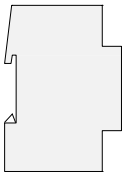
InfoTerminal Touch



Sensor

Product name:	InfoTerminal Touch
Design:	UP (flush-mounted type)
Article. no.	2071 xx
ETS search path:	Display / Tableau / InfoTerminal Touch

Function

The display and control panel is used for displaying switching states in a bus installation and for controlling system functions. For displaying, the panel is equipped with a touch-sensitive colour TFT screen with a resolution of 320 x 340 pixels.

For control and display purposes up to 50 freely programmable pages with up to 16 display elements each can be used. The total number of control elements is 400 max.

Each display element can have up to four programmable function keys assigned to it. The scope of functions that can be used include not only basic functions such as switching, dimming, blind/shutter, but also complex functions such as value transmitter, date, limit values etc.

The display surface can be designed with BMP and JPEG colour pictures as background images and with symbols for indicating systems states.

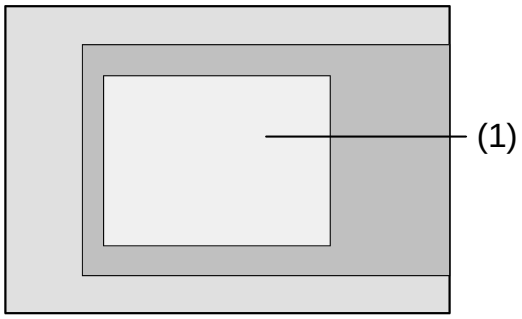
A synchronizable real-time clock can be used for timer functions and for event logging.

Special pages are provided for the timer functions, light-scenes, fault messages, message lists and for the setting of system functions.

The access to different functions is protected by means of four password levels. Each display page can be assigned to a password level.

The display panel can be commissioned via the bus and also via an integrated USB interface.

Layout:



Dimensions:

Width: 231 mm
Height: 159 mm
Depth: 48 mm

Controls:

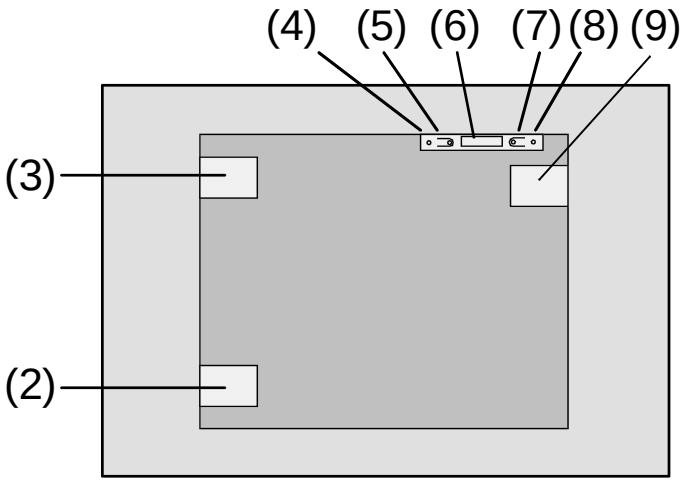
(1): Touch-sensitive screen (touch screen)

Technical data

Type of protection	IP 20	
Mark of approval:	KNX / EIB	
Ambient temperature:	-5 °C ... +45 °C	
Storage / transport temperature:	- 25 °C ... +70 °C (Storage at temperatures above + 45 °C reduces the lifetime)	
Max. housing temperature	T_c = 75 °C	
Relative humidity:	max. 93% r. h., no condensation	
Mounting position:	any	
Minimum distances:	none	
Type of fastening:	in flush-mounting box	
Instabus KNX/EIB supply		
Voltage:	21 … 32 V DC	
Power consumption:	typically 150 mW	
Connection:	KNX connecting terminal (type 5.1)	
External power supply		
Voltage:	230 V AC +- 10 %	
Current rating:	max. 250 mA	
Connection:	Screw terminals	0.5mm^2 to 4mm^2 single-wire
	Screw terminals	0.34mm^2 to 4mm^2 stranded wire (without ferrule)
	Screw terminals	0.14mm^2 to 2.5mm^2 stranded wire (with ferrule)
Response to bus voltage failure		
Bus voltage only:	no communication with KNX/EIB	
Mains voltage only:	no communication with KNX/EIB	
Bus and mains / operating voltage:	no communication with KNX/EIB	
Response on return of voltage		
Bus voltage only:	no communication with KNX/EIB	
Mains voltage only:	no communication with KNX/EIB	
Bus and mains / operating voltage:	communication with KNX/EIB in acc. with initialization parameter	

Membrane keyboard connection	
Number:	1
Connection:	8-pole connector

Connection and terminals:



Connection:

(2) mains voltage connection
(3) bus connection
(4) programming LED
(5) programming button
(6) connection for future extensions, e.g. membrane keyboard
(7) reset button
(8) reset LED
(9) USB connection

Software description

ETS search path:

Display / Tableau / InfoTerminal Touch

BAU used:	TPUART + µC	
KNX/EIB type class:	3g - dev. with cert. phys. layer + stack + µC	
Configuration:	S-mode with PlugIn	
PEI type:	0A $_{Hex}$	10 $_{Dez}$
PEI connection:	no connector	

Applications:

No.	Short description:	Name:	Version:
1	Panel with touch-screen colour display	Gira: InfoTerminal Touch 501101	0.1

Application:	Minitableau ct 5011		
Executable from mask version:	7.1		
Number of addresses (max):	3000	**dynamic table management:**	Yes No
Number of assignments (max):	3000	**Maximum table length:**	
Communication objects	max. 2000 (dynamically generated)		

Object no. [1]	Name [1]	DPT-ID	Format:	Flags
	Acoustic warning [tone signal]	1.001	1 bit	C, W
	Lighting object [LCD lighting]	1.001	1 bit	C, W
	Date / Time [request]	1.001	1 bit	C, T
	Date object [transmit]	11.001	3 bytes	C, W, T
	MasterDate [external adjustment]	11.001	3 bytes	C, W, T
	MasterTime of day [external adjustment]	10.001	3 bytes	C, W, T
	Time-of-day object [transmit]	10.001	3 byte	C, W, T
	Switching object [Switching]	1.001	1 bit	C, W, T
	Switching object [Dimming]	1.001	1 bit	C, W, T
	Dimming object [Dimming]	3.007	4 bit	C, W, T
	Value object [Dimming]	5.001 … 5.004	1 bytes	C, W, T
	Long-time object [Blind/shutter]	1.008	1 bit	C, W, T
	Short-time object [Jalousie]	1.007	1 bit	C, W, T
	2-byte object (DPT 9.001 … 9.021) [Value]	9.001 … 9.021	2 bytes	C, W, T
	1-byte object (DPT 5.001 … 5.004) [Value]	5.001 … 5.004	1 byte	C, W, T
	4-byte object (DPT 14.000 … 14.079) [Value]	14.000 … 14.079	4 bytes	C, W, T
	2-byte object (DPT 7.001) [Value]	7.001	2 bytes	C, W, T
	2-byte object (DPT 8.001) [Value]	8.001	2 bytes	C, W, T
	4-byte object (DPT 12.001) [Value]	12.001	4 bytes	C, W, T
	4-byte object (DPT 13.001) [Value]	13.001	4 bytes	C, W, T
	1-byte object (DPT 5.010) [Value]	5.010	1 byte	C, W, T
	1-byte object (DPT 6.010) [Value]	6.010	1 byte	C, W, T
	Object upper limit value [Value]	1.001	1 bit	C, T
	Object lower limit value [Value]	1.001	1 bit	C, T
	Extension object [Light-scenes]	18.001	1 byte	C, W
	Light-scenes object [Light-scene group]	1.001 5.001 ... 5.004	1 bit 1 byte	C, W, T
	Date object [Date]	11.001	3 bytes	C, W
	Time object [Time of day]	10.001	3 bytes	C, W
	ASCII text object [ASCII text]	16.001, 16.002	14 bytes	C, W
	Access object [access control]	15.000	4 bytes	C, W
	Switching object [forced control]	1.001	1 bit	C, W, T
	Forced-control object [forced control]	2.001, 2.002	2 bits	C, W, T

[1] The communication objects are generated dynamically by the ETS plug-in as needed. The linking of communication objects with group addresses is also effected directly in the plug-in. Collective objects are displayed in the ETS with all group addresses assigned.

Object no. [1]	Name [1]	DPT-ID	Format:	Flags
	Konnex mode [operating mode change-over]	20.102	1 byte	C, W, T
	Frost/heat protection [operating mode change-over]	1.001	1 bit	C, W, T
	Comfort mode [operating mode change-over]	1.001	1 bit	C, W, T
	Night-time reduction [operating mode change-over]	1.001	1 bit	C, W, T
	Standby [operating mode change-over]	1.001	1 bit	C, W, T
	Switching object [event indication]	1.001	1 bit	C, W, T
		1.001	1 bit	C, T
	Fault message object [fault message]	1.001	1 bit	C, W
	Acknowledge-receipt object [fault message]	1.001	1 bit	C, W
	ASCII text object [fault message]	16.001, 16.002	14 bytes	C, W
	Output object [timer]	1.001	1 bit	C, T
	Input object [timer]	1.001	1 bit	C, W
	Disabling object [timer]	1.001	1 bit	C, W
	Disabling object [logic gate]	1.001	1 bit	C, W
	Input object [logic gate]	1.001	1 bit	C, W
	Output object [logic gate]	1.001	1 bit	C, R, W, T
	Disabling object [multiplexer]	1.001	1 bit	C, W
	Control object 1 [multiplexer]	1.001	1 bit	C, W
	Control object 2 [multiplexer]	1.001	1 bit	C, W
	Input object [multiplexer]	1.001 … 1.008 3.007 5.001 … 5.004 5.010 6.010 7.001 8.001 9.001 … 9.021 12.001 13.001 14.000 … 14.079	1 bit 4 bits 1 byte 2 bytes 4 bytes	C, W
	Output object 1 [multiplexer]	1.001 … 1.008 3.007 5.001 … 5.004 5.010 6.010 7.001 8.001 9.001 … 9.021 12.001 13.001 14.000 … 14.079	1 bit 4 bits 1 byte 2 bytes 4 bytes	C, T

The communication objects are generated dynamically by the ETS plug-in as needed. The linking of communication objects with group addresses is also effected directly in the plug-in. Collective objects are displayed in the ETS with all group addresses assigned.

Object description

Acoustic warning [tone signal]	1-bit object for switching the piezo buzzer on and off. If this object is used, all automatic signalling tones (e.g. in case of fault messages) are suppressed.
Lighting object [LCD lighting]	1-bit object for switching the display lighting on and off. The object value for switching of the lighting is presettable. After a preset time, the lighting is automatically switched back to the basic brightness.
Date / Time [request]	1-bit object transmitted as a request for the current time and the current date from another device. The request is transmitted after a new start and then every day at 4h00. The value for the request is presettable.
Date object [transmit]	3-byte object enabling the display panel to transmit the internal date cyclically.
MasterDate [external adjustment]	3-byte object enabling the display panel to receive the current date for synchronization purposes.
MasterTime [external adjustment]	3-byte object enabling the display panel to receive the current time of day for synchronization purposes.
Time-of-day object	3-byte object enabling the display panel to transmit the internal time of day cyclically.
Switching object [switching]	1-bit object for transmitting and receiving of switching telegrams
Switching object [dimming]	1-bit object for transmitting and receiving of switching telegrams
Dimming object [dimming]	4-bit object for transmitting and receiving of dimming telegrams
Value object [dimming]	1-byte object for transmitting and receiving values The values can optionally be displayed as numbers (0 … 255) or as percentage values (0 … 100%)
Long-time object [Blind/shutter]	1-bit object for moving blinds/shutters and similar drives.
Short-time object [Blind/shutter]	1-bit object for stopping and gradual adjusting of blinds/shutter or similar drives.
2-byte object (DPT 9.001 … 9.021) [value]	2-byte object for transmitting and receiving of floating point decimals
1-byte object (DPT 5.001 … 5.004) [value]	1-byte object for transmitting and receiving of values The values can optionally be displayed as numbers (0 … 255), as a percentage (0 … 100%) or as angular degrees (0 … 360°)
4-byte object (DPT 14.000 … 14.079) [value]	4-byte object for transmitting and receiving of floating point decimals
2-byte object (DPT 7.001) [value]	2-byte object for transmitting and receiving of counting results The value received can be adapted to the desired format before being displayed
2-byte object (DPT 8.001) [value]	
4-byte object (DPT 12.001) [value]	4-byte object for transmitting and receiving of counting results The value received can be adapted to the desired format before being displayed
4-byte object (DPT 13.001) [value]	
1-byte object (DPT 5.010) [value]	1-byte object for transmitting and receiving of counting results The value received can be adapted to the desired format before being displayed
1-byte object (DPT 6.010) [value]	
Upper limit value object [value]	1-bit object which is transmitted if the pertaining value object is above or below the defined limit value

Lower limit value object [value]	1-bit object which is transmitted if the pertaining value object is above or below the defined limit value.
Extension object [light-scenes]	1-byte object for recalling or storing of scenes.
Light-scene object [light-scene group]	1-bit objects or 1-byte objects for controlling of the groups of actuators belonging to a scene
Date object [date]	3-byte object for displaying dates
Time-of-day object [time of day]	3-byte object for displaying the time of day
ASCII text object [ASCII text]	14-byte object for displaying text messages
Access object [access control]	4-byte object for displaying of the the code number or of individual parts of a status byte within an access control.
Switching object [forced control]	1-bit object for transmitting and receiving of switching telegrams used in conjunction with a higher-ranking 2-bit object.
Forced-control object [forced control]	2-bit object for transmitting and receiving of higher-ranking control information data
Konnex mode [operating mode change-over]	1-byte object for displaying or for changing over of the mode of operation of a room temperature controller
Frost /heat protection [operating mode change-over]	1-bit object for displaying or for changing over of the mode of operation of a room temperature controller
Comfort mode [operating mode change-over]	1-bit object for displaying or for changing over of the mode of operation of a room temperature controller
Night-time reduction [Betriebsmodusumschaltung]	1-bit object for displaying or for changing over of the mode of operation of a room temperature controller
Standby: [operating mode change-over]	1-bit object for displaying or for changing over of the mode of operation of a room temperature controller
Switching object [event indication]	1-bit object for displaying information in the status line
Acknowledge object [fault message]	1-bit object for acknowledging receipt of a fault message
Fault message object [fault message]	1-bit object for receiving a fault message
Acknowledge-receipt object [fault message]	1-bit object for the receiving acknowlegdements from other devices
ASCII text object [fault message]	14-byte object for displaying a variable message text in case of active fault message
Input object [timer]	1-bit object the value of which is passed on to the output object of the timer depending on the value of the pertaining disabling object, on the preset filter function and the defined delays.
Output object [timer]	1-bit object passed on to the input value
Disabling object [timer]	1-bit object which determines whether the value of the pertaining input object is passed on to the output object The behaviour of the disabling object is presettable

Input object [logic gate]	1-bit objects which are combined in a logic operation Each input object of a logic gate can be used in the normal or inverted state
Output object [logic gate]	1-bit object issuing the result of the logic operation. The type of operation (AND, OR, EXCLUSIVE-OR, AND with feedback), the behaviour (normal or inverted) and the transmit criterion (transmit at every input event or transmit in case of output change) are presettable.
Disabling object [logic gate]	1-bit object which determines whether the value of the output object can be transmitted.
Input object [multiplexer]	Object of presettable type the value of which is passed on to one out of two or four output objects depending on one or two control objects.
Output object [multiplexer]	One out of two or one out of four output objects taking gover the value of the input object
Control object... [multiplexer]	1-bit object which determines to which of the output objects the value of the input object is passed on
Disabling object [multiplexer]	1-bit object which determines whether the value of the output object can be transmitted.

Scope of functions

- The display and control panel is used for displaying and controlling building functions.
- The panel can be used in portrait or landscape format. The selected mounting position is entered in the configuration software. This will affect the arrangement of the display elements.
- BMP or JPG image files can be incorporated as background images and status display. Eight variable colour schemes are available for customizing the design.
- Up to 400 display elements can be displayed on up to 50 freely programmable pages with up to 16 display elements.
- Display pages can be logically linked. A scroll bar permits the navigation between these pages and their display elements.
- Each display element can have up to four function keys assigned to it. These function keys can be directly linked with the function of the display element or they can also trigger independent functions.
- The display elements can use the functions such as switching, dimming, blind/shutter, value display with different object sizes, scene control, date, time of day, text display, access control, forced switching and operating mode switch-over. In addition, the keys allow to switch between different pages.
- Four password levels prevent unauthorized access.
- The configuration takes place via an ETS plug-in. The commissioning can be carried out via the ETS as well as the plug-in. The programming via the plug-in saves considerable time by accessing the internal USB interface.
- Available with a weekly timer with up to 16 channels. The individual channels can be used for several functions (switching, values, light-scenes, operating mode switch-over). The programming of the times is carried out after the commissioning directly on the panel.
- In case of voltage failure the internal clock continuous to run for approx. 24 hours.
- It is possible to create up to 24 light-scenes with a total of up to 32 actuator groups. The setting of the scenes takes place after the commissioning directly on the panel.
- Available with up to 80 logical operations with up 8 inputs each, up to 12 multiplexers with up to 3 channels each and 40 timing elements with ON-delay and OFF-delay and filter function.
- Up to 50 different fault messages can be used. Up to 20 messages can be active at the same time. The activation, acknowledgement and deactivation of fault messages can be logged in a message list.

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Functional description

The display panel allows the centralized display and control of the building functions.

For display purposes, the panel is equipped with a programmable colour TFT screen with a resolution of 320x240 pixels. Control takes place via touch screen and/or a keypad with 6 keys.

The panel allows the bi-directional communication via EIB/KNX data points. The scope of functions that can be used include not only basic functions such as switching, dimming, blind/shutter, but also complex functions such as value transmitters, date, limit values etc.

The user interface can be freely configured, i.e. the display texts have to be individually adjusted. Background images and symbols can be incorporated using Bitmap (bmp) and Joint Photographic Experts Group (jpg) formats.

A synchronized internal real-time clock is available to process the time functions. In case of a 230 V power failure, the internal time continuous to run for approx. 24 hours.

