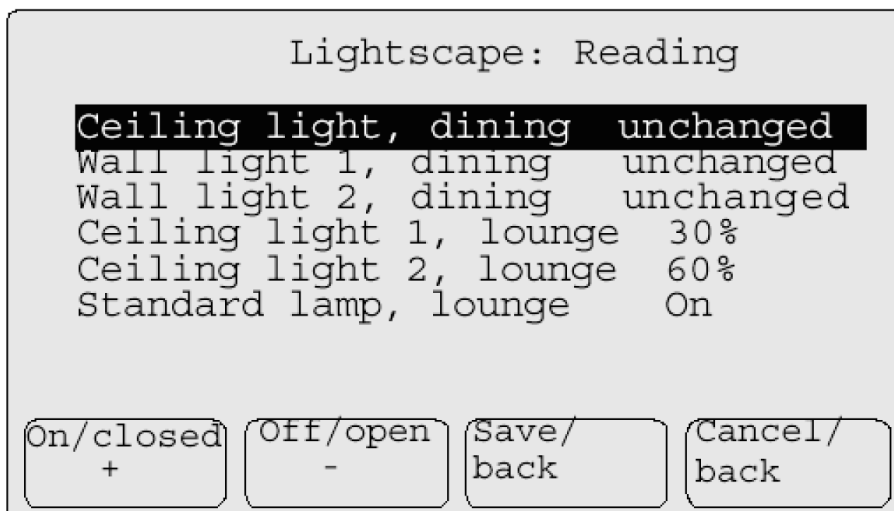


Fig. 41: Change lightscape

The required settings for the “Lounge, Reading” lightscape can be carried out via buttons 1 (“On/closed”) and 2 (“Off/open”).

These steps are carried out in the same way for the three other lightscapes.

#### **Adding an extension object to the example**

The lightscapes “Lounge, Reading” and “Lounge, TV” should likewise be retrieved from a push button in the lounge. The lightscape “Lounge, Reading” should be retrieved by pressing one of the rockers briefly while the lightscape “Lounge, TV” should be retrieved with a brief operation of the other rocker. The current settings should be stored as new lightscape settings for the corresponding lightscape with a long operation of the same rockers.

The option “Yes” must be selected for the parameter “Extension object”. The option “Enabled” is selected for the parameter “Saving through extension”. The communication object that appears is linked with an “Extension object” group address. The same group address is linked with the communication objects of the push button and indeed with the communication objects:

- Rocker 1, short
- Rocker 1, long
- Rocker 2, short
- Rocker 2, long

The value that should be sent via the communication object of the push button when the rockers are pressed now needs to be set.

The communication object “Rocker 1, short” should retrieve lightscape no. 1 after a short push button action. It can be taken from the lightscape extension object table (see appendix) that the 8 bit value “0” must be sent. The value of the other communication objects is determined in the same way:

- Rocker 1, short (retrieve lightscape no. 1): “0”
- Rocker 1, long (retrieve lightscape no. 1): “128”
- Rocker 2, short (retrieve lightscape no. 2): “1”
- Rocker 2, long (retrieve lightscape no. 2): “129”

### 4.6 Group addresses and communication objects

#### 4.6.1 Group addresses

To configure the MT701.2, the group addresses that have been created in the ETS project are transferred to the plug-in module. The group addresses that are available are visible in the left-hand section of the window (see Fig. 42). New group addresses can also be created in the plug-in (see Fig. 43).

Internal group addresses can be created to link information within the MT701.2 or to display internal logic results. With the help of internal group addresses, the result of a logic operation can for example be used as an input of another logic operation or shown directly on the LC display. Internal group addresses can be created in the plug-in and are displayed in the left-hand section of the window (see Fig. 42).

All group addresses (also internal addresses) are linked with the communication objects using 'drag&drop' or via the communication object parameter "Group addresses". The communication objects are represented as blue boxes and appear in the left-hand section of the window under the associated configuration element (see Fig. 42). All the communication objects which are not yet linked to a communication object are denoted by a red line.

