EIB push button interfaces
TA2, TA4 and TA6

TA 2	496 9 202
TA 4	496 9 204
TA 6	496 9 206

Contents

1 Functional characteristics

The push button interfaces TA2, TA 4 and TA 6 are binary input modules with
2, 4 or 6 inputs for floating switch/push button contacts.

The connected switches/push buttons can be used to issue commands to actuators
to dim or switch lights on/off, to raise and lower
blinds.

Furthermore, depending on the device, up to 4 channels can be configured for LED
control.

The device can be installed in combination with conventional push buttons/switches in flush-
mounted sockets. This allows all switching programs to be integrated in EIB systems.

The installation height is only 10 mm which corresponds to the height of the EIB connection
block.

The following functions can be configured:
- Switch / push button input
- Dimmer control
- Control of blinds
- Value
- Command LED*

The telegram type (switching, priority, value and temperature value) and the response for
rising and falling edges can be specified individually.
The response to disable telegrams or after restoration of the bus power can also be configured.

* With TA 6 only C1 .. C4

1.1 Operation

The input is activated when voltage is supplied and the configured telegram is sent. Conventional push buttons, switches or any required sensors (timer, alarm system, etc.) can be connected.

1.2 Features of the binary inputs

- Integrated power supply for contact voltage, no external voltage required
- 5 different input functions can be selected
  - switches / push buttons
  - dimming
  - blinds
  - valuator
  - command LED
- adjustable response to restoration of the bus supply

2 Technical data

2.1 Technical data TA 2 .. TA 6

Power supply: Bus voltage.

Permitted operating temperature: -5 °C... + 45°C

Current draw from bus voltage: Max 10 mA

Bus connection: Bus terminal

Protection class: III in accordance with EN 60730-1

Protection rating: IP 20 in accordance with EN 60529

Dimensions: LxWxH 37 x 37 x 10 (mm)

Inputs

Quantity: TA 2: 2 inputs
                                       TA 4: 4 inputs
                                       TA 6: 6 inputs

Contact voltage: 3.3 V provided internally

Contact current: 0.1 mA

Maximum cable length: 5 m

Response in the event of bus failure: adjustable

LED outputs

Quantity: TA 2: 2
                                       TA 4: 4
                                       TA 6: 4

Use: Low current LEDs without series resistor

Output current: Maximum 1 mA / output

2.2 Connection diagrams

TA 2		
Channel 1 (C1) → GN = green GN/WH = green white*		Switch, push button or LED
	Channel 2 (C2) → RD = red RD/WH = red/white*	Switch, push button or LED

* Common

TA 4		
	Channel 1 (C1) → GN = green GN/WH = green/white*	Switch, push button or LED
	Channel 2 (C2) → RD = red RD/WH = red/white*	Switch, push button or LED
	Channel 3 (C3) → BN = brown BN/WH = brown/white*	Switch, push button or LED
	Channel 4 (C4) → BU = blue BU/WH = blue/white*	Switch, push button or LED

* Common

Please note the different terminal assignment in the TA 6 push button interface.

TA 6		
	Channel 1 (C1) → GN = green	Switch, push button or LED
	Channel 2 (C2) → VT = violet	Switch, push button or LED
	Channel 3 (C3) → RD = red	Switch, push button or LED
	Channel 1, 2, 3 (C1, C2, C3) → BK = black	Common
	Channel 4 (C4) → BN = brown	Switch, push button or LED
	Channel 5 (C5) → YE = yellow	Switch or push button
	Channel 6 (C6) → BU= blue	Switch or push button
	Channel 4,5,6 (C4, C5, C6) → BK = black	Common

3 Application program "PB unit TA6 V1.0"

3.1 Selection in the product database

Manufacturer	THEBEN AG
Product group	Inputs
Product type	Push button interfaces
Program name	PB unit TA6 V1.0

The ETS database can be found on our website: www.theben.de

Table 1

Number of communication objects:	Max. 18
Number of group addresses:	33
Number of assignments:	34

3.2 Communication objects

Each channel-related object can assume various functions depending on its configuration.