Message boxes and/or acoustic signals can be generated in case of fault messages.

The function of the display panel is set via an ETS plug-in. The required communication objects are dynamically created for all functions. Hence, there is no fixed assignment between individual functions and the numbers of the communication objects. Collective objects are displayed in the ETS with all assigned group addresses.

1 Standard settings for the configuration

Some of the settings adjusted in the plug-in apply to the entire device. Thus, they affect, if applicable, a larger number of other settings.

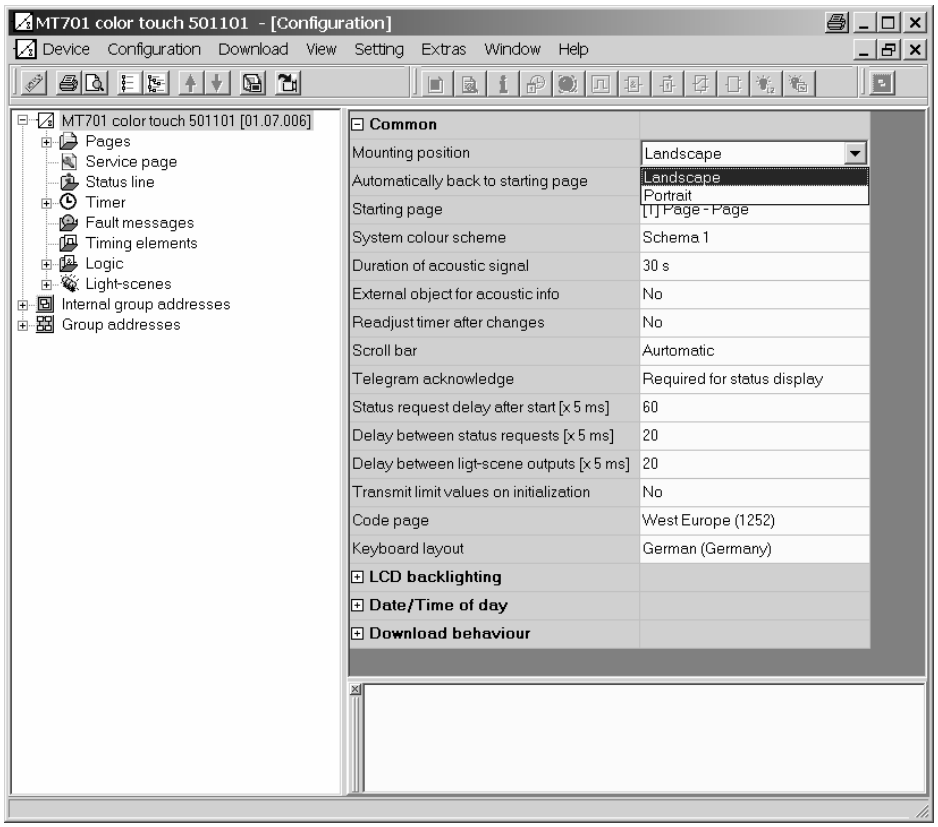
- At the beginning of the configuration the mounting position of the display panel must be determined as described in section 1.1.1 Mounting position.
- The settings described in section 1.4 Download behaviour is important for the initial commissioning.
- There are eight different colour schemes available for the design of the individual pages and the elements contained in them. How to customize the pages is described in section 1.5 Colour schemes.
- Especially when using images, the plug-in manages a relatively large amount of data. Optionally, these data can be saved in the database of the ETS or in separate files. Section 8.2 Options describes the settings and their effects.

1.1 General parameters

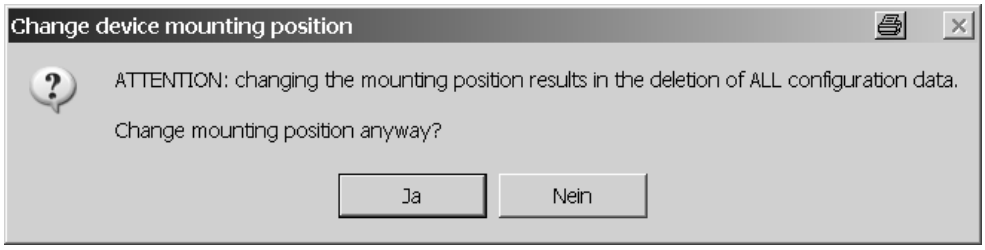
The “General” parameter group contains a summary of settings that are relevant for the entire device.

1.1.1 Mounting position:

Optionally, the display panel can be installed horizontally or vertically. At the start of the configuration the corresponding mounting position of the display must be selected (portrait format corresponds to 240 x 320 pixels, landscape format corresponds to 320 x 240 pixels). The selected mounting position and the available screen dimensions will then apply to the entire configuration of the device.



Caution: The plug-in will delete all configured pages if a parameter is subsequently changed. Therefore, this change has to be explicitly confirmed.



1.1.2 Display

Colour scheme
In order to be able to easily adjust the display elements during the configuration and to create a visually pleasing and easy to read design, the plug-in offers eight colour schemes. The first colour scheme non-adjustable. The other seven can be customized, if desired. The „Colour scheme“ parameter defines the presetting for each newly created display page. The parameters of each display page designate this colour scheme as “System”. See also section 1.5 Colour schemes.

Scroll bars
The individual pages and the display elements within a page can be arranged among themselves in a certain logical order. A scroll bar can be displayed at the right screen margin. It allows to switch between the elements forward as well as backwards.

- The two double-arrows call up the previous or the next page.
- The two single arrows activate within the current page the previous or the next display element.

If no previous or next element has been defined in the configuration, the corresponding arrow will be deactivated. The “Scroll bar” parameter determines when the scroll bar becomes visible:

- „Always show“: The scroll bar is visible on each page. It will show even if no associated pages have been configured.
- „Always hide“: The scroll bar is not visible on any page. In this case no pages can be linked.
- „Automatically“: The scroll bar will be displayed only if pages have been linked.

Character set and keyboard layout
In order to display and enter text in different languages, the character set of the device and the assignment of the on-screen keyboard can be set.

1.1.3 Homepage

During the initialization, the panel will automatically display the page that is defined by the parameter “Homepage”. If the panel has not been actuated during the operation for a predetermined time, it can automatically return to this page.

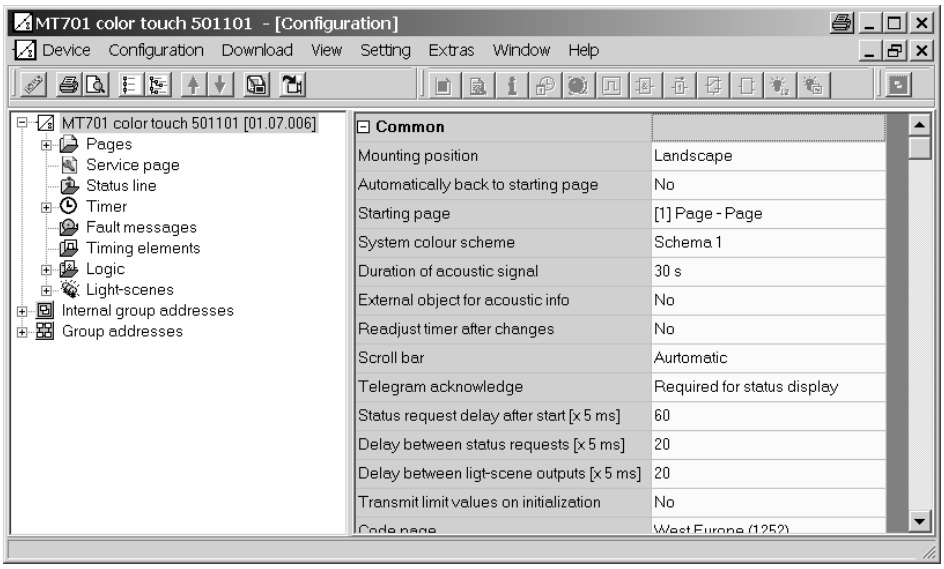
1.1.4 Acoustic warning

With an installed piezo buzzer, the display panel can signal when defined fault messages have been received (see also section 4 Fault messages). Such a situation is automatically terminated after a preset time period. In addition, the “External object for acoustic warning” parameter allows the use of the piezo buzzer independent of the fault message function.

If the acoustic signal is switched on via this object, it has to be switched off again via this object. All other acoustic warnings will be suppressed during that time. In this case, the piezo buzzer will not be automatically switched off after the “Duration of acoustic warning” so that it may result in a continuous tone.

1.1.5 Bus communication

The following settings affect the communication of the display panel with other devices:



Acknowledge
Normally, the display element shows the current value of a communication object (e.g. ON or OFF). If the communication object has no valid value, the display element will only show a number of lines (-----) instead of the value.

Even if the display and control panel has not received an acknowledgement for a transmitted telegram, it will show this undefined state. If the “Telegram Acknowledge” parameter set to “Not required for the status display” the display panel will show the transmitted value in this case even without valid acknowledgement.

Caution: This setting may result in the panel showing values that deviate from the actual state in the system. Such a case may take place, for example, if a device has a longer initiation phase and is not able to respond to telegrams during that time.

Delays
Directly after a restart, the panel cannot correctly display the system status. Only after a valid value has been transmitted or received, the display of the display elements will change. In order to be able to display valid values as quickly as possible, the panel permits to transmit read requests to selected group addresses. It is important to bear in mind that, for example, different devices require different amounts of time for the initialization after the bus voltage return.

The read requests together with the subsequent response telegrams may lead to an unwanted high bus load. For this reason it is possible to adjust the waiting time for the first read request using the “Delay of status request” after start” parameter and to adjust the resulting bus load using the “Delay between status requests” parameter.

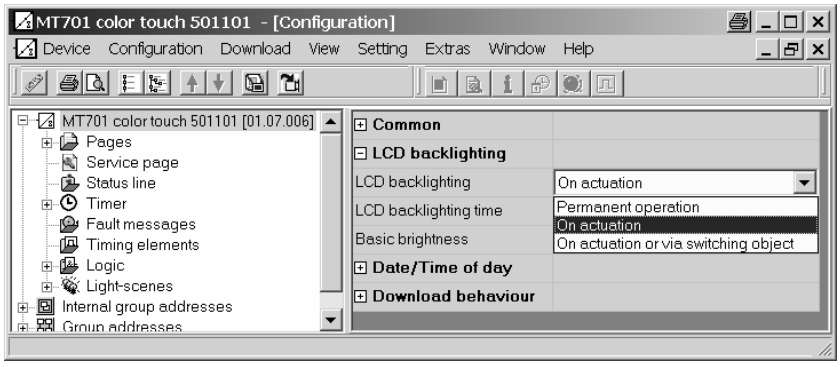
The retrieving or storing of scenes will also temporarily lead to a higher bus load. In this case the panel will use the “Delay between light-scene outputs” parameter.

Limit values
In case of display elements for counter or floating-point values, it is possible to define in each case an upper and a lower limit value. If this control is active the plug-in will display the corresponding switching objects.

During normal operation these limit value objects will transmit a telegram only if the value of the display element has exceeded or underrun the respective threshold. Since the display elements normally do not have a valid value after initialization of the panel the “Transmit limit values after initialization” parameter makes it possible to have the limit value objects immediately transmit a telegram if the display element has received a valid value. See also section 2.2 Display elements.

1.2 LCD Lighting

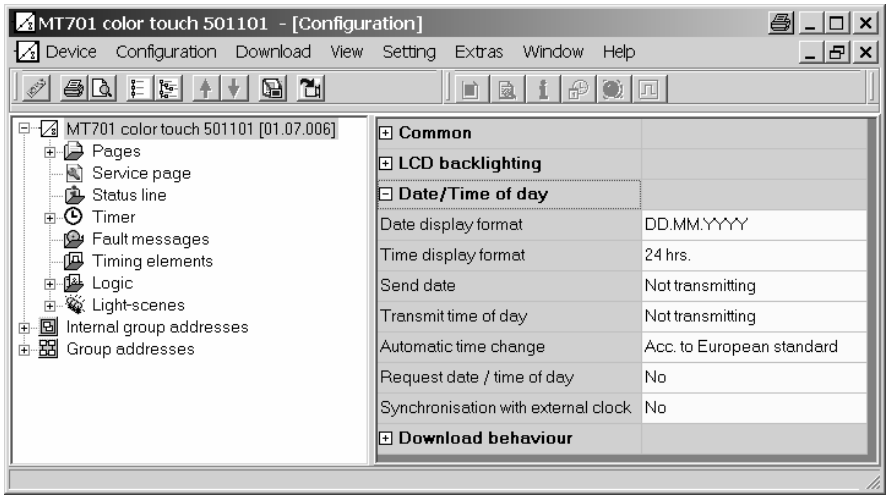
Depending on the desired mounting location the display should sometimes be illuminated permanently and sometimes only temporarily. The “LCD Lighting” parameter offers three possible settings.



- If set to „Permanent“, the background lighting is always turned on to maximum brightness. The lighting can neither be turned off by the device nor by the bus.
- If set to „On actuation”, the background lighting will be reduced to the adjusted value of the basic brightness or even turned off during the passive state. The lighting will switch to maximum brightness as soon as the device is used. It will change to the basic brightness after the preset time.
- If set to „On actuation or switching object”, the lighting will also be reduced during the passive state. On actuation or if the “Lighting object” communication object has received an adjustable value, it will temporarily switch to maximum brightness. In addition, it can also be switched off via the object. The object will have a higher priority than the “Duration of LCD Lighting” parameter.

1.3 Date and time of day

The display panel features an integrated real-time clock. This clock is used to display the current time and the date as well as to control the timer channels (see also section 6 Timer function).



The display of time and date can be set with the „Display format...“ parameters. In case of the date, there is the option to display the year with two or four digits and to either choose the order day-month-year or month-day-year.

In most cases it is sufficient to have a device within a system that transmits the current time of day and date in regular intervals so that all other devices can synchronize, if required. If possible, a device should be used that, for example, has a high cycle accuracy by receiving the DCF 77 signal. The „Synchronization with external clock“ parameter determines whether date and/or time of day are to be synchronized. If required, the two “MasterDate” and “MasterTime of day” communication objects will be created. In addition, the display panel can use the “Date / request time” 1-bit communication object in order to synchronize. This communication object can transmit an adjustable value after each initialization (due to return of supply voltage or a new programming operation) and subsequently once a day at 4:00 am on a regular basis.

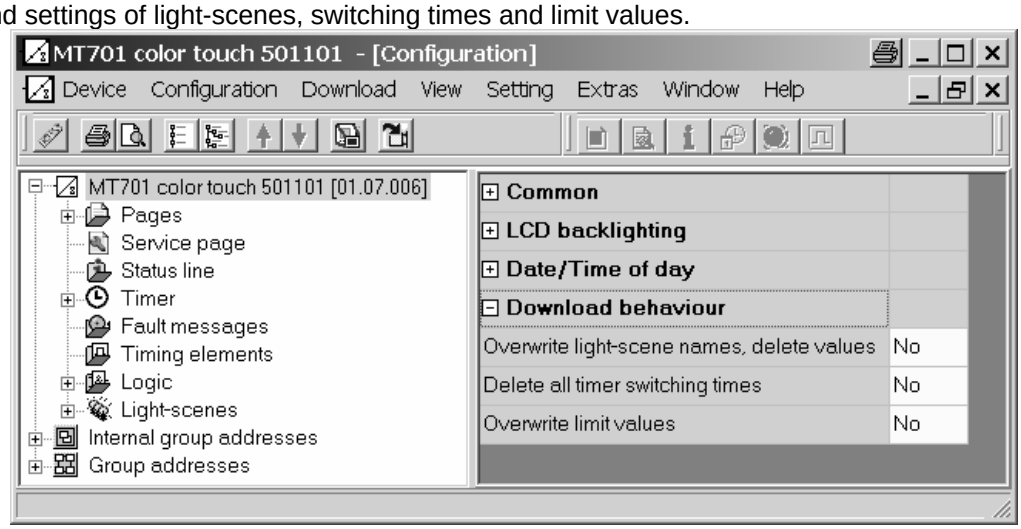
If this option does not exist, the display panel can transmit itself the values once a day, once every hour or minute in order to synchronize other devices. If the “Transmit date” or Transmit time of day” parameter is set to “Transmit cyclically”, the plug-in will show additional parameters and communication objects.

The data point types „Date“ and „Time of day“ do not contain the information whether the Daylight Saving Time is active. For this reason, the “Automatic clock change” parameter can be used to determine how the panel carries out the change.

- The “According to European standard” setting means that the panel will automatically turn back the time of day by one hour for the display and switching times between the last Sunday in March and the last Sunday in October.
- The „Via switching object” activates the “Automatic clock change” communication object. If this object has the value “1”, the display panel will use the Daylight Saving Time. If it has the value „0“, the display panel will use the regular time of day. In case of an initialization, the “Automatic clock change” object will transmit a one-time read request to the bus (object flag status request = yes”).
- If set to “No”, the display panel will not carry out a change as, for example, a higher-ranking clock already transmits properly corrected time and date information.

1.4 Download behaviour

During the operation of the system and after the commissioning, different adjustments can be made. This includes the names and settings of light-scenes, switching times and limit values.