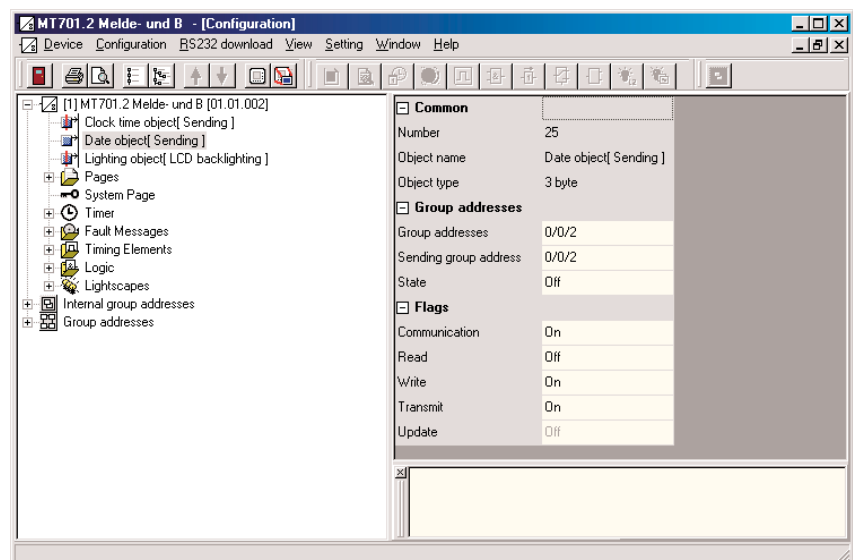


Fig. 42: Group addresses and communication objects

#### 4.6.2 Communication objects

By marking a communication object in the left-hand section of the window, the associated parameters appear in the top right-hand section (see Fig. 42).

##### Number

##### Object name

##### Object type

The parameters “Number”, “Object name” and “Object type” are displayed. They cannot be edited.

##### Group addresses

For assigning group addresses to the marked communication object. The “Group addresses” dialog window is opened (see Fig. 43) via the button “...”. All the group addresses (including the internal addresses) that have already been created are displayed in the list on the left-hand side. They can be transferred to the list on the right-hand side and linked to the communication object.

New group addresses can be created via the entry “Group address” and the “Find/Add” button. The newly created group addresses are adopted automatically into the ETS project when the plug-in is closed.

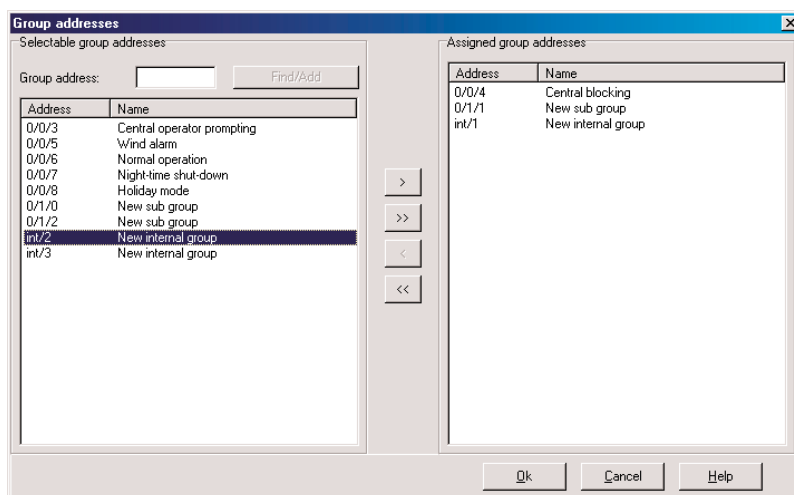


Fig. 43: “Group addresses” dialog window

##### Sending group address

For setting the transmitting group address. All the group addresses that are linked to the communication object are available as a selection.

##### State

Options: – Off  
– On

It is defined via this parameter whether the value of the linked group addresses is queried via the EIB when the display and control tableau is restarted (e.g. during commissioning or after a power failure).

##### Communication

##### Read

##### Write

##### Transmit

Options: – Off  
– On

For setting the flags.