Table 2: Overview

No.	Function	Object name	Type	Flags			
				C	R	W	T
	Switch ON/OFF	*Channel 1 switching*	1-bit EIS 1	✓	✓	✓	✓
	Priority	*Channel 1 priority*	2-bit EIS 8	✓	✓		✓
	Send value	*Channel 1 value*	EIS 14 1-byte	✓	✓		✓
	Send temperature value	*Channel 1 temperature*	EIS 5 2-byte	✓	✓		✓
	Switch ON/OFF	*Channel 1 dimming*	1-bit EIS 1	✓	✓	✓	✓
0	*Step / Stop*	*Channel 1 blinds*	1-bit EIS 1	✓	✓		✓
	Send value	*Channel 1 value*	1-byte EIS 14	✓	✓		✓
	Recall/save light scene	*Channel 1 value*	1-byte KNX DTP 18.001	✓	✓		✓
	Position height	*Channel 1 value*	1-byte EIS 6	✓	✓		✓
	Switch ON/OFF	*Channel 1 LED*	1-bit EIS 1	✓	✓		✓
1	*brighter* *darker* *brighter / darker*	*Channel 1 dimming*	4-bit EIS 2	✓	✓		✓
	DOWN *UP* *UP/DOWN*	*Channel 1 blinds*	1-bit EIS 1	✓	✓		✓
2	*Lock*	*Channel 1 lock*	1-bit EIS 1	✓	✓	✓	
				C	R	W	T

Objects 3 .. 17: See below.

Table 3: Overview of object numbers

Device / Function	TA 6					
	TA 4				-	
	TA 2		-		-	
	C1	C2	C3	C4	C5	C6
According to the function of the channel - *Switch ON/OFF* - *Priority* - *Send value* - *Send temperature* - *Step / Stop* - *Light scene* - *Position height*	0	3	6	9	12	15
According to the function of the channel: - *brighter / darker* - *UP* - *DOWN* - *UP/DOWN*	1	4	7	10	13	16
Channel X lock	2	5	8	11	14	17

3.2.1 Description of objects

Objects 0, 3, 6, 9, 12, 15
"Switch ON/OFF, priority, send value, send temperature value, step / stop, recall/save light scene, position height, LED switch"

The function and the type of object are dependent on the *Function of the input* and *Object type* parameters.

Table 4

Function of input	Function	Description
Switch/ push button	Switch ON/OFF	sends 1-bit switching commands in EIS 1 format
	Priority	sends priority telegrams in 2-bit format
	Send value	sends a value between 0 and 255
	Send temperature value	sends a temperature value in 2-byte format
Dimming	Switch ON/OFF	switches dimmer on and off
Blinds	Step / Stop	sends 1-bit "UP" or "DOWN" telegrams.
Value	Value short/long	sends 2 different 8-bit values depending on how long the button is pressed
	Value for light scene	Recall / save light scene via 8-bit telegram
	Value for blinds	Sends an 8-bit percentage value for positioning blinds
Command LED		receives 1-bit telegram to control an LED

- **Objects 1, 4, 7, 10, 13, 16**
  "brighter, darker, brighter / darker, UP, DOWN, UP/DOWN, position slats"

The function and the type of the object likewise depend on the „*Function of the input*" parameter.

Table 5

Set Function of the input	Object function	Description
Switch/ push button	not available	
Dimming	brighter, darker brighter / darker	4-bit dimming commands for the dimming actuator in EIS 4 format
Blinds	UP, DOWN, UP/DOWN	1-bit motion commands for the blinds actuator in EIS 7 format
Value for blinds	Position of slats	Sends 1-byte telegram to position slats
Command LED	not available	

- **Objects 2, 5, 8, 11, 14, 17 "*lock*"**

The corresponding input is disabled via this object.
The resulting response can be set individually on the parameter pages.
1 = disabled
0 = cancel lock

3.3 Parameters

3.3.1 Parameter pages

Table 6

Function	Description
Channel 1 .. Channel 6	Parameter for the relevant input

Each channel has a parameter page. All pages (and channels) have an identical layout.

The first and most important parameter is, on the one hand,
"input function" as that sets the channel function.

Possible functions include:

- **Switch/ push button**
- **Dimmer**
- **Blinds**
- **Value**
- **Command LED**

Depending on the function selected, the parameters listed below may change.

3.3.2 Parameter description

3.3.2.1 The "switch / push button" function

An input is connected to a push button or a switch.
When this is pressed, a switching, value, priority or temperature value telegram is sent to the bus.