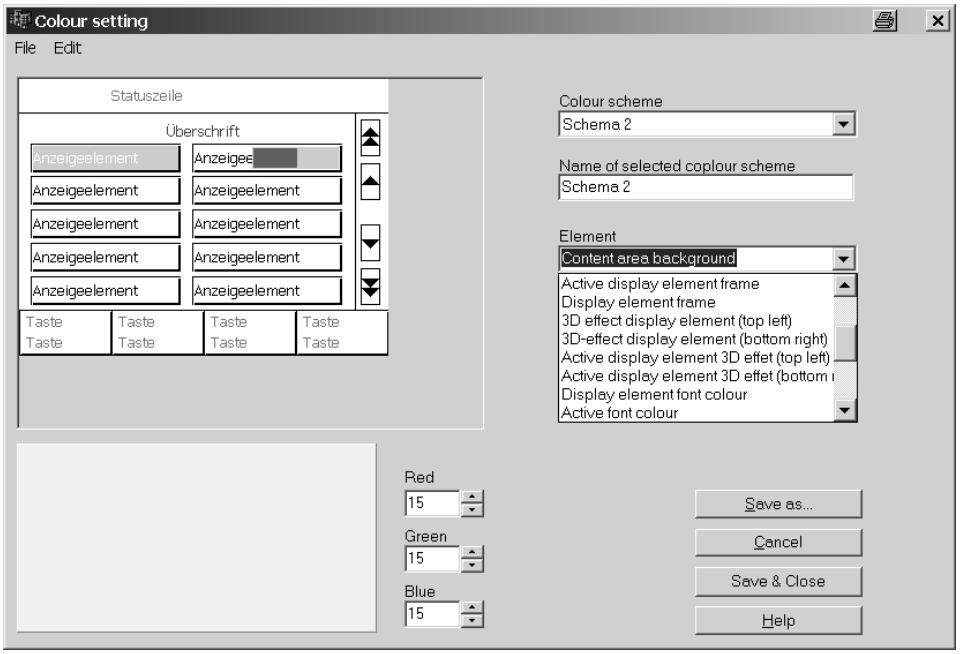
During the initial commissioning of a device with new configuration data, these parts must be overwritten once. For this purpose the parameters described above must be set to „Yes“ prior to the download. After the initial download the parameters can be reset to “No” as not to delete any changes made by the user, if applicable.

Exceptions: For future changes in the configuration the parameters have to be set to “Yes” after the following changes.

- Light-scenes have been added or deleted
- Light-scene groups have been added or deleted
- The order of the light-scenes have been changed
- The types of the light-scene groups (communication objects) have been changed
- Timer channels have been deleted or added
- The order of the timer channels have been changed
- The function of the timer channels (type of the communication objects) have been changed
- The value display (EIS type, data point type) of a controlled value has been changed
- The control of a value has been activated or deactivated
- The upper or lower limit value has been activated or deactivated
- The numerical value of a limit value has been changed

1.5 Colour schemes

For each newly created display page one of eight colour schemes can be selected during the configuration. The dialog that defines the colours for the individual text and graphics elements is accessed via the “Setting” menu.



The colour scheme 1 non-adjustable. On the one hand it is the starting basis for customizing colour settings and on the other hand it provides the alternative to switch back to a reliable readable scheme, if required.

In order to create a customized colour scheme it is the easiest to change an existing scheme. The current scheme can be copied into the clipboard and pasted again if several coordinated schemes are to be created.

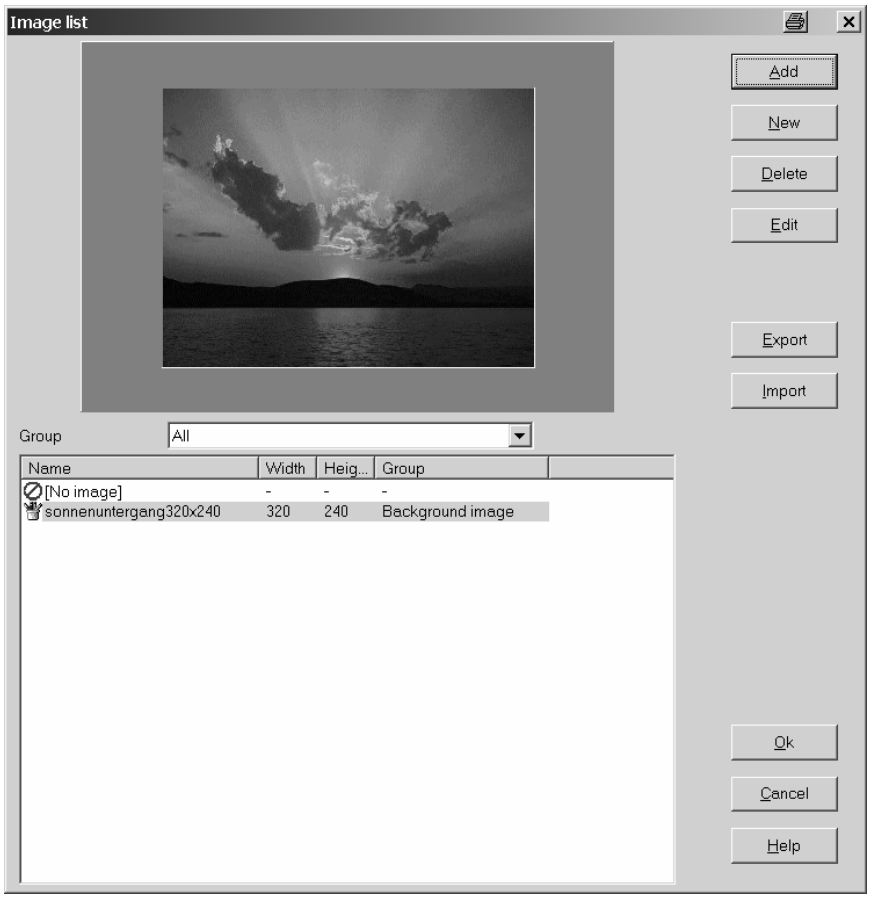
In order to also be able to access the same customized colour scheme with different devices, the currently selected colour scheme can be exported into a file.

Note: The colour display in the plug-in software may differ from the one displayed later in the device. Thus it is recommended to calibrate the colours on the PC screen with the displayed colours on the device.

1.6 List of images

The panel can use images as the background of the information area, as an element in the status line and as a display element. These images are saved in a list of images in the plug-in so they can be conveniently used several times. The “List of images” dialog box can be opened via the “Setting” menu of the main window.

This dialog is also accessed in the configuration window via the parameters of the pages, display elements and status elements in order to select images from the list.



On the left side of the dialog the image that has been selected from the list of images is shown in the preview area. For better clarity this list can be structured according to the three groups: background images, display images and status elements.

The dialog box for the selection of an existing image can be opened via the “Add” button. This image is then added to one of the image groups.

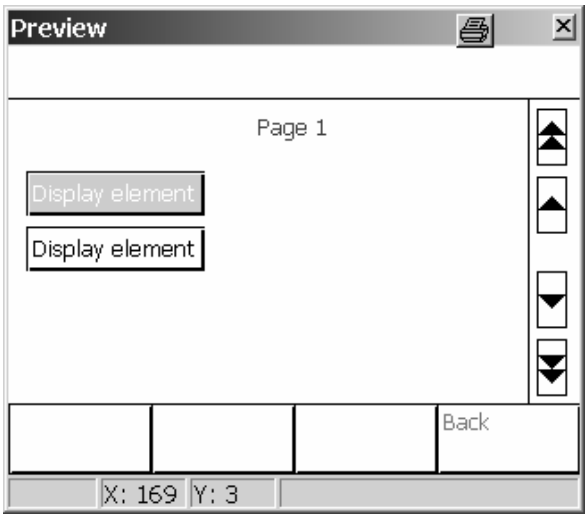
The „New“ button opens a dialog box that allows to apply a new image which afterwards can be created with an imaging software. This newly created image must then be added to the list of images.

By using the “Export” and “Import” buttons, lists of images can be saved in separate files in order to, for example, use them for different devices.

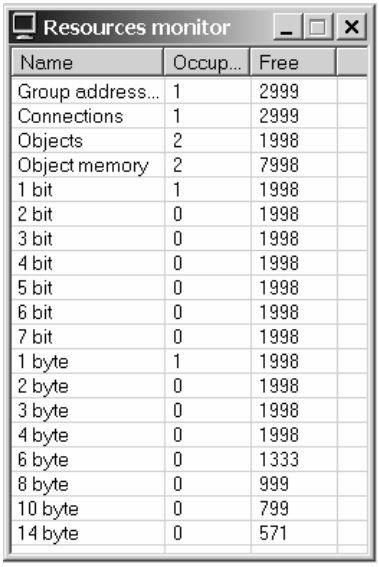
Caution: Compared to the other configuration data the list of images requires a relatively large amount of memory. The time required to start the configuration software can considerably slow down, if the image data are not saved in the ETS database but in a separate file. See also section 8.2 Options.

1.7 Preview and resource monitor

The configuration software provides a large numbers of adjustment options with the positionable status elements, the colour schemes and the images. A preview window, which provides direct control of the configuration, can be opened via the “View” menu.



In contrast to devices that are directly configured and programmed with the ETS, the configuration software assumes full control over the communication objects and the assignment of the group addresses. The resource monitor that can be opened via the View menu provides an overview of the number of available communication objects and group addresses. Since the different types of communication objects require differing amounts of memory, the number of all the other types of objects also change when creating and linking an object.

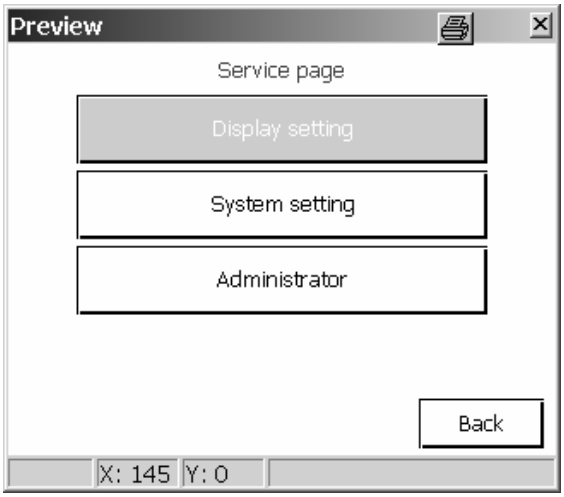


Name	Occup...	Free
Group address...	1	2999
Connections	1	2999
Objects	2	1998
Object memory	2	7998
1 bit	1	1998
2 bit	0	1998
3 bit	0	1998
4 bit	0	1998
5 bit	0	1998
6 bit	0	1998
7 bit	0	1998
1 byte	1	1998
2 byte	0	1998
3 byte	0	1998
4 byte	0	1998
6 byte	0	1333
8 byte	0	999
10 byte	0	799
14 byte	0	571

2 Display pages

The display and control panel is used for the central display of states and for the control of building related functions.

Up to 50 freely adjustable pages can be defined to have a structured display of these tasks. Each page can display up to 16 display elements, each of which can be assigned up to four definable function keys. The total number of the display elements is limited to 400. This means that, for example, 50 pages with 8 display elements each or 25 pages with 16 display elements each can be created.

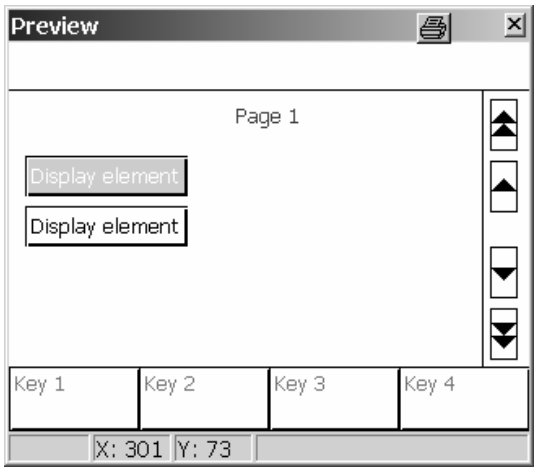


Predefined special pages are available for certain tasks. This includes, for example:

- Light-scenes (see section 5 Using scenes)
- Timer (see section 6 Timer function)
- Service page (see section 3 Service page)
- Fault messages (see section 4 Fault messages)
- Message list (see section 3 Service page)
- On-screen keyboard
- On-screen numeric pad

2.1 General page setup

Each newly created page consists of four areas.



- The largest area is the **content area**. It is always present.
  Its dimensions depend on the other optional areas and the mounting position of the device.
- A **status line** can be displayed at the upper screen margin.
  If the status line is used, it will cover the upper part of the content area.
- A **scroll bar** can be displayed at the right screen margin.
  If the scroll bar is used, it will cover the right part of the content area.
- The four **function keys** can be displayed at the lower screen margin.
  If the function keys are shown, they will cover the lower part of the content area.

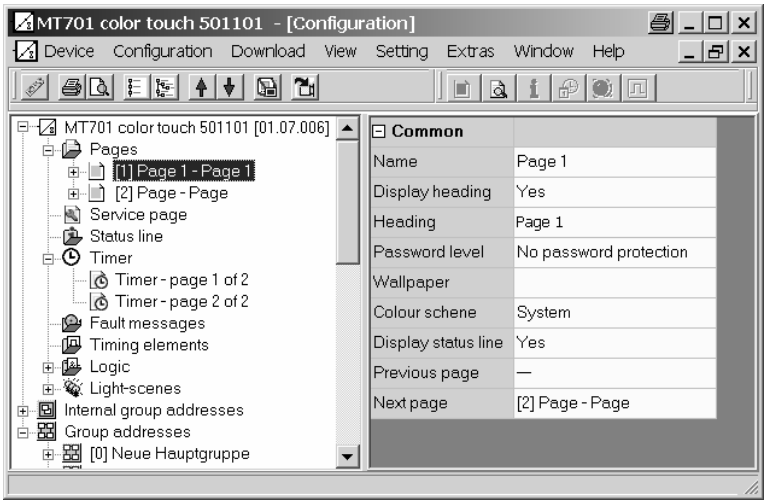
The optional status line on the upper margin is 30 pixels high.
The optional scroll bar on the right margin is 30 pixel wide.
The optional function keys on the lower margin are 40 pixel high.

The dimensions of the content area depend on the mounting position of the device

- Maximum 320 x 240 pixel in landscape format
- Minimum 290 x 170 pixel in portrait format
- Maximum 240 x 320 pixel in landscape format
- Minimum 170 x 290 pixel in portrait format.

The reference point (X = 0, Y = 0) for the positioning of the display elements is the upper left screen corner.

A newly installed display and control panel has one page. This page can be edited just like any other newly created page. New pages can be created, if the “Pages” node in the tree structure is highlighted in the configuration window.

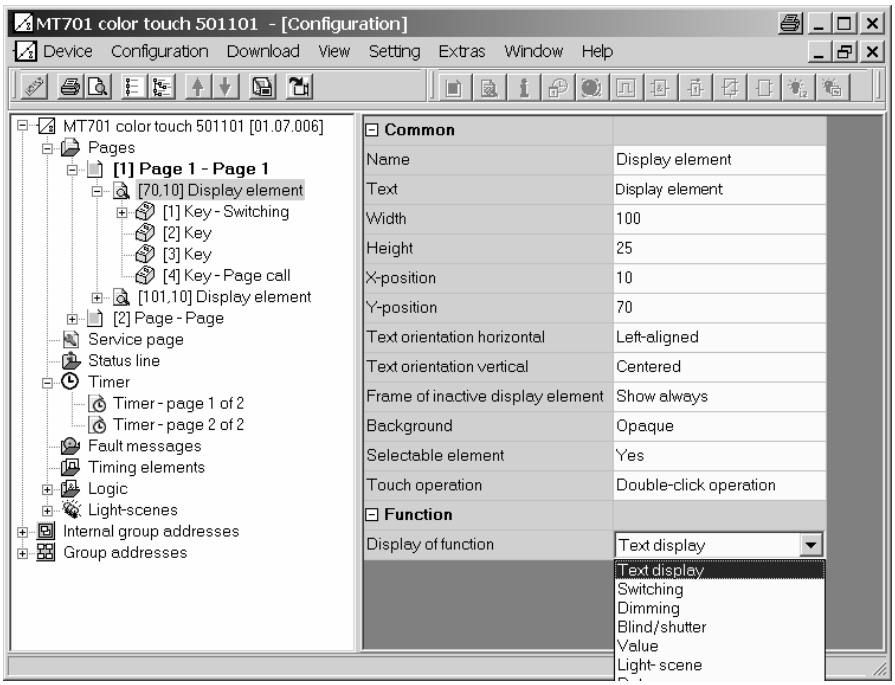


Each new display page has one display element and the same adjustment options:

- Description: This text is shown in the tree structure for identifying the page.
- Caption: This text can be shown centred as the caption of the information area. In addition, the caption also appears after the description in the tree structure. Depending on the options of the configuration software (see also section 8.2 Options), the configuration software accepts the description entered above.
- Password level: This page can be assigned one of four password levels or it can be accessed without entering a password. The passwords for the four levels are entered directly on the display panel on the service page. If an incorrect password has been entered during the page request you will be automatically returned to the page from where the request originated.
- Background image: One of the images from the list of images can be selected. If the status line, the scroll bar or the function keys are displayed, they will each cover part of the background image.
- Colour scheme: The presetting „ System“ for the colour scheme of a new page means that it uses the scheme which has been selected in the „General“ parameter group. The user can replace this scheme by another any time later via the service page of the display panel.
- Displaying the status line: It is possible to set for each page separately whether the status line is to be displayed at the upper margin. The apperance and the information of the status line is the same for all pages.
- Previous page, Next page: Several pages can be logically linked. The double arrows of the scroll bar is used to switch between the linked pages. If the scroll bar is always deactivated in the “General” parameter group, the parameters “Previous page” and “Next page” will not be available.

2.2 Display elements

Display elements can be arbitrarily positioned within the available content area. Their size is defined by the „Width“ and „Height“ parameters. Each display element features a description that is also listed in the tree structure.



2.2.1 Design:

A display element features a text that can be displayed on the screen. Depending on the options the text corresponds to the description but it can subsequently still be modified or deleted. The text can be positioned both horizontally and vertically in the area of the display element.

Especially in combination with background images it may be desirable to make the frame and/or the background of the display element – differing from the selected colour scheme – invisible / transparent.

If a display element is to have only an unmodifiable text without any operating function, it can be set to “Not selectable”.

2.2.2 Display function

The settings of the „Function“ parameter group determine whether one or several communication objects belong to the display element and which information it can display in addition to its text. The value display can be positioned horizontally in the area of the display element. The vertical position of the value display corresponds to the vertical text alignment of the display element.

Text display

- A display element with the function “Text display” does not have communication objects and no other settings.

Switching

- A display element with the function “Switching” features a 1-bit communication object.

Function	
Display of function	Switching
Status display	As text
Display text for 1	ON
Display text for 0	OFF
Value X-position	0

- Optionally, it can display the value of this object as text or as a symbol.

Dimming

- A display element with the function “Dimming” features either a 1-bit or a 4-bit communication object or a 1-byte communication object..