5 Appendix

5.1 Key table for the lightscape extension object

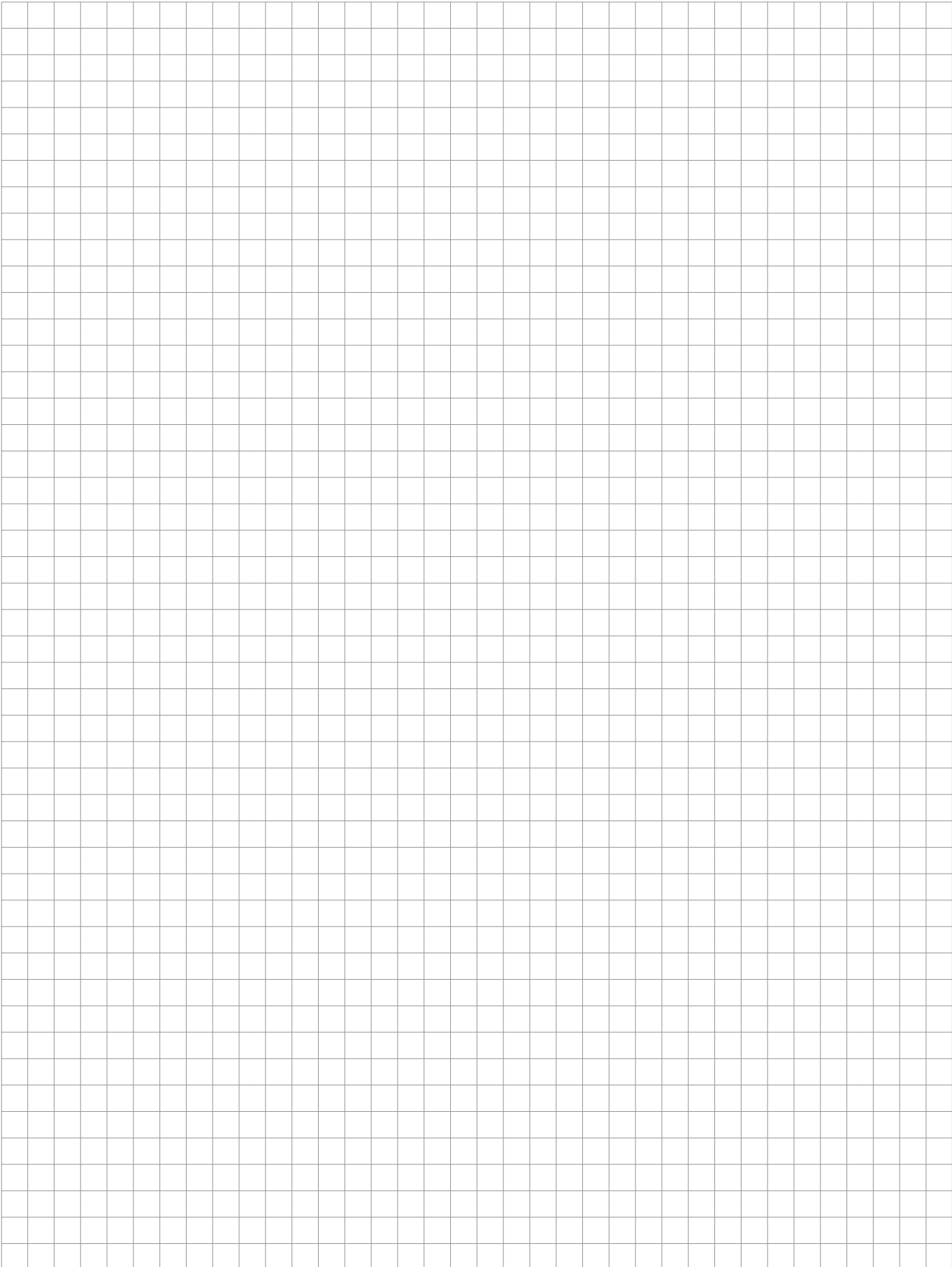
Bit no.		7	6	5	4	3	2	1	0		
8 bit value	Hexa-decimal	Retrieve/save	Not defined	Lightscape number (coded)						Lightscape number	Retrieve/save
0	00	0	0	0	0	0	0	0	0	1	Retrieve
1	01	0	0	0	0	0	0	0	1	2	Retrieve
2	02	0	0	0	0	0	0	1	0	3	Retrieve
3	03	0	0	0	0	0	0	1	1	4	Retrieve
4	04	0	0	0	0	0	1	0	0	5	Retrieve
5	05	0	0	0	0	0	1	0	1	6	Retrieve
6	06	0	0	0	0	0	1	1	0	7	Retrieve
7	07	0	0	0	0	0	1	1	1	8	Retrieve
8	08	0	0	0	0	1	0	0	0	9	Retrieve
9	09	0	0	0	0	1	0	0	1	10	Retrieve
10	0A	0	0	0	0	1	0	1	0	11	Retrieve
11	0B	0	0	0	0	1	0	1	1	12	Retrieve
12	0C	0	0	0	0	1	1	0	0	13	Retrieve
13	0D	0	0	0	0	1	1	0	1	14	Retrieve
14	0E	0	0	0	0	1	1	1	0	15	Retrieve
15	0F	0	0	0	0	1	1	1	1	16	Retrieve
16	10	0	0	0	1	0	0	0	0	17	Retrieve
17	11	0	0	0	1	0	0	0	1	18	Retrieve
18	12	0	0	0	1	0	0	1	0	19	Retrieve
19	13	0	0	0	1	0	0	1	1	20	Retrieve