Function	
Display of function	Dimming
Display	Switching state
Status display	As text
Display text for 1	ON
Display text for 0	OFF
Time base between switching and dimming	100 ms
Time factor between switching and dimming	6
Value X-position	0

- It can display the value of the 1-bit object optionally as text or as a symbol.
  It can display the value of 1-byte object optionally as text or as a bargraph.
- If the display element is to be used simultaneously as a control element, parameters can be set to distinguish between switching (short actuation) and dimming (long actuation).

Blind/Shutter

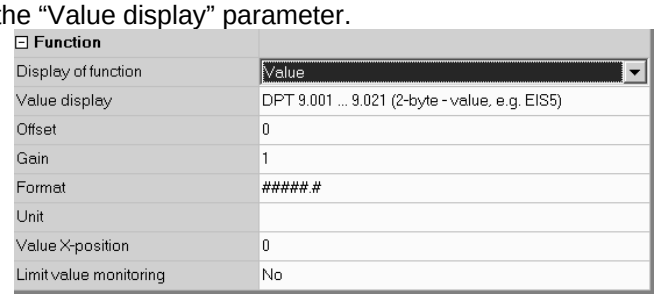
- A display element with the function “Blind/Shutter” features two 1-bit communication objects for the long-time operation and the short-time operation.

Function	
Display of function	Blind/shutter
Status display	As text
Display text for blind/shutter UP	UP
Display text for blind/shutter DOWN	DOWN
Time base between short-time and long-time mode	100 ms
Time factor between short-time and long-time mode	6
Slat adjusting time - base	100 ms
Slat adjusting time - factor	6
Value X-position	0

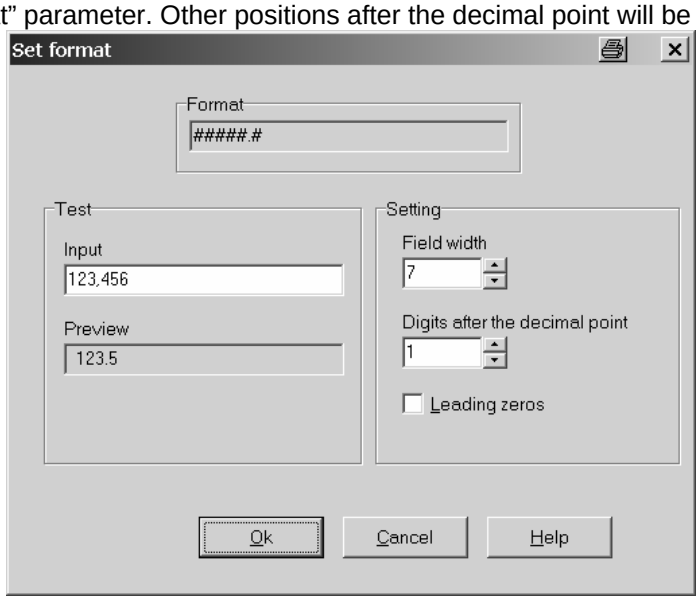
- It can display the value of the “Long-time operation” object optionally as text or as a symbol. The position of the drive is not defined when receiving a short-time telegram. That is why lines “----“ are displayed.
- If the display element is to be used simultaneously as a control element, parameters can be set to distinguish between slat adjustment (short actuation) and travel (long actuation).
  - Immediately on pressing the key, the panel transmits a short-time telegram. This telegram will stop a running drive.
  - If the key is pressed for any length of time, the panel sensor transmits a long-time telegram after the “Time between short and long-time command” for starting the drive.
    This time should be shorter than the slat adjustment time of the actuator in order to avoid a disturbing bucking of the blind.
  - If the key is released within the slat adjustment time of the rocker, the panel will transmit another short-time telegram. This function permits stopping the slats in any position during their rotation. This time should be chosen as required by the drive for a complete rotation of the slats. If the slat adjustment time is selected to be longer than the complete running time of the drive, a pushbutton function is possible as well. This means that the drive is active only for as long as the key is pressed.
  - If the key is pressed any longer, the panel will transmit no further telegram. The drive keeps running until the end position is reached.

Value

- A display element with the “Value” function has a communication object whose size (1-byte, 2-byte, 4-byte) is adjusted by the “Value display” parameter.



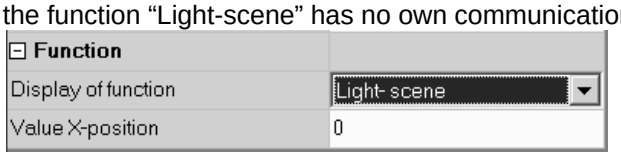
- Values with the data point types 5.010, 6.010, 7.001, 8.001, 12.001, 13.001, floating-point values with the data point types 9.001 … 9.021, 14.000 … 14.079 or relative values with the data point types 5.001 … 5.004 can be used. A straight numerical value with no designated unit is transferred by the telegrams to the bus. The units of the standardized data point types may not, if applicable, correspond to the form desired for the display. Therefore, there are several options available for the adjustment depending on the preset type of the “Value display”.
  - The numerical value can be converted using the two parameters “Offset” and “Gain”. The displayed value equals the received value times the Gain plus offset.
  - The number of valid figures and the number of positions after the decimal point can be defined via the “Format” parameter. Other positions after the decimal point will be rounded.



  - The „Unit“ parameter offers a selection of some common units. In addition, you can define your own units.
- If the „Limit value monitoring“ parameter is set to „Yes“, the two parameter groups „Upper Limit value” and “Lower limit value” as well as two other 1-bit objects will be created. These objects can optionally transmit telegrams when exceeding or underrunning limit values.
  - Both limit values can be activated or deactivated independent of each other.
  - Optionally, the limit values can be preset or changed by the user via one of the function keys.
  - Frequent switching can be prevented and the bus load be limited using adjustable hystereses and transmission delays.

Light-scene

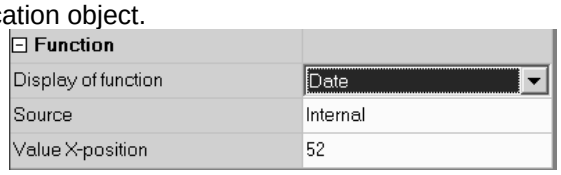
- A display element with the function “Light-scene” has no own communication object.



- It shows the name of the scene last recalled.

Date

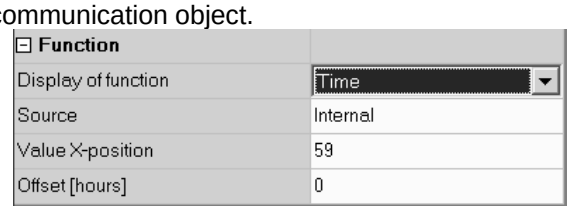
- A display element with the “Date” function can optionally display the internally saved date or the value of an own 3-byte communication object.



- The type of display is adjusted in the “Date/Time of day” parameter group in the main node, if the tree structure of the device is highlighted.

Time of day

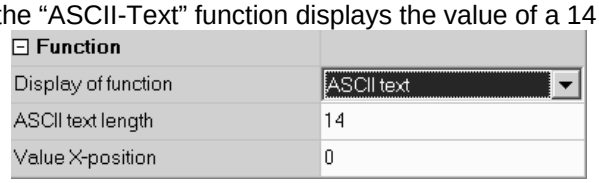
- A display element with the “Time of day” function can optionally display the internally saved time or the value of an own 3-byte communication object.



- The type of display is adjusted in the “Date/Time of day” parameter group in the main node, if the tree structure of the device is highlighted.

ASCII text

- A display element with the “ASCII-Text” function displays the value of a 14 byte communication object.



- The parameter „Length of the ASCII text“ limits the maximum numbers of characters to be displayed. If, for example, the value “10” is specified and if the object receives a longer text, it will be cut off after the tenth character.

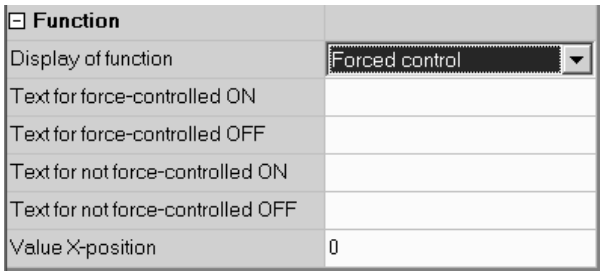
Access control

- A display element with the function “Access control” features a 4-byte communication object. Three byte represent a code number in the communication object and one byte includes different bit-wise coded information.

- The other parameters define whether the code number or a text, which corresponds to a bit from the status byte, is displayed.

Forced control

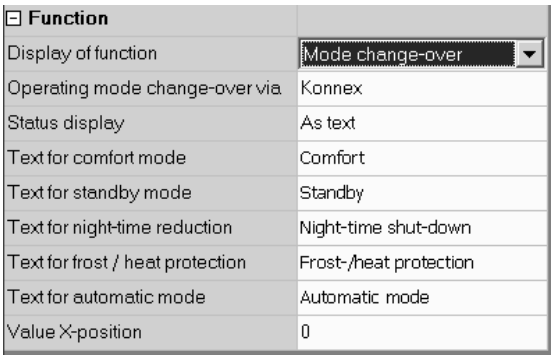
- A display element with the function “Forced control” features a 1-bit and a 2-bit object.



- It can show text for the four possible values of the 2-bit object. The value of the 1-bit object is not shown.

Operating mode switch-over

- A display element with the “Operating mode switch-over” function can either use one 1-byte or four 1-bit objects depending on the “Operating mode switch-over via” parameter.



Function	
Display of function	Mode change-over
Operating mode change-over via	Konnex
Status display	As text
Text for comfort mode	Comfort
Text for standby mode	Standby
Text for night-time reduction	Night-time shut-down
Text for frost / heat protection	Frost-/heat protection
Text for automatic mode	Automatic mode
Value X-position	0

- When using the 1-byte object the display element can display five operating states.
  - 0 = Automatic mode
  - 1 = Comfort mode
  - 2 = Standby mode:
  - 3 = Night mode
  - 4 = Frost/ heat protection
- When using the four 1-bit objects, they have the following internal order:
  - Frost/heat protection (highest priority)
  - Comfort
  - Standby
  - Night (lowest priority)

  The object with the highest priority that has the value “1” determines the operating mode displayed by the display element. If all four objects have the value “0” the display will switch to comfort mode.

2.2.3 Operation

The parameter of the display elements permit two different types of operation:

- One-touch operation: The function of key 1 will be automatically executed when touching the display element. The function keys of this display element does not have to be visible. If the function keys are visible, the other functions can subsequently also be used.
- Two-touch operation: The function keys of the display element becomes visible when touching the display element. No function is executed. Only when actuating the function keys, the functions will be executed.

If the scroll bar is used for switching between the different display elements with the single arrows, the display elements are only selected and no function is directly executed.

It depends partly on the function of the display element which functions are available for the individual keys.

Switching

- If the display element also features the “Switching” function, the key can affect the communication object of the display element or a separate object.
- When actuating and/or releasing the key, the display panel can transmit, switch on, switch off or switch-over no telegram.

Blind/shutter

- If the display element also features the “Blind/shutter” function, the key can affect the communication object of the display element or separate objects.
- The „Blind/shutter“ function parameter determines the direction (up, down, toggle) of the drive. If set to "TOGGLE", the direction changes after each long-time actuation.
- In addition, parameters can be set to distinguish between slat adjustment (short-time actuation) and travel (long-time actuation).
    - Immediately upon pressing the key, the panel transmits a short-time telegram. This telegram will stop a running drive.
    - If the key is pressed for any length of time, the panel transmits a long-time telegram after the “Time between short and long-time command” for starting the drive.
      This time should be shorter than the slat adjustment time of the actuator in order to avoid a disturbing bucking of the blind.
    - If the key is released within the slat adjustment time of the rocker, the panel will transmit another short-time telegram. This function permits stopping the slats in any position during their rotation. This time should be chosen as required by the drive for a complete rotation of the slats. If the slat adjustment time is selected to be longer than the complete running time of the drive, a pushbutton function is possible as well. This means that the drive is active only for as long as the key is pressed.
    - If the key is pressed any longer, the panel will transmit no further telegram. The drive keeps running until the end position is reached.

Dimming

- If the display element also features the “Dimming” function, the key can affect the communication object of the display element or separate objects.
- If the key is used independently of the function of the display element, the „Dimming key function” parameter determines which switching or dimming commands are transmitted by the panel upon short-time or long-time actuation. In addition, parameters can be set to distinguish between switching (short-time actuation) and dimming (long-time actuation).
- Alternatively, a 1-byte object with a constant brightness values can also be used. In this case the duration of the actuation has no relevance.

Value

- If the display element also features the “Value” function, the key can affect the communication object of the display element or a separate object.
- If a key directly refers to the display element, the “Value function” parameter determines whether a constant value is transmitted upon each actuation or whether the user will be able to edit the value later on.
    - In the former case the next parameter determines the constant value.
    - In the latter case a minimum value and a maximum value is entered. If the user enters a value later on via the on-screen numeric pad or a slider, it will be checked whether the value lies within the permissible limits. Otherwise, the respective minimum or maximum value will be applied.
    - If the display element makes an adjustment prior to the display on the screen via the “Offset” and “Gain” parameters, this calculation will be reversed before the transmission of the new value.
- If the key is used independently of the function of the display element, the “Value display” parameter will determine the type of the communication object and the applicable range of values.
    - In case of a 1-byte object according to EIS6 (relative value) the value to be transmitted can be expressed as an integral number (0…255), a percentage (0…100%) or as angular degrees (0…360).
    - In case of all other EIS types, the entered value will be immediately transmitted.

Light-scene

- On key actuation the internally managed light-scenes will be called up.
- The light-scenes must already have been created before they can be selected.

Forced control

- If the display element also features the “Forced control” function, the key can affect the communication objects of the display element or separate objects.
- The “key function” parameter determines which one of the two communication objects is to transmit a telegram. The available options are:
    - No function: No telegram is transmitted.
    - On: The 2-bit object transmits a telegram that will deactivate the forced control. The 1-bit object transmits a switch-on telegram.
    - Off: The 2-bit object transmits a telegram that will deactivate the forced control. The 1-bit object transmits a switch-off telegram.
    - TOGGLE: The 2-bit object transmits a telegram that will deactivate the forced control. The value of the 1-bit object will be inverted and transmitted.
    - Forced ON: The 2-bit object transmits a telegram that will switch on with a higher priority. The value of the 1-bit object is irrelevant, it will transmit no telegram.
    - Forced OFF: The 2-bit object transmits a telegram that will switch off with a higher priority. The value of the 1-bit object is irrelevant, it will transmit no telegram.
    - Forced OFF: The 2-bit object transmits a telegram that will deactivate the forced control. The 1-bit object will transmit no telegram.

Page request

- If a key is assigned the „Page request“ function, the following “Jump to page” parameter allows to determine which page is to be displayed next. It provides a list with the pages currently created in the project, the pre-defined pages and the “Return” presetting.
- When a page is requested, the information from which page the request originated is stored. The “Return” automatically switches back to this page.
- Please note: If “Return” is entered for one or more pages, it could happen with this function that it jumps back and forth between these pages.
- If a page has been assigned a password level and if the page to be requested has a lower password level, the new password of the higher level has to be entered via the on-screen keypad prior to the switch. If an incorrect password is entered, the switch will not be executed. An automatic return will take place. An automatic return will also take place if no password has been entered within 30 seconds.
- If a page has been assigned a password level and if the page to be requested has a higher password level, the switch will take place without entering the password of the lower level. The current password level is automatically reset to the new lower level.

Operating mode switch-over of the display element

- The operating mode switch-over of a room temperature control is available only if the display element is also set to “Operating mode switch-over”.
- A certain operating mode or “No function” can be selected via the “Function on actuation” parameter.
- When using the 1-byte object, one of the five operating states can be selected.
    - 0 = Automatic mode
    - 1 = Comfort mode
    - 2 = Standby mode:
    - 3 = Night mode
    - 4 = Frost/ heat protection
- When using the four 1-bit objects, the object of the desired operating mode is set to “1” and all objects with a higher priority are set to “0”.

2.3 Status line

The status line at the upper screen margin can be switched on or off for each page. The design of the status line is the same for all pages. Up to ten status elements can be created. In the status line the individual elements are arranged vertical and centred. The horizontal positions of the individual status elements can be defined individually. The preview window can be used to see whether the status elements do not overlap.

The following functions can be selected for the individual status elements:

- Event indication
- Collective fault message
- Value
- Date
- Time of day
- ASCII text

The collective fault message indicates that at least one fault message is active. A status element „Event display“ corresponds to a display element with the function „Switching“. The status elements “Value”, “Date”, Time of day” and “ASCII test” correspond to the display elements of the same name.

2.4 Display elements / Copying pages

The manual creation and adjustment of a large number of display elements may take a considerable amount of time. In addition, this can lead to small differences in the design of basically equally structured pages that may disturb the user.

Therefore, it would help to create sample pages with typical arrangements (single-column, two columns,…) of the display elements. These can then be copied via the clipboard. The sample pages can also be copied into a separate file and then be used from there with the “Paste from file” command.

The display elements with their settings can be copied as well. The configuration software places the display element at the original position when pasting. The position must be corrected manually.

2.5 Linking pages

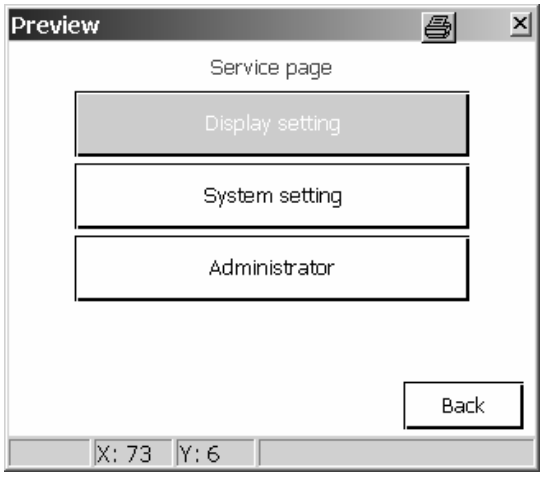
There are two option available to switch between the individual pages:

- Predefined jumps can be configured via the function keys of the display elements. If these display elements are copied, the configuration software will replace these requests with “Return”.
- The pages can be linked via the “Previous page” and “Next page” settings. The switch to another page takes place via the double-arrows of the scroll bar. These settings will be accepted unmodified during the copying.

3 Service page

3.1 Design

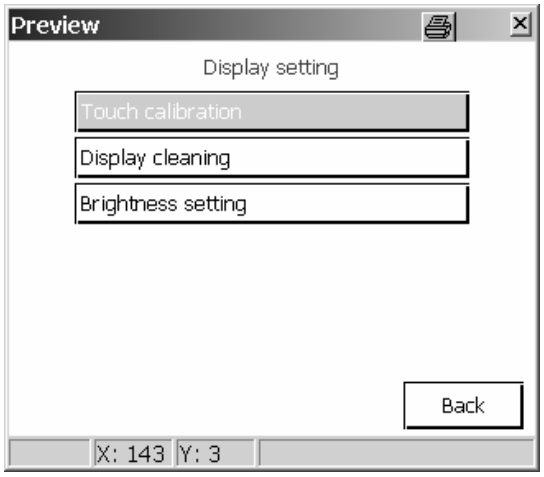
The service page allows the user to receive some intrasystem information and to make personal adjustments. It is organized into three areas.



In order to be able to open the service page a display element must have been created on a different page. A key must execute a jump to the service page via the “Page request” function.

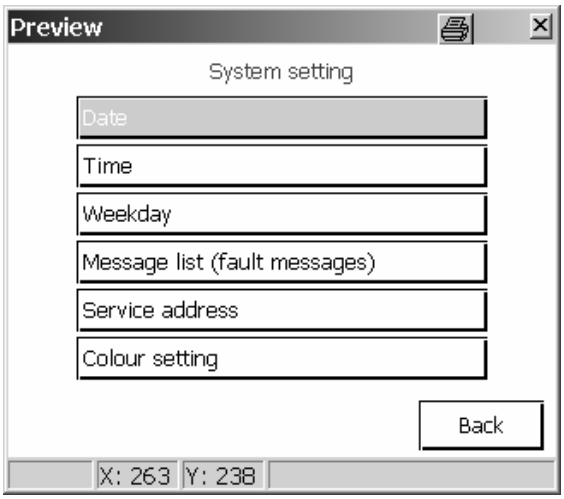
The three service page areas can be assigned to individual password levels just like the project-specific pages.

- In area 1 the “Display setting” includes the following functions:



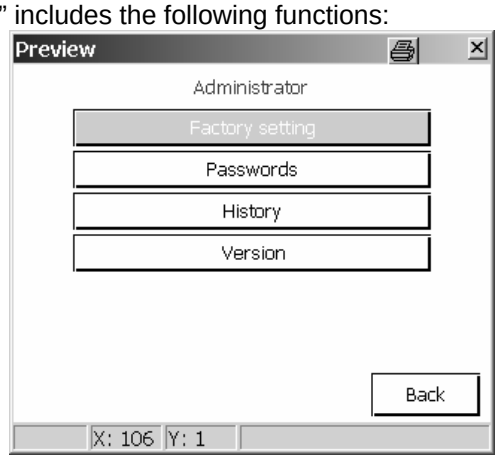
  - Touch calibration: The touch area for the display can be adjusted, if the user has problems to activate certain symbols.
  - Display cleaning: The display and the touch function are switched off for 60 seconds to avoid accidentally triggering functions during the cleaning.
  - Brightness Setting: The background lighting can be adjusted in three steps. The adjusted value is accepted as the basic brightness.

- In area 2 the “System” setting includes the following functions:



  - Date: The system date can be entered manually. This is required only, if the system does not feature a higher-level clock for the synchronization.
  - Time of day: The system time can be entered manually. This is required only, if the system does not feature a higher-level clock for the synchronization.
  - Day of the week: The current day of the week can be entered manually. This is required only, if the system does not feature a higher-level clock for the synchronization.
  - Message list: This is where a list containing the fault messages including information on their acknowledgement is managed. (See also section 4 Fault messages).
  - Service address: This setting specifies a parameterizable address which the user can contact in case of problems.
  - Colour setting: The user can select a new colour scheme that is applied to all pages using the system colour scheme. Pages having a certain colour scheme assigned are not affected.
    The “Colour setting” button is displayed only, if the “Permit selection of colour scheme” parameter is set to “Yes”.

- In area 3 the “Administrator” includes the following functions:



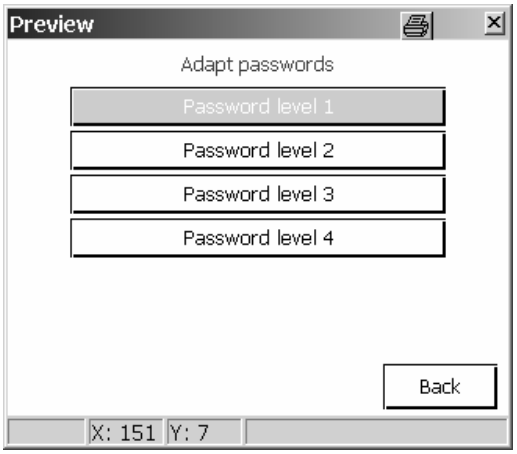
  - Default setting: The panel can be reset to default settings. For reasons of security the request has to be confirmed. The following data will be reset afterwards:
    - Light-scenes will be deleted (names and values).
    - Timer information will be deleted.
    - The selected colour scheme and basic brightness will be reset.
    - Fault messages will be deleted.
    - Calibration data will be reset to the standard setting.
    - The function will be logged in the past events memory.
    - The project data will not be deleted when resetting to default.
  - Passwords: At this point the passwords for the different password levels can be changed.
  - Past events: This is a function that manages a list of different operations such as reset, programming and the like.
  - Version: Shows detailed information about the hardware and software.

3.2 Passwords

The passwords will not be defined in the configuration software. They are only saved in the display panel where they are changed, if required. The standard passwords of the four levels are:

- Level 1: "11111"
- Level 2: "22222"
- Level 3: "33333"
- Level 4: "44444"

The preset passwords can be changed via the “Change passwords” page. The on-screen numeric pad opens providing the option to enter and save a new password or to cancel the change.



In order to ensure that the password has been saved correctly, it will be shown in plain text when entering. Once a password has to be entered when requesting a page, asterisks instead of numbers are displayed.

The passwords will not be overwritten and/or reset during the download even if the option “Transfer all during the next download” (settings / options / hardware) has been selected in the configuration software. The passwords can be reset as follows:

- Creating a new project with a jump to the service page. The system page must be parameterized without password protection. Loading the project into the device (download) and changing the passwords on the system page.
- Afterwards, the original project can be reloaded into the display panel.

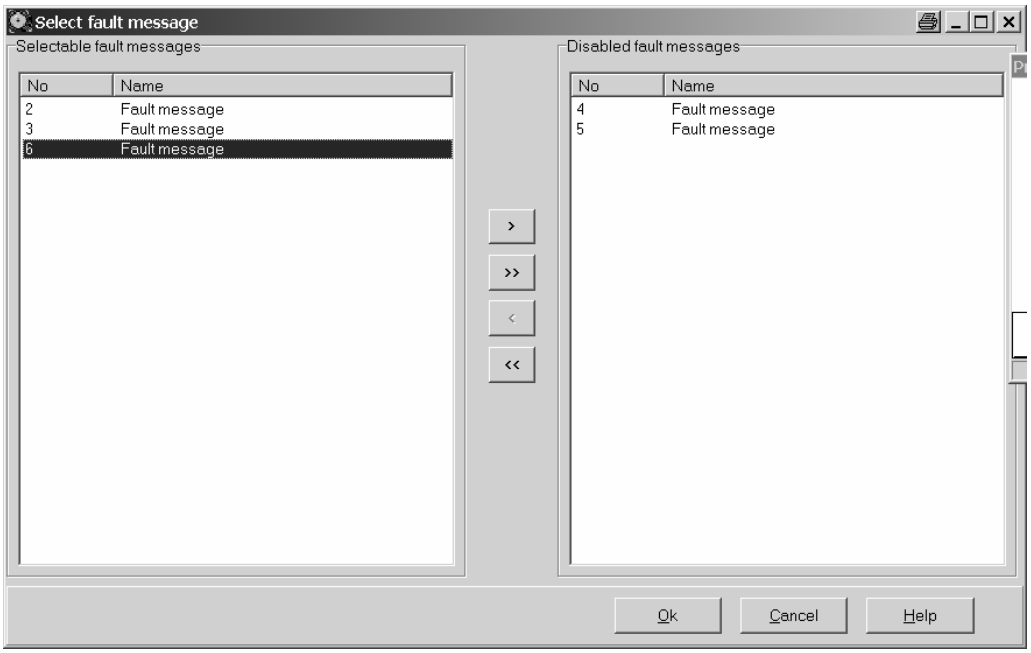
4 Fault messages

In contrast to the regular display functions that only describe the current state in case of fault messages,

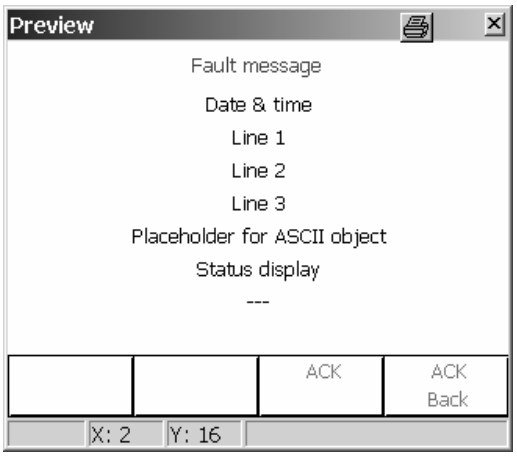
- the piezo buzzer can automatically sound
- a certain message page can be displayed independent of the current page.
- the user can request an acknowledgement
- entries into the message list can take place.

General
The configuration software can manage up to 50 different messages. There is a 1-bit object created for each message. The „Activation via object value“ parameter defines when a message will be activated. The inverted value will again deactivate the message.

If individual fault messages are of special importance or if several fault messages are caused by similar sources (e.g. smoke detector) further fault messages can be blocked. For this purpose, a separate dialog box opens up where a selection can be made from the list containing all fault messages.



Message box
If the display panel receives a fault message it can open a message box. If the „Open message box“ parameter is deactivated and the acoustic warning activated, the piezo buzzer will sound when a corresponding telegram has arrived but it will not open a message box. It can then be acknowledged via the message list.



The message box has three lines available for the display of a message text. The first line can also be accepted in the message list.

The fourth line can be used to display an internal text that has been received via a 14-byte object. If the external text is used the panel will wait approx. 500 ms after the activation of the fault message before opening the message box.

The fifth line is used to show whether the message is activated or deactivated and whether it has been acknowledged.

The sixth line displays the number of the currently active messages. If more fault messages arrive before an already present message box is closed, the present box will be changed-over by the new box. If more than 20 fault messages are active, the oldest will be deleted when receiving the 21st fault message (e.g. acknowledgement).

The physical address of the device which has activated the fault message can also be displayed.

The functions of the keys are preset. Key 3 is used to acknowledge a fault message and key 4 is used to acknowledge and close the message box. Key 1 and 2 have no function.

Acknowledgement
Optionally, a message can be acknowledged internally via the function key 3 and/or via the bus. The “Acknowledgement via key” parameter provides the following functions:

- On actuation of the key the acknowledgement is processed only internally. No information is transmitted to other devices. In this case the “Acknowledge object” is not displayed.
- On actuation of the key the acknowledgement is also transmitted to other devices.. The value of the “Acknowledge object” can be adjusted.
- The internal acknowledgement via key 3 is disabled.

If the „External acknowledgement via object value“ parameter is not set to „Disabled“, the fault message can also be acknowledged from a different place. In this case the “Acknowledge-receipt object” is not displayed. The parameter also determines whether a telegram with the value “0” or “1” is used as an acknowledgement.

After the acknowledgement of a fault message the cause of fault is not necessarily eliminated. For this reason an automatic reminder can be shown after an adjustable time.

With the acknowledgement it is possible to have an automatic switch to one of the configured pages. As is the case with all other page requests, this page must have already been created. On actuation of key 4 the message is acknowledged and the display automatically returns to the previous page.

Message list

Optionally, it is possible to separately adjust for each fault message whether it is to be saved in the message list. The “‘Enter incoming”, “’Enter eliminated” and ’Enter acknowledged” parameters determine which details will be listed in the message list.

5 Using scenes

The display panel can manage up to 24 scenes with up to 32 light-scene groups (actuator groups).

The scenes can be used both via the display panel and via an extension object. It is the „Extension object” parameter that determines whether this object is to be used. The data point type of this object can be used both for the request as well as for the saving of up to 64 scenes. The configuration software automatically assigns the defined scenes numbers from 1 to 24. Other numbers are not supported.

When requesting the stored scenes, the display panel transmits a telegram with the corresponding value to each scene group. When subsequently changing the scenes, the display panel can transmit a read request to each scene group and save the responses as new values. Both cases can temporarily lead to a higher bus load. Therefore, the configuration software allows to define the time between the individual telegrams. See also section 1.1.5 Bus communication.

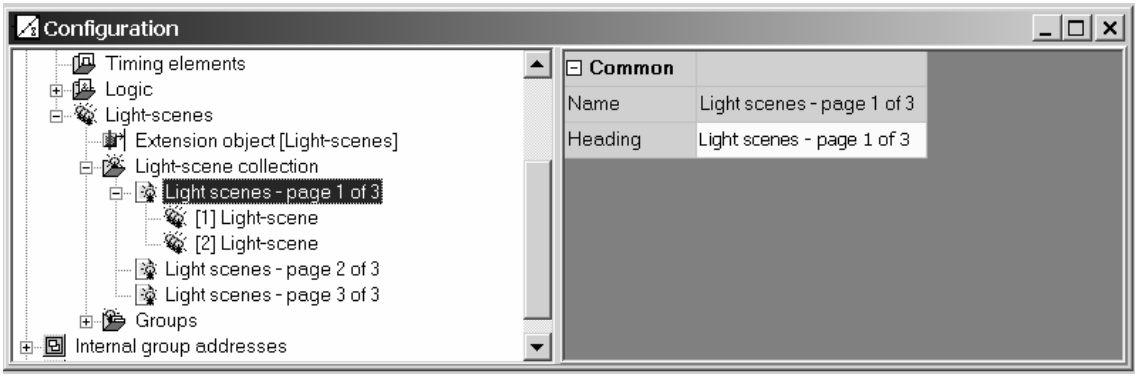
The scene function can be configured in three steps.

- All scenes used must be entered in the configuration software.
- The scene groups that are used in the scenes must be created.
- The scenes must be put into operation on the display and control panel.

If any changes are made in the configuration software to the scenes and/or the scene groups after the commissioning, these changes must be loaded into the device. Manual changes will get lost. See also section 1.4 Download behaviour.

5.1 Creating scenes

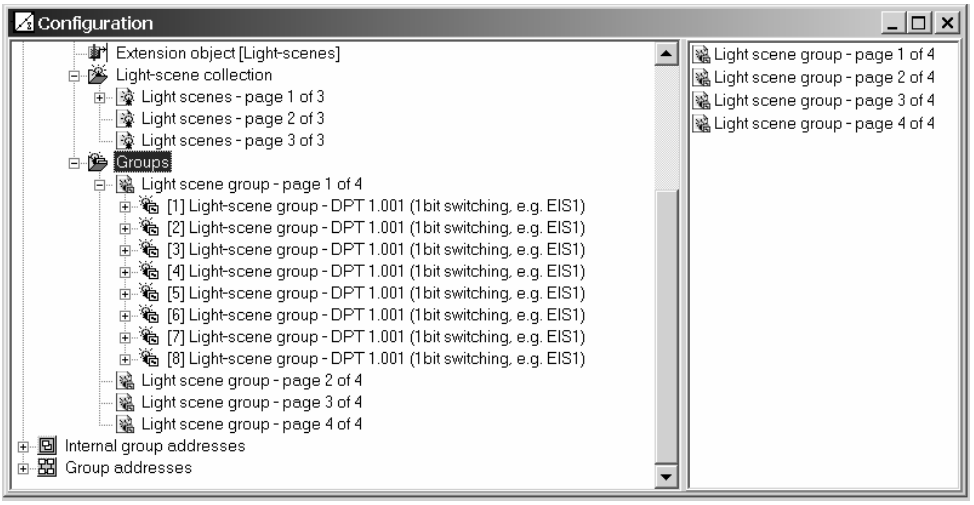
The configuration software lists three pages in the “Light-scene collection” node. Up to eight scenes can be created in each of the three pages. For better clarity it is best to assign unique names. These names can be changed later on the display panel.



The scenes automatically receive their scene numbers that are used to call them later via the extension object.

Caution: In order to be able to carry out the commissioning the configuration must include a request for a light scene page from a page.

5.2 Creating groups for scenes
The configuration software provides four display pages for the creation of the light-scene groups.



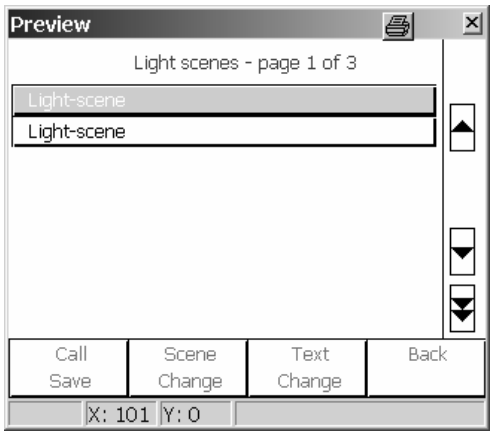
It is possible to create eight groups for different actuators on each page. Each group can be assigned a meaningful name. This name can still be changed later on.

In order to enable the link to the group addresses, the type of the applied communication objects must be specified.

5.3 Commissioning the scenes

Once all scenes and scene groups have been created and the group addresses have been assigned in the configuration software, the commissioning can take place. In case of the initial commissioning the light-scene names saved in the panel, the groups and the stored values must be overwritten. See also section 1.4 Download behaviour.

Subsequently, the scenes must be customized on the display panel. For this purpose, a light-scene page is called up. It lists the created scenes.