20	14	0	0	0	1	0	1	0	0	21	Retrieve
21	15	0	0	0	1	0	1	0	1	22	Retrieve
22	16	0	0	0	1	0	1	1	0	23	Retrieve
23	17	0	0	0	1	0	1	1	1	24	Retrieve
128	80	1	0	0	0	0	0	0	0	1	Save
129	81	1	0	0	0	0	0	0	1	2	Save
130	82	1	0	0	0	0	0	1	0	3	Save
131	83	1	0	0	0	0	0	1	1	4	Save
132	84	1	0	0	0	0	1	0	0	5	Save
133	85	1	0	0	0	0	1	0	1	6	Save
134	86	1	0	0	0	0	1	1	0	7	Save
135	87	1	0	0	0	0	1	1	1	8	Save
136	88	1	0	0	0	1	0	0	0	9	Save
137	89	1	0	0	0	1	0	0	1	10	Save
138	8A	1	0	0	0	1	0	1	0	11	Save
139	8B	1	0	0	0	1	0	1	1	12	Save
140	8C	1	0	0	0	1	1	0	0	13	Save
141	8D	1	0	0	0	1	1	0	1	14	Save
142	8E	1	0	0	0	1	1	1	0	15	Save
143	8F	1	0	0	0	1	1	1	1	16	Save
144	90	1	0	0	1	0	0	0	0	17	Save
145	91	1	0	0	1	0	0	0	1	18	Save
146	92	1	0	0	1	0	0	1	0	19	Save
147	93	1	0	0	1	0	0	1	1	20	Save
148	94	1	0	0	1	0	1	0	0	21	Save
149	95	1	0	0	1	0	1	0	1	22	Save
150	96	1	0	0	1	0	1	1	0	23	Save
151	97	1	0	0	1	0	1	1	1	24	Save
Other	Other	X	X	X	X	X	X	X	X	Not defined	