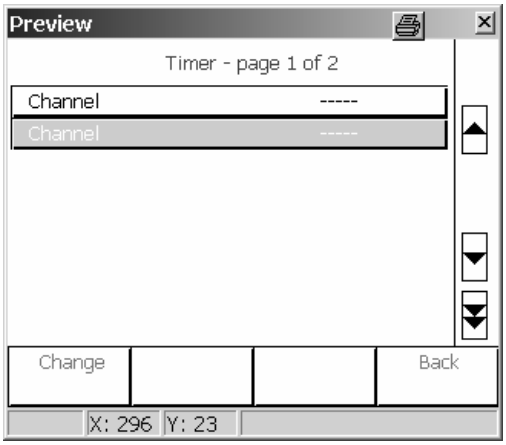
The four function keys are preset.

- A short-time actuation of key 1 will call up the highlighted scene.
- A long-time actuation (over 5 seconds) will save new values for the current scene.
- Key 2 calls up the page with the light-scene groups in order to change the scene.
- Key 3 permits to change the name of the scene. For this purpose the on-screen keyboard is used.
- Key 4 jumps back to the previous page.

On the page of the scene groups, key 1 and 2 allow to change the values of the individual scene groups. Since not every group is used in every scene it is possible to also enter “Unch.” in addition to the explicit states (on, off, 0…100%). In this case the scene will remain unchanged when called up. In addition, no read telegram is transmitted when saving the scene.

6 Timer function

The panel features a built-in weekly timer with up to 16 channels that are subdivided into 8 channels on two pages. The design of the time page is predefined.



Each channel can be assigned 8 switching times. The days of the week can be selected arbitrarily for each switching time. The programming of the switching times of the channels takes place directly on the panel via the timer page after the configuration.

If any changes are made to the timer channels in the configuration software after the commissioning, these changes must be loaded into the device. Manual changes will get lost. See also section 3.2 Download behaviour.

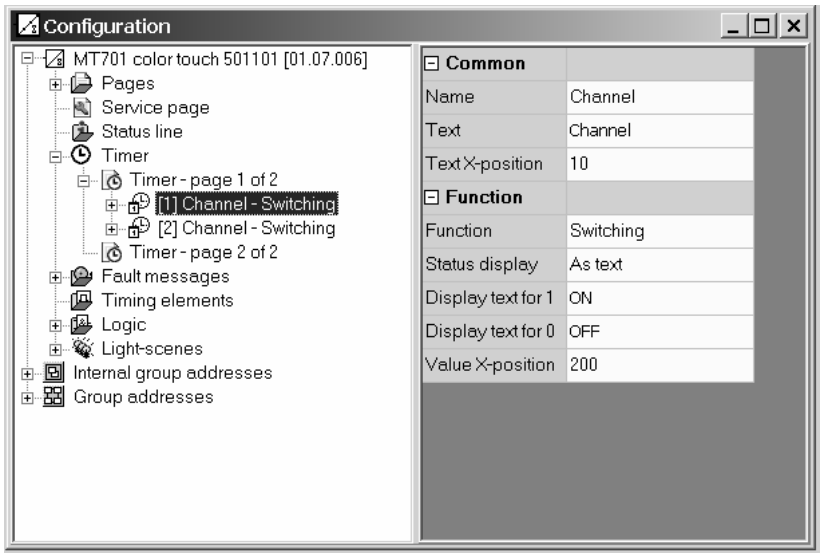
In case of a 230 V power failure, the internal time continues to run for approx. 24 hours. After the return of voltage, the timer checks whether switching times were programmed within that time. In this case the command programmed last will be completed for the relevant channels.

Two cases are to be distinguished, if the internal clock is resynchronized:

- The clock will be reset to the time of day prior to an already executed switching time point. In this case the programmed command will be reexecuted at the switching time.
- The clock will be set ahead to a time of day after a switching time point that is not yet executed. In this case the command of the channel programmed last will be completed.

6.1 Creating timer channels

When creating timer channels a display element is created on the timer page in each case. As is the case with the display elements on the configured display pages, each timer channel features a description that appears in the tree structure and a text that is displayed on the screen. This text can be horizontally positioned.



Each timer channel can be assigned one of four functions:

- Switching
- Value
- Light-scene
- Operating mode switch-over

The other setting options and communication objects correspond largely to those of the display elements. See also section 6.2.2 Display function and section 6.2.3 Control.

The following settings can be selected for the four function keys:

- No function
- Change timer setting for the channel. This function is the presetting for key 1 and can only be used once for each channel.
- Page request. This function is the presetting for key 4
- Execute a manual control function that depends on the type of the timer channel.

6.2 Setting times

In order to set the switching times, the desired channel must have been selected on the timer page. Actuating the function key “Change” calls up the display page with the times currently defined for this channel.

The time of day, the days of the week and the value to be transmitted can be adjusted on the “Change switching times” page.

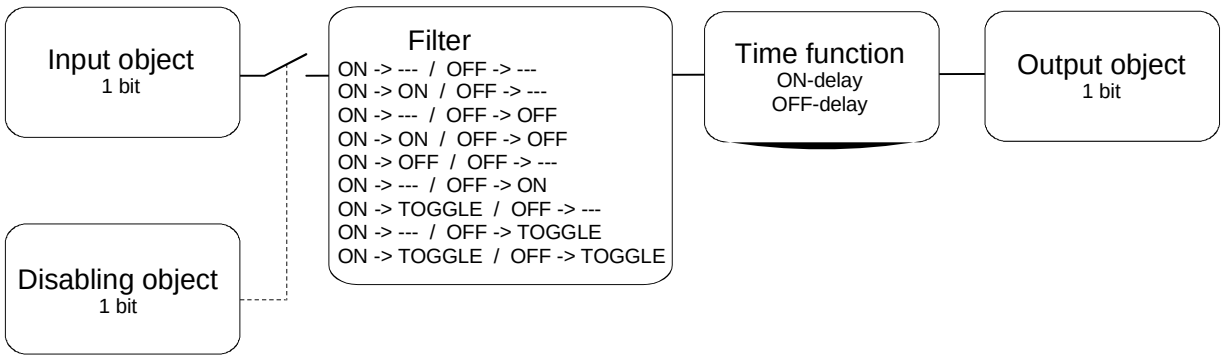
7 Software functions

7.1 Timing elements

The device software features up to 40 timing elements.

In order to use a timing element, the “Timing elements” entry in the tree structure of the configuration window is to be selected. A new timing element can be added. The preset description “Filtering/time” can be edited just like with all other elements.

A timing element consists of an input object, an output object and an optional disable object. In the device software it has the effect of a gate with a time delay and filter function. Depending on the value of the disable object and the parameters the value of the input object will be forwarded to the output object or disabled.



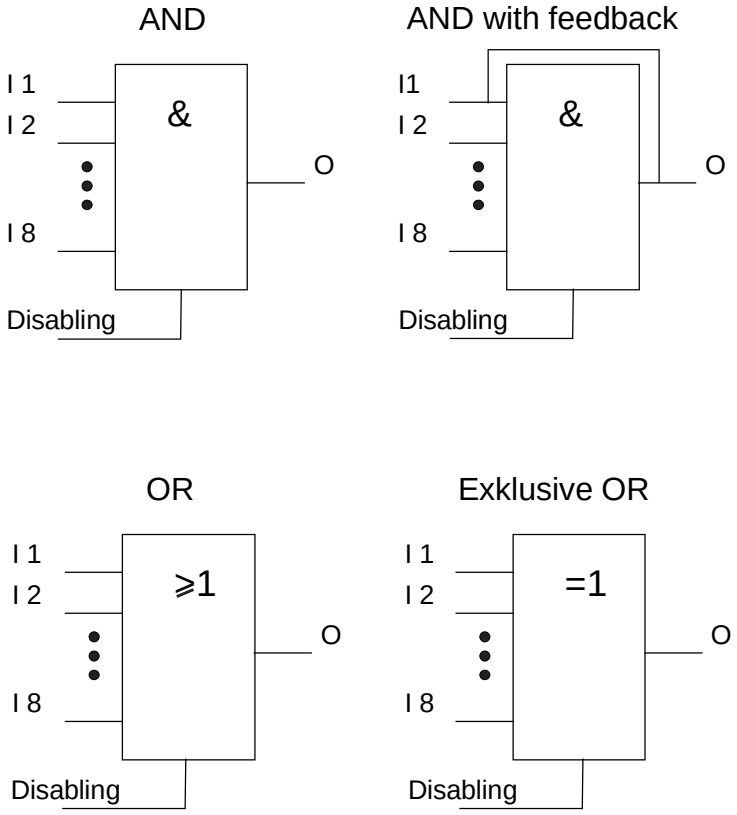
The disable object is a 1-bit communication object whereas the behaviour (disable at 0, disable at 1) can be adjusted. If the value of the input has been changed during a disable, the output can automatically transmit a telegram once the disable is cancelled or the output will wait for the next input telegram.

7.2 Logical operations

The device software features up to 80 logical operations.

In order to be able to use a logic gate, the entry “Logic > Operations” ” in the tree structure of the configuration window is to be selected. A new logic gate can be added. If the gate has been selected, other inputs can be added. Each gate can have a maximum of eight inputs.

The type of the operation (AND, OR, EXCLUSIVE-OR, AND with feedback) can be adjusted for each logic gate and will then appear in the tree structure. In addition, each input and the output can be used in the normal or inverted state



In case of an „AND with feedback“ the value of the output is internally returned to input 1. This has the effect that the output receives the value “1” only if the input 1 is set to “1” after all other inputs also have the value 1. Once one of the other inputs has the value „0“, the output and thus also the input 1 will be set to „0“. If the feedback takes place in combination with an inverted output, the inversion will be processed only after the feedback.

An example for the application of this type of operation is a lamp which is to be switched on manually only after dusk. The pushbutton with input 1 and the limit value of the dusk sensor is linked with input 2.

After the dusk sensor has set the input 2 to “1”, the light can be switched on with the pushbutton at input 1. In case the light is not to be switched off manually by accident, the feedback will make sure that at dawn the input 1 will be internally set to “0”. Without this feedback the light would automatically be switched on again at the following dusk.

Thus, the following combinations are possible for three inputs with or without inverting the output:

Inputs			Outputs						
1	2	3	AND	OR	Eclusive-OR	AND feedback	Not AND	Not OR	Not Exclusive-OR
0	0	0	0	0	0	0	1	1	1
0	0	1	0	1	1	0	1	0	0
0	1	0	0	1	1	0	1	0	0
0	1	1	0	1	0	0	1	0	1
1	0	0	0	1	1	0 *)	1	0	0
1	0	1	0	1	0	0 *)	1	0	1
1	1	0	0	1	0	0 *)	1	0	1
1	1	1	1	1	1	1	0	0	0

*) Input 1 will be automatically set to „0“.

The transmission behaviour of the gate / output can be influenced in different ways:

- The „Transmit in case of“ parameter of the gate allows to reduce the bus load with the setting “Change of output”. If, for example, the result of the operation is chronologically monitored in a blind/shutter actuator, it could be best to have the output transmit a telegram during each input event.
- The gate can be disabled or enabled via the optional disable object. The object value that activates the disable can be adjusted. The behaviour after enabling the disable can also be defined. If the value of the input has been changed during a disable, the output can automatically transmit a telegram once the disable is cancelled or the gate will wait for the next input telegram.
- In addition, the output features a filter function. This will adjust whether it can transmit each output value or whether it can only transmit “1” telegrams or only “0” telegrams.

7.3 Multiplexers

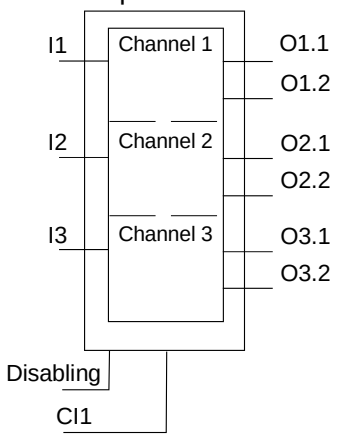
The device software features up to 12 multiplexers.

A multiplexer forwards the value of an input object to one of two or to one of four outputs. It depends on the status of the control input or the two control inputs which output will be used.

Each multiplexer of the panel can have up to three channels that are controlled by the same control inputs. The input and the outputs have the same object type within a channel. The following types are supported: EIS 1 (switching, 1-bit), EIS 2 (dimming, 4-bit), EIS 5 (value, 2-byte), EIS 6 (rel. Value, 1-byte), EIS 9 (IEEE Float, 4-byte), EIS 10 (counter, 2-byte), EIS 11 (counter, 4-byte), EIS 13 (ASCII characters, 1-byte), EIS 14 (counter, 1-byte).

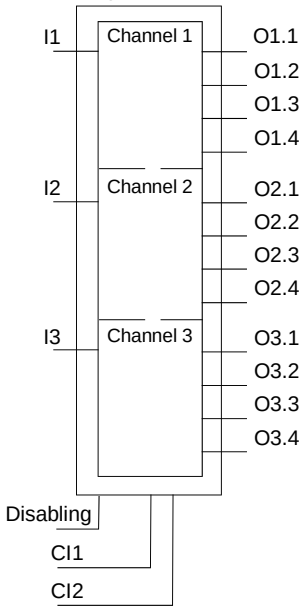
The following truth table and figures describe the internal function of the multiplexer.

Multiplexer 1 to 2



Control input 1	Forwarding to
0	Output 1
1	Output 2

Multiplexer 1 to 4



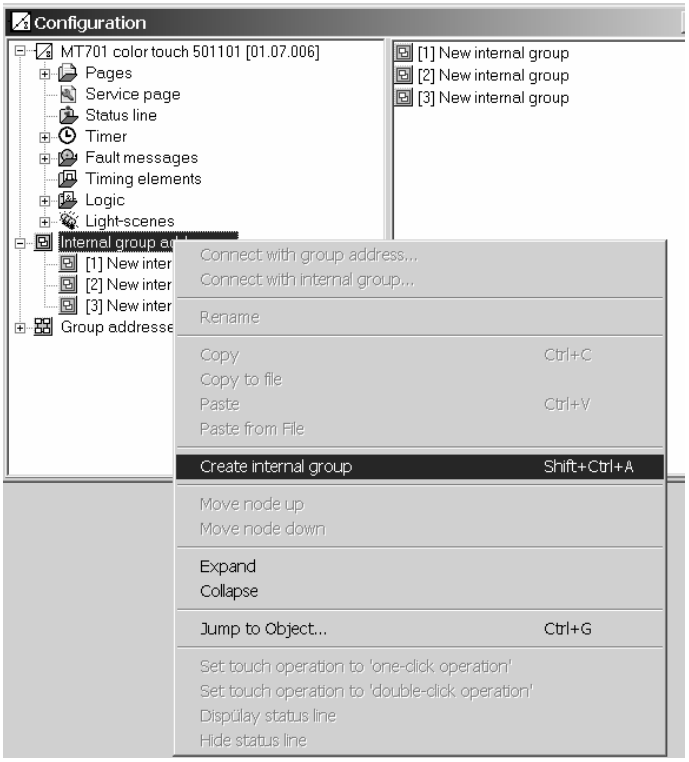
Control input 2	Control input 1	Forwarding to
0	0	Output 1
0	1	Output 2
1	0	Output 3
1	1	Output 4

After the control inputs have been changed, the outputs will transmit no telegrams. Only if an input object receives a new value, this new value will be forwarded to the current output.

The multiplexer can be disabled or enabled via the optional disable object. The object value that activates the disable can be adjusted. The behaviour after enabling the disable can also be defined. If the disable has been cancelled, the output will automatically transmit a telegram or the multiplexer will wait for the next input telegram.

7.4 Group addresses / internal group addresses

During the start the plug-in accepts from the ETS all group addresses currently defined and displays them in the tree structure. In addition, the plug-in can also use „Internal group addresses" that will not be transmitted to the bus. Internal group addresses can be created using the context menu.



Group addresses and internal group addresses can be linked to the communication objects in the same way using the mouse with the "drag and drop" method or via the context menu. If the link is to be established via the context menu, a dialog box will open that can be used to enter a group address.

The use of internal group addresses makes sense if, for example, the output of a timer is to be connected only with the control input of a multiplexer.

8 Configuration software options

The panel is programmed via the ETS using the installed plug-in. This plug-in has several options available.

8.1 Table

Different options that influence the appearance of the tables on the right window side can be selected on the „Table“ tab. These options can be changed according to personal preferences.

8.2 Options

On the „Options“ tab the intervals at which the plug-in is to save the changed data can be defined. Independent of this, a backup file can be created any time via the “Device” menu.

The option “Automatically assign page / display element description” determines whether the text that is visible on the screen will also automatically change together with the description of an element.

In addition, the saved data can be checked for internal inconsistencies or other faults. This database test includes only data which has been processed by the configuration software. The ETS database is not affected.

The settings for the item „Speed optimization“ determine whether the configuration software is to save the data in the ETS database or in a separate file. Especially when using background images, the use of a separate file will considerably increase the speed. However, these separate files must be manually copied to a different PC when backing up data or transferring project data. These options can only be set in combination with the ETS 3. In combination with the ETS 2 the project data will always be saved in a separate file.

8.3 Hardware

The values in the firmware version and firmware file fields serve only as information. If required, the configuration software will automatically load the current firmware into the panel.

During the commissioning, the PC determines first which data is currently loaded into the device. In order to keep the time required for the programming operation at a minimum, only the changed data will be transferred afterwards. The option „Transfer all during the next download“ will load the complete application without optimization. This might considerably prolong the time required for the commissioning .

Basically, it should not be necessary to activate these options. In case any problems arise during the commissioning, they can be, if applicable, remedied with this option.

8.4 Display elements

The options found on the “Display elements” tab allow the user to create a uniform positioning and design of the display elements when creating his own pages.

9 Commissioning

9.1 General

Depending on the scope of the project the commissioning of the panel may take some time. That’s why the following procedure is recommended.

The programming of the physical address is carried out via the ETS via the regular data interface.

After the programming of the physical address a complete download will take place during the next loading of the application and data set in the configuration software. In any case the device should directly be connected to the PC via the installed USB interface. The programming then must be started from the configuration software via the “Download” menu.

If only smaller changes have been made later on, the download can be carried out both via the ETS and the bus line as well as via by the configuration software via the USB interface.

It is recommended to use a direct connection via the USB interface when making changes to the background images or to the symbols for the display elements and the status elements.

9.2 USB

The connection to the PC requires a USB connection with plug type B.
Before connecting the device to the PC the user software and the USB drivers have to be installed.
In order to automatically copy the USB drivers to the PC after the plug-in installation, the "Install USB driver" check box must be activated at the end of the plug-in installation.

The drivers are initialized when the device is connected to the PC for the first time. This requires the appropriate access rights for the PC.

Some PC operating systems check during the initialization (initial connection of the device to the PC) whether the USB driver has been certified. Such messages can be ignored and the installation can be continued.

Only one device may be connected to the PC.

9.2.1 Trouble shooting:

In case the device has not been found, please check the following:

1. Is the device switched on and connected to the PC?
   Remedy: Reboot the PC and try to download again.

2. The device is properly connected
   Remedy: Reinstall the USB driver.

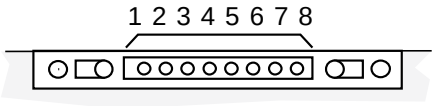
Driver installation
Note: The following procedures require the appropriate access rights for the PC.

1. Uninstalling existing drivers
   a. Disconnect the device from the PC
   b. Open "Software" in the system control panel.
   c. Select " CP210x USB to UART BridgeController MT ct" and uninstall the driver.
2. Installation of new drivers
   a. During the installation of the plug-in a copy of the driver is copied to the PC (…\Programs\All Users\ELKA Shared\EIB\MTct\USB-Driver) Run the program "PreInstl.exe" in order to install the new drivers
   b. OR: Reinstall the plug-in. At the end of the installation there is the option to automatically install the USB drivers.
3. Reboot the PC after the driver installation
4. Connect device to the PC – the drivers will be initialized.
5. Retry the download

10 Past events list:

Displayed text in the device	Function
Restart	Restart
WDT: Reset	Watchdog Timer Reset
HW: Reset	Hardware Reset
GDI: Init error	Init graphic system aborted
Past events: CRC error	Check sum error past events memory
Past events: Reset	Past events memory reset
Parameter: CRC error	Check sum error parameter
GW: CRC error	Check sum error limit values
GW: Reset	Limit values reset
SU: CRC error	Check sum error timer
SU: Reset	Timer data reset
LS: CRC error	Check sum error light-scenes
LS: Reset	Light-scene data reset
PW: CRC error	Check sum error passwords
Display: CRC error	Check sum error display settings
ML: Reset	Error memory has bee deleted
Clock: Error	Date / time of day invalid
BCU: Error	KNX - Controller not accessible
System: initialized	System successfully initialized
KNX: Buffer error	KNX - Buffer not available
USB: Stop application	USB download: Stop application
USB: Reboot	USB download: Reboot
KNX: Stop application	KNX download: Stop application
KNX: Reboot	KNX download: Reboot
Timeout: Reboot	Download time out Reboot
BCU: Reset	BCU Reset completed
BCU: Power down	BCU power down
BCU: Start up	BCU start up
PW: Reset	Passwords reset
Default setting: Reset	Reset to default
Calibration CRC error	Error calibration data
Calibration: OK	Calibration OK
Calibration: Error	Calibration incomplete

11 Connection of external – Pushbutton extension
Connection and terminals:



Connection:

(1) GND
(2) Key 1 – arrow up
(3) Key 2 – arrow down
(4) Key 3 – function key 1
(5) Key 4 – function key 2
(6) Key 5 – function key 3
(7) Key 6 – function key 4
(8) not available

Scope of functions

In addition, the panel can be controlled via a connected external keyboard.
For this, the keys 1,2 are used to navigate between the display elements.
The keys 3,4,5,6 have the same behaviour as the keys on the display. The key functions will also be executed, if the keys on the display have been switched invisible.

Note:
The following elements cannot be controlled with the external keyboard:

Entering numbers via the numeric pad (e.g. password, timer, limit values).
Entering text (e.g. light scene names).
Changing a value via the bargraph (editing of values in the bar graph diagram).

The controlling and leaving the value and text editing pages is possible exclusively via the touch display.

12 Parameters

Description	Values	Remarks
12.1 General parameters for the complete device		
Mounting position	**Landscape format** Portrait format	This parameter determines the orientation of the display. The „Landscape format“ setting provides an area of 320 x 240 pixels. The „Portrait format“ setting provides an area of 240 x 320 pixels. If this parameter is changed, all configuration data will get lost.
Automatically to Homepage	**No** 2 min 5 min 10 min 30 min 60 min	If the panel has not been operated for longer than this length of time, the display will automatically switch to the page that has been selected with the following parameter.
Homepage	**[1] Page – Page** … List of all configured pages	This parameter determines which page will be displayed after an initialization.
System colour scheme	**Scheme 1** … List of defined colour schemes	All display pages that have no colour scheme assigned to them use the colours of this scheme.
Duration of acoustic warning	**10 sec** 30 sec 1 min 3 min 5 min	Duration for which the piezo buzzer will be switched on in case of a fault message. It will be automatically switched off after that time.
External object for acoustic warning	**No** yes	If this parameter is set to “Yes”, the configuration software will display the “Acoustic warning (tone signal)” object.
Adjust timer in case of change	**No** Yes	If this parameter is set to „Yes“ and a time has been adjusted that lies before the current time, the panel will check whether a telegram has already been transmitted for this channel. If this isn’t the case, the switching time telegram will be transmitted. If the parameter is set to “No”, the switching time will be executed only on the following day.

Scroll bar	Always show Always hide **Automatically**	The panel can display a scroll bar at the right screen margin that helps to navigate between several linked pages or between several display elements. When set to “Automatically”, the scroll bar will be shown if the current page is linked with another page. If set to “Always hide”, pages cannot be linked.
Telegram-Acknowledge	**Required for status indication** Not required for status indication	If the parameter is set to „Required for status indication“ and if the panel does not receive an acknowledgement in response to a telegram, it will show “-----“ instead of the transmitted value. If the parameter is set to “Not required for status indication”, the panel will show the transmitted value even without acknowledgement.
Delay of status request after start (x 5 ms)	50 … 1000, **60**	It defines the waiting time after an initialization until the panel starts to read out values from other communication objects. This parameter allows other devices to have time for their initialization
Delay between status requests (x 5 ms)	10 … 100, **20**	It defines the waiting time between individual status requests. This parameter helps to limit the bus load during the initialization.
Delay between light-scene outputs (x 5ms ms)	10 … 100, **20**	It defines the time for the panel to wait between the individual telegrams of a light-scene. This parameter helps to limit the bus load during the light-scene control.
Transmit limit values during initialization	**No** Yes	If set to “Yes”, the device will transmit the states of the limit value objects as soon as they have a valid value. If set to “No”, the device will transmit the limit value objects only after the limit values have been exceeded or undershot.
Character set	Eastern Europe (1250) Cyrillic (1251) **Western Europe (1252)** Greek (1253)	The parameter allows to use different languages
Keyboard layout	**German (Germany)** English (Great Britain)	The parameter determines the arrangement of certain characters on the on-screen keyboard

LCD Lighting		
LCD Lighting	Permanent operation **On actuation** On actuation or in case of a switching object	The parameter determines when the lighting of the display will switch to maximum brightness. If the “On actuation or in case of a switching object” setting has been selected, an additional communication object will be shown.
Permanent LCD Lighting	**1 min** 3 min 5 min 10 min 15 min 30 min	If the panel has not been operated for longer than this length of time, the background lighting of the display will switch to basic brightness.
Basic brightness	Off **Dim** Bright	The parameter defines the state of the background lighting of the display, in case it has not been used for any length of time.
Date / time of day		
Display format date	DD,MM,YYYY DD.MM.YY MM.DD.YY MM.DD.YYYY	The parameter defines the format used for the display of the date. “DD” indicates the day, “MM” the month and “YY” or “YYYY” the year.
Display format date	12 hours 24 hours	Optionally, the panel can display the time in a 24 hour format or in a 12 hour format (with “AM“ and “PM“
Transmit date	**No transmission** Cyclical transmission	If the setting “Cyclical transmission” has been selected, the “Transmit cycle time for date” as well the “Transmit date object” communication object parameter will appear.
Transmit cycle time for date	1 / Minute 1 / Hour **1 / Day**	It defines how frequently the panel transmits the current date.
Transmit time of day	**No transmission** Cyclical transmission	If the setting “Cyclical transmission” has been selected, the “Transmit cycle time for time of day” as well the “Time of day object” communication object will appear.
Transmit cycle time for time of day	1 / Minute 1 / Hour **1 / Day**	It defines how frequently the panel transmits the current time of day.
Automatic clock change	No **According to European standard** Via switching object	Depending on the synchronization by the external clock, the internal clock of the panel can change between regular time and daylight saving time either automatically or after an activation via a communication object.

Request date / time of day	**No** Yes	For the synchronization of the internal clock, the panel can request another device to transmit the current time of day and the current date via a 1-bit object. In this case the next parameter is shown. It will define which object value is used for the request.
Request via	0 telegram **1 telegram**	
Synchronization with external clock	**No** Date & time of day Date Time of day	If a higher-level clock regularly transmits the current time of day and/or the current date, the panel can automatically synchronize the internal clock.
Download behaviour		
Overwrite Light-scene names, delete light-scene values	**No** Yes	If the panel is commissioned for the first time, the parameter must be set to „Yes“. Unless the parameters for the light-scenes are not changed, the time required can be reduced afterwards by the setting „No“. Settings made by the users remain valid.
Delete all switching times of the timer	**No** Yes	If the panel is commissioned for the first time, the parameter must be set to „Yes“. Unless the parameters for the timer are not changed, the time required can be reduced afterwards by the setting „No“. Settings made by the users remain valid.
Overwrite limit values	**No** Yes	If the panel is commissioned for the first time, the parameter must be set to „Yes“. Unless the parameters for the limit values are not changed, the time required can be reduced afterwards by the setting „No“. Settings made by the users remain valid.

12.2 Pages		
Description		A description can be entered which will appear in the tree structure.
Display caption	No **Yes**	Display the page caption?
Caption	**Page**	A description can be entered that can be shown on the display.
Password level	**No password protection** Password level 1 Password level 2 Password level 3 Password level 4	In case a password level is set up, the user must enter the correct key word when requesting the page, if the previous page has a lower password level.
Background image	No presetting	The dialog box „List of images“ opens up. That enables the user to add new images to the list and to select existing images as a background.
Colour scheme	**System** … List of defined colour schemes	When preset to “System”, the page uses the scheme which has been selected in the “General” parameter group.
Display the status line	No **Yes**	It defines whether the status line is to be displayed at the upper screen margin.
Previous page	---	If the scroll bar is automatically or permanently displayed, a logical order can be defined. The double arrows of the scroll bar allows the user to browse forwards or backwards.
Next page	---	

12.3 Parameters for display elements		
General		
Description	**Display element**	A description can be entered which will appear in the tree structure.
Text	**Display element**	This text appears at the position in the display element that will be determined with the other parameters.
Width Height	100 25	These two parameters determine the size of the display element. The adjustable values depend on the mounting position of the panel and the position of the display elements.
X-position Y-position	10 70	These two parameters determine the position of the display element. The adjustable values depend on the mounting position of the panel and the position of the display elements.
Horizontal test alignment	**Left-aligned** Centred Right-aligned User defined	This parameter defines the alignment of the display element text within the display element. If set to “User defined”, an additional parameter is shown for the precise positioning of the text.
X position of the text	2	
Vertical text alignment	Top **Centred** Bottom	This parameter defines the alignment of the display element texts within the display element.
Border of inactive display element	Always hide **Always show** Display focused	The border of an inactive display element can either be shown or hidden. The setting „Display focused“ points out which display element has been selected
Background image	Transparent **covered**	The background of the display element can be made transparent, for example, in conjunction with background images.
Element selectable	No **Yes**	Display elements that are not selectable cannot trigger a function. They are used only for display purposes and do not feature any settings for the control.

Touch operation	**One-touch operation** Two-touch operation	One-touch operation means that the function of key 1 is executed as soon as the display element is touched. Two-touch operation means that the function keys are displayed when touching the display element but that no function will be directly executed.
Hide function keys	**No** Yes	The function keys can be hidden for the one-touch operation. However, the function of key 1 will be executed. In conjunction with the keypad, the function of the other keys can also be executed.
Function		
Function display	**Text display** Switching Dimming Blind/shutter Value Light-scene Date Time of day ASCII text Access control Forced control Operating mode switch-over	Depending on this setting, other parameters and, if applicable, other communication objects can be shown.
Switching function		
Status indication	**Via text** Via symbol	Optionally, the display element can use either text or images that are to be selected from the list of images.
Only in case of a status indication via text		
Display text for 1	**On**	The user can enter text used for the status indication.
Display text for 0	**Off**	
X position of the value	0	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Only in case of a status indication via symbol		
Symbol for 1 Symbol for 0	No presetting	Images can be selected from the list of images for the status indication.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

Dimming function		
Display	**Switching state** Brightness value	Depending on this choice, several object types and parameters are available.
Only for the display of the switching state		
Status indication	**Via text** Via symbol	Optionally, the display element can use text or images from the list of images.
Only in case of a status indication via text		
Display text for 1 Display text for 0 X position of the value	**On** **Off** **0**	The user can enter text for the status indication. The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Only in case of a status indication via symbol		
Symbol for 1 Symbol for 0	No presetting	Images from the list of images can be selected for the status indication.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Time basis between switching and dimming	10 ms **100 ms** 1 sec	These two parameters determine the length of time from which on the panel will identify a long-time actuation as dimming.
Time factor between switching and dimming	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

Only for the display of the brightness value		
Display mode of value	**0 … 100%** 0 … 255	This parameter defines how the numerical value is displayed.
Status indication	**Via value** Via bargraph	Optionally, the status can be indicated as a numerical value or in the form of a bar.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Shutter/blind function		
Status indication	**Via text** Via symbol	Optionally, the display element can use text or images selected from the list of images.
Only in case of a status indication via text		
Display text for Blind/shutter on top	**Top**	The user can enter text for the status indication.
Display text for Blind/shutter at bottom	**Bottom**	
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

Only in case of a status indication via symbol		
Symbol for Blind/shutter on top Symbol for Blind/shutter at bottom	No presetting	Images can be selected from the list of images for the status indication.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Time basis between short- and long-time operation	10 ms **100 ms** 1 sec	These two parameters determine the length of time from which on the panel will treat it as a long-time actuation.
Time factor between short- and long-time operation	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
Slat adjustment time basis	10 ms **100 ms** 1 sec	These two parameters determine the length of time for the rotation of the slats.
Slat adjusting time factor.	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

Only for the value function		
Value display	**DPT 9.001 … 9.021 (2-byte – value)** DPT 5.001 … 5.004 (1-byte – rel.value) DPT 14.000 … 14.079 (4-byte – IEEEE-Float) DPT 8.001 (2-byte – Counter signed) DPT 7.001(2-byte – Counter) DPT 13.001 (4-byte – Counter signed) DPT 12.001 (4-byte – Counter) DPT 6.010 (1-byte – Counter signed) DPT 5.010 (1-byte - Counter)	The parameter defines the range of values and the data format of the corresponding communication objects. Depending on this setting, other parameters are shown.
Offset Gain	0 1	These parameters can be used to convert the value of the communication object to the desired format.
Format	#####.#	The list of predefined units can be extended by entering others manually.
Unit	List of predefined units	
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Limit value monitoring	**No** Yes	There are two limit values available for each value display which are adjusted with the following parameters.
Upper limit value	**No** Yes	The limit value can be deactivated or activated.
Value	670760,96	The entered value applies to the value adjusted above.
Hystereses	0	The hystereses must be meaningful by considering the chosen range of values.
Limit value adjustable	No **Yes**	The parameter defines whether the user may change the limit value at a later time.
Behaviour when exceeding the limit value	No action **1 telegram** 0 telegram	The limit value object can transmit an adjustable value when exceeding and / or falling below the limit value.
Behaviour when falling below the upper limit value - hystereses	No Action 1 telegram **0 telegram**	

Transmit delay	No delay 1 sec 3 sec 5 sec 10 sec 15 sec 30 sec 1 min 3 min 5 min 10 min 15 min 30 min 60 min	A delay time can be specified for the purpose of limiting the number of transmitted telegrams.
Lower limit value	**No** Yes	The limit value can be deactivated or activated.
Value	670760,96	The entered value applies to the value adjusted above.
Hystereses	0	The hystereses must be meaningful by considering the chosen range of values.
Limit value adjustable	No **Yes**	The parameter defines whether the user may change the limit value at a later time.
Behaviour when falling below the the limit value	No Action **1 telegram** 0 telegram	The limit value object can transmit an adjustable value when exceeding and / or falling below the limit value.
Behaviour when exceeding the lower limit value + hystereses	No Action 1 telegram **0 telegram**	
Transmit delay	No delay 1 sec 3 sec 5 sec 10 sec 15 sec 30 sec 1 min 3 min 5 min 10 min 15 min 30 min 60 min	A delay time can be specified for the purpose of limiting the number of transmitted telegrams.

For light-scene function		
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
For Date function		
Source	Internal EIB	Depending on this setting, a corresponding communication object can be shown.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
For Time of day function		
Source	**internal** EIB	Depending on this setting, a corresponding communication object can be shown
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Offset (hours)	-12 … 12, **0**	The time of day can be adjusted to reflect different time zones.
For ASCII text function		
Length of the ASCII text	1 … 14, **14**	This setting allows to shorten the received text for the display.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

For Access control function		
Display	**Code number** Status byte	The parameter defines the part of the communication object to be displayed.
For Display of status byte		
Status byte to be displayed	Encoding information Reading order **Authorization** Error status	A part can be selected from the partial information of the status byte.
Display text for 1	Encoded L -> R **Accepted** Error	Depending on the selected partial information of the status byte, several display texts are predefined. These texts can be modified.
Display text for 0	Normal L -> R **Not accepted** OK	
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
For Forced control function		
Text for forced ON Text for forced OFF Text if not-forced ON Text if not-forced OFF	**No presetting**	The user can enter the corresponding texts for the four possible values.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
For operating mode switch-over function		
Operating mode switch-over Via	Individual objects (1-bit) **KONNEX**	Depending on this setting, different communication objects are shown.
Status indication	**Via text** Via symbol	
Only in case of a status indication via text		
Text for comfort mode Text for standby mode Text for reduction at night Text for frost/heat protection Text for automatic operation	**No presetting**	The user can enter text for the status indication.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.