## 5.2 Key table for the communication object "Operation mode Konnex"

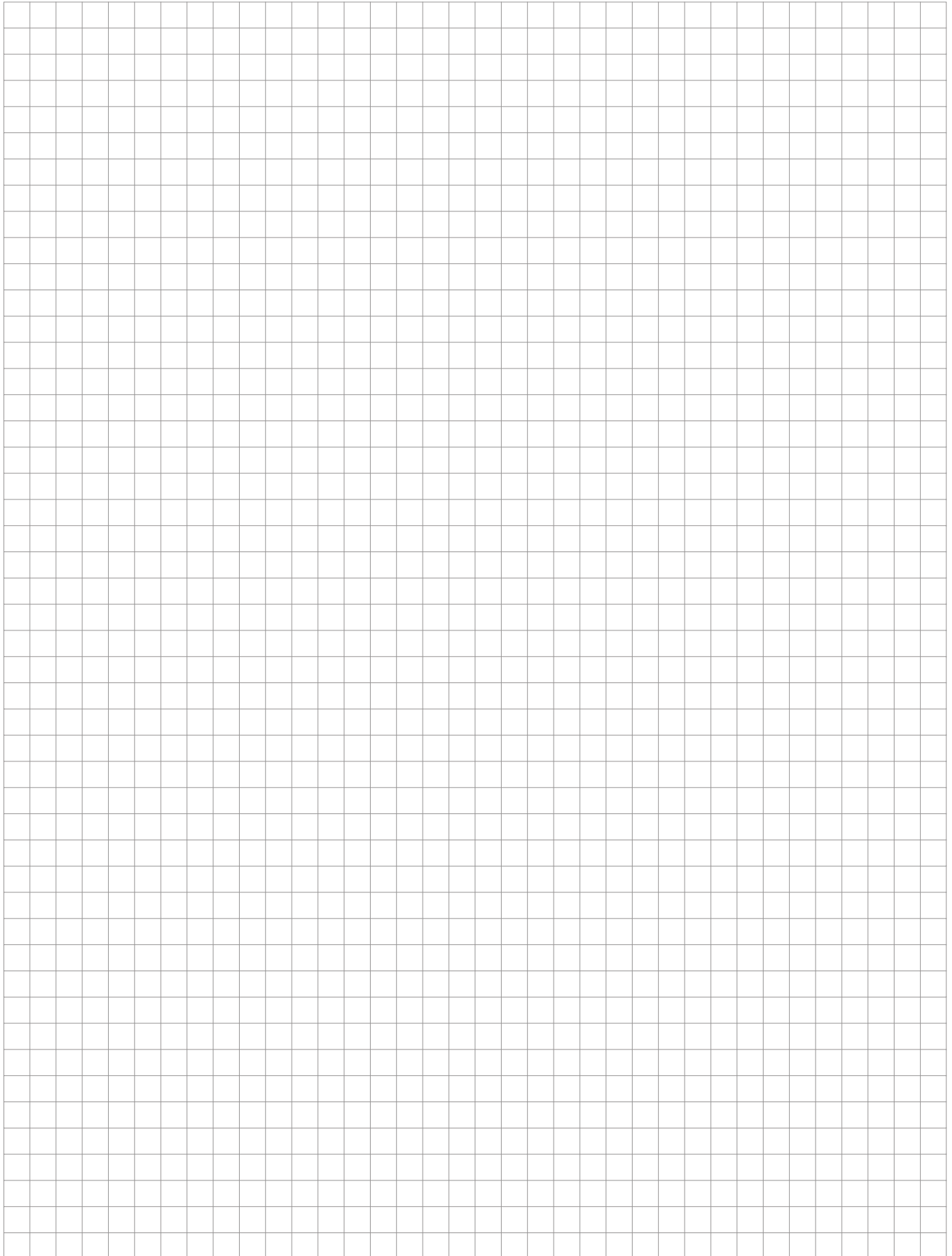
Bit no.		7	6	5	4	3	2	1	0		
8 bit value	Hexa-decimal									Operation mode	
		0	00	0	0	0	0	0	0		0
1	01	0	0	0	0	0	0	0	0	1	Comfort mode
2	02	0	0	0	0	0	0	0	1	0	Standby mode
3	03	0	0	0	0	0	0	1	1		Night-time shut-down
4	04	0	0	0	0	0	1	0	0		Frost/heat protection
Other	Other	X	X	X	X	X	X	X	X	X	Not defined

## 5.3 Ordering information

Description	Short description	Order no.	bbn 40 16779 EAN	Price group	Unit price €	Unit weight in kg	Pack unit
Display and control tableau, white	<b>MT701.2, WS</b>	GH Q605 0059 R0005	<b>57581 2</b>	26		0.86	1
Display and control tableau, silver	<b>MT701.2, SR</b>	GH Q605 0059 R0006	<b>57582 9</b>	26		0.86	1
Cover frame, white	<b>T-RAHM, WS</b>	GH Q605 0059 R0011	<b>49585 1</b>	26		0.05	1
Cover frame, silver	<b>T-RAHM, SR</b>	GH Q605 0059 R0012	<b>49586 8</b>	26		0.05	1
Flush-type box	<b>UP-KAST</b>	GH Q605 0059 R0014	<b>51396 8</b>	26		0.15	1









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