Only in case of a status indication via symbol		
Symbol for comfort mode Symbol for standby operation Symbol for reduction at night Symbol for frost/heat protection Symbol for automatic operation	No presetting	Images can be selected from the list of images for the status indication.
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
12.4 Key		
General		
Description	**Key**	A description can be entered which appears in the tree structure.
Text for line 1	**No presetting**	There are two text lines available for the description of the key function. They can be horizontally positioned.
X position for line 1	**0**	
Text for line 2	**No presetting**	
X position for line 2	**0**	
Function		
Function	**No function** Switching function of the display element Dimming function of the display element Blind/shutter function of the display element value display of the display element Forced control function of the display element Operating mode switch-over of the display element Switching Blind/shutter Dimming Value Light-scene Forced control Page request	Depending on the function of the display element, the key can assume several operating functions. Some functions are not available for all display elements. If the key function directly applies to the display element, the objects of the display element will be used. Otherwise, separate objects are shown for the key.
For the switching function of the display element		
Function on actuation	No function **On** OFF TOGGLE	When pressing or releasing the key, similar functions can be triggered.
Function when releasing	**No function** On OFF TOGGLE	

For the dimming function of the display element		
Dimmer key function	Darker (OFF) **Brighter (ON)** Brighter / darker (TOGGLE) **Brightness value** Editing	The available key functions depend on the settings for the display element.
For brightness value		
Value (%)	0 … 100, **50**	On actuation, a defined value is transmitted.
For editing		
Minimum value (%) Maximum value (%)	0 100	On actuation a screen opens where the user can enter the desired value which has to lie within the adjusted limits.
For the blind/shutter function of the display element		
Blind/shutter function	UP **DOWN** TOGGLE	Defines the direction of the drive The parameters of the display element make the distinction between short-time and long-time actuation.
For the value display function of the display element		
Value function	**Transmission** Editing	On actuation, either a defined value can be transmitted or a screen opens that allows the user to enter the desired value which has to lie within the adjusted limits.
For value function Transmission		
Value to be transmitted	**0**	The value applies to the settings (offset, Gain) of the display element.
For value function Editing		
Minimum value Maximum value	-671088,64 670760,96	These parameters define the limits when entering the value to be transmitted. They apply to the settings of the display element.
For the forced control function of the display element		
Key function.	No function On Off TOGGLE **Forced ON** Forced OFF Forced control OFF	On actuation, one of the possible values will be transmitted.

For operating mode switch-over function of the display element		
Function on actuation	No function **Comfort** Standby Reduction at night Frost/heat protection Automatic mode	On actuation of the key, a defined operating mode will be activated. The switch-over takes place via the object/objects of the display element. The automatic mode is available only, if the operating mode switch-over takes place via a 1-byte object according to Konnex standard.
For switching function		
Function on actuation	No function **On** OFF TOGGLE	The panel can optionally transmit an adjustable telegram when actuating and/or releasing the key.
Function when releasing	**No function** On OFF TOGGLE	
For shutter/blind function		
Blind/shutter function	UP **DOWN** TOGGLE	Defines the direction of the drive
Time basis between short- and long-time operation	10 ms **100 ms** 1 sec	These two parameters determine the length of time from which on the panel will treat it as a long-time actuation.
Time factor between short- and long-time operation	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
Slat adjustment time basis	10 ms **100 ms** 1 sec	These two parameters determine the length of time for the rotation of the slats.
Slat adjusting time factor.	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
For Dimming function		
Dimmer key function	Darker (OFF) **Brighter (ON)** Brighter / darker (TOGGLE) Brightness value	Depending on this setting, different objects are shown for the key.
Not for brightness value		
Time basis between switching and dimming	10 ms **100 ms** 1 sec	These two parameters determine the length of time from which on the panel will identify a long-time actuation as dimming.
Time factor between switching and dimming	0 … 127, **6**	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.

For brightness value		
Display mode of value	**0 … 100%** 0 … 255	When using a 1-byte object, the values can be displayed as percentage values or as integral numbers.
Value	0 … 100, **50** 0 … 255, 127	Depending on the setting above, the value is entered which will be transmitted on actuation.
For value function		
Value display	**DPT 9.001 … 9.021 (2-byte – value)** DPT 5.001 … 5.004 (1-byte – rel.value) DPT 14.000 … 14.079 (4-byte – IEEEE-Float) DPT 8.001 (2-byte – Counter signed) DPT 7.001(2-byte – Counter) DPT 13.001 (4-byte – Counter signed) DPT 12.001 (4-byte – Counter) DPT 6.010 (1-byte – Counter signed) DPT 5.010 (1-byte - Counter)	The parameter defines the range of values and the data format of the corresponding communication objects.
Value	**0**	The possible values depend on the type of object defined above.
For light-scene function		
Light-scene	List of defined scenes	On actuation, the panel recalls one the internally stored scenes. Before the desired scene can be entered, it has to be created in the tree structure.
For Forced control function		
Key function.	No function On Off TOGGLE **Forced ON** Forced OFF Forced control OFF	Depending on this setting, the panel transmits via the 1-bit object or the 2-bit object.
For page request function		
Jump to page	**Return** List of configured pages Timer – page 1 of 2 Timer – page 1 of 2 Service page Light-scenes– page 1 of 3 Light-scenes– page 2 of 3 Light-scenes– page 3 of 3 Message list	The standard setting for a page request is always the return to the page from which the current page was requested. In order to be able to select a configured page, it first has to be created in the tree structure.

12.5 Service page		
General		
Description	**Service page**	Non-adjustable description
Area 1		
Caption	**Display setting**	Predefined page caption which can be edited, if required.
Password level	**No password protection** Password level 1 Password level 2 Password level 3 Password level 4	In case a password level is set up, the user must enter the correct key word when requesting the page, if the previous page has a lower password level.
Area 2		
Caption	**System setting**	Predefined page caption which can be edited, if required.
Password level	**No password protection** Password level 1 Password level 2 Password level 3 Password level 4	In case a password level is set up, the user must enter the correct key word when requesting the page, if the previous page has a lower password level.
Service address line 1 Service address line 2 Service address line 3 Service address line 4 Service address line 5	**No presetting**	The user can enter an address that he can use later on to receive help.
Permit selection of colour scheme	**No** Yes	If set to “Yes”, the user will be able to select a new system colour scheme at a later time.
Area 3		
Caption	**System setting**	Predefined page caption which can be edited, if required.
Password level	**No password protection** Password level 1 Password level 2 Password level 3 Password level 4	In case a password level is set up, the user must enter the correct key word when requesting the page, if the previous page has a lower password level.

12.6 Status line		
Status element		
General		
Description	**Status element**	Predefined description which can be edited, if required, and which will appear in the tree structure.
Function		
Function	**Event indication** Collective fault message Value Date Time of day ASCII text	The user can choose the function of the status element. It largely corresponds to the display element with the same name. The event display corresponds to a display element with the function „Switching“. The collective fault message is active, if at least one fault message has been activated. Depending on the selection, different communication objects will be shown.
For Event display function		
Display	Via text **Via symbol**	
Only in case of a display via text		
Display text for event Display at bit=1	**On**	The user can enter text for the display.
Display text for event Display at bit=0	**Off**	
X position of the value	**0**	The user can determine the position of the status indication within the display element. The setting range depends on the size of the display element.
Only in case of a status indication via symbol		
Symbol for event display for bit=1	**No presetting**	The user can select the image that is to be displayed in case of a fault message from the list of images.
Symbol for event display for bit=0		
X position of the value	**0**	The user can determine the position of the display within the status line.
For collective fault message function		
Symbol for collective fault message	**No presetting**	The user can select images from the list of images for the display.
X position of the value	**0**	The user can determine the position of the display within the status line.

For value function		
Value display	**DPT 9.001 … 9.021 (2-byte – value)** DPT 5.001 … 5.004 (1-byte – rel.value) DPT 14.000 … 14.079 (4-byte – IEEEE-Float) DPT 8.001 (2-byte – Counter signed) DPT 7.001(2-byte – Counter) DPT 13.001 (4-byte – Counter signed) DPT 12.001 (4-byte – Counter) DPT 6.010 (1-byte – Counter signed) DPT 5.010 (1-byte - Counter)	The parameter defines the range of values and the data format of the corresponding communication objects. Depending on this setting, other parameters are shown.
Offset	0	These parameters can be used to convert the value of the communication object to the desired format. The list of predefined units can be extended by entering others manually.
Gain	1	
Format:	#####.#	
Unit	List of predefined units	
X position of the value	**0**	The user can determine the position of the display within the status line.
For Date function		
Source	**internal** EIB	Depending on this setting, a corresponding communication object can be shown
X position of the value	**0**	The user can determine the position of the display within the status line.
For Time of day function		
Source	**internal** EIB	Depending on this setting, a corresponding communication object can be shown
X position of the value	**0**	The user can determine the position of the display within the status line.
Offset (hours)	-12 … 12, **0**	The time of day can be adjusted to reflect different time zones.
For ASCII text function		
Length of the ASCII text	1 … 14, **14**	This setting allows to shorten the received text for the display.
X position of the value	**0**	The user can determine the position of the display within the status line.

12.7 Timer		
12.7.1 Timer page		
General		
Caption	**Timer – page 1 of 2**	Predefined description which can be edited, if required, and which will appear in the tree structure.
12.7.2 Timer channel		
General		
Description	**Channel**	Predefined description which can be edited, if required, and which will appear in the tree structure.
Text	**Channel**	Predefined description which can be edited, if required, and which will appear on the screen.
X position of the text	**10**	
Function		
Function	**Switching** Value Light-scene Operating mode switch-over	The other settings and functions largely corresponds to the display elements with the same names. Depending on the selection, different communication objects will be shown.
12.7.3 Time/ key		
General		
Description	**Key**	A description can be entered which will appear in the tree structure.
Text for line 1	**No presetting**	There are two text lines available for the description of the key function. They can be horizontally positioned.
X position for line 1	**0**	
Text for line 2	**No presetting**	
X position for line 2	**0**	

Function		
Function	**No function** Switching function of the display element Value display of the display element Light-scene of the display element Operating mode switch-over of the display element Change timer setting for the channel. Page request	Depending on the function of the timer channel, the key can assume different operating functions. If the key function directly applies to the timer channel, the objects of the display element will be used. Otherwise, separate objects are shown for the key. A predefined page opens where the user can change the timer settings for the channel. The page request is preset to return. Again, a page has to be created first in the tree structure before the page can be requested.
12.8 Fault message		
General		
Description	**Fault message**	Predefined description which can be edited, if required, and which will appear in the tree structure.
Activation via object value	0 telegram **1 telegram**	Defines the object value at which the fault message occurs. The inverted object value will end the fault message. Down below, the user can adjust whether these occurrences are to be logged in the message list.
Text of fault message	**No presetting**	The user can enter a text which both is entered in the message box and, if desired, in the message list.
Acoustic warning	**Yes** No	This allows the piezo buzzer to be switched on in order to signal the occurring fault message
Disabling other fault message boxes in case of fault message	**No presetting**	This parameter opens a separate dialog box that allows to determine which other fault messages are disabled, if this message has been activated.

Message box		
Open message box	**Yes** No	When the message box is opened, the message can be acknowledged.
Record address of transmitter	Yes **No**	The physical addresses of the devices that have activated or deactivated a fault message can be recorded in the message list.
Text line 2 Text line 3	**No presetting**	These two text lines appear only in the message box.
Display external text in case of fault message	**Yes** No	If this parameter has been set to „Yes“, a 14-byte object that can receive a text message will be displayed. This text will also be shown in the message box. The display of the message box will be internally delayed in order to receive this external text.

Acknowledgement		
Acknowledgement via key	**Internal effect only** Transmits object value 0 Transmits object value 1 Disabled	These parameters define from where a fault message can be acknowledged. If only the panel is used for the display and acknowledgement, the presettings for the two parameters can be retained.
External acknowledgement via object value	1 telegram 0 telegram **Disabled**	In case several equal devices have been installed for the acknowledgement, the fault message, the same object value is to be used for all object values. In case a higher-level device is to be used for the acknowledgement, the internal acknowledgement has to be disabled for all other devices and the object value is to be defined for the external acknowledgement.
Reminder after acknowledgement	Yes **No**	The fault is not automatically remedied after an acknowledgement. As a reminder the fault message box can be displayed again after a predefined length of time.
Reminder after	1 min 5 min **10 min** 30 min 1 h 2 h	If the reminder is desired, the user can adjust the waiting time until the reminder is shown.
Page request	**List of configured pages**	When closing the message box, one of the configured pages can automatically be requested. The request is carried out only if no other active fault message is present.
Message list		
Entry in message list	**Yes** No	If this parameter is set to “Yes”, the other parameters will be shown.
Enter incoming	**Yes** No	“Yes” means that the time of activation of the fault message is recorded in the message list.
Enter eliminated	**Yes** No	“Yes” means that the time of deactivation of the fault message is recorded in the message list.
Enter acknowledged	**Yes** No	“Yes” means that the time of acknowledgement of the fault message is recorded in the message list.

12.9 Timing elements		
Description	Filtering / time	Predefined description which can be edited, if required, and which will appear in the tree structure.
Input -> Output	On - > --- / Off -> --- On -> On / Off -> --- On -> --- / Off -> Off **On -> On / Off -> Off** On – Off / Off -> --- On -> --- Off -> On On -> Off / Off -> On On -> Toggle / Off -> --- On -> --- / Off -> Toggle On -> Toggle / Off -> Toggle	Depending on the value of the input object, the timing element can output an adjustable value.
Time function output	**No delay** ON-delay OFF-delay ON-delay and OFF-delay	Depending on this setting, the following parameters are shown.
ON-delay	**100 ms** 1 sec 1 min	ON-delay and OFF-delay can be separately adjusted. The delays apply to the output value after the potentially preceding filtering function.
ON-delay factor	0 … 255,**1**	
OFF-delay basis	**100 ms** 1 sec 1 min	In order to achieve a better accuracy, it is recommended to choose a time basis as small as possible with a large time factor.
OFF-delay factor	0 … 255,**1**	
Disabling object available	**No** Yes	If the disabling object is used, the timing element will ignore changes in output when the disable is active.
Behaviour of disabling object	**1 = enabled / 0 = disabled** 0 = enabled / 1 = disabled	
Transmit after enabling the disable	**Yes** No	After the end of the disable, the current input value can be directly continued to be processed or the timing element will wait for the next input telegram.

12.10 Logic gate		
Description	**Logic gate**	Predefined description which can be edited, if required, and which will appear in the tree structure.
Type of operation	**AND operation** OR operation Exclusive OR operation AND with feedback	This parameter defines the logic operation. In case of an AND with feedback, the output value is internally returned to input 1. That means that the output will receive the value “1” only if all other inputs have the value “1” and if the input 1 will receive the value “1” last.
Disabling object available	Yes **No**	If the disabling object is used, the logic gate will ignore changes of the inputs when the disable is active.
Behaviour of disabling object	**1 = enabled / 0 = disabled** 0 = enabled / 1 = disabled	
Transmit in case of	**All input events** Change of output	When set to „Transmit in case of all input events“, a new output telegram will be transmitted even if the value of the output has not changed. This can lead to a higher bus load especially when several logic gates are used. When set to “Transmit in case of change of output”, the bus load will be minimized.
Filtering	**No** Transmit only “1” telegrams Transmit only “0” telegrams	The parameter defines which object values the output is allowed to transmit.

12.11 Multiplexers		
Description	Multiplexer	Predefined description which can be edited, if required, and which will appear in the tree structure.
Disabling object available	Yes **No**	These two parameters provide the option to disable the multiplexer via a 1-bit object. During the disabling, no values will be forwarded to the outputs by the input. The next telegram received will only be forwarded to the active output after the disabling has ended.
Behaviour of disabling object	**1 = enabled / 0 = disabled** 0 = enabled / 1 = disabled	
Function	**1 to 2 multiplexer** 1 to 4 multiplexer	In case of a 1 to 2 multiplexer, a control object as well as one input and two outputs for each channel is available. In case of a 1 to 4 multiplexer, two control objects as well as one input and four outputs for each channel are available.
12.11.1 Multiplexer channel		
Object type input/outputs	DPT 1.001 (1-bit switching) DPT 3.007 (4-bit – dimming) DPT 9.001 … 9.021 (2-byte – value) DPT 5.001 … 5.004(1-byte – rel. value) DPT 14.000 … 14.079 (4-byte –IEEE Float) DPT 7.001, 8.001 (2-byte – Counter) DPT 12.001, 13.001(4-byte – counter) DPT 16.001, 16.002 (1-byte) DPT 5.010, 6.010 (1-byte – Counter)	The input and the outputs of a multiplexer channel will always have the same object type. Several channels of a multiplexer can use different object types.

12.12 Light-scenes		
General		
Description	Light-scenes	Predefined description which can be edited, if required, and which will appear in the tree structure.
Password level	**No password protection** Password level 1 Password level 2 Password level 3 Password level 4	In case a password level is set up, the user must enter the correct key word when requesting the page, if the previous page has a lower password level.
Extension		
Extension object	**Yes** No	It will receive a new number when a new light-scene is created. This number can later be used by other devices to request it via extension objects.
Saving via extension	**Enabled** Disabled	Depending on the object value, the extension object can both be used to recall saved scenes and to save newly adjusted scenes.
12.13 Light-scene page		
Description	Light-scene page…	Predefined decription
Caption	Light-scene page 1 of 3	Predefined description which can be edited, if required, and which will appear in the tree structure.
12.14 Light-scene		
Description	Light-scene	Predefined description which can be edited, if required, and which will appear in the tree structure.
12.15 Light-scene group		
Description	Light-scene group	Predefined description which can be edited, if required, and which will appear in the tree structure.
Object type light-scene group	DPT 1.001 (1-bit switching) DPT 5.001 … 5.004(1-byte – rel. value)	Depending on the selected object type, both switching objects or long-time objects can be connected by blind/shutter actuators and value objects by dimming actuators or positioning objects by blind/shutter actuators.
Software remarks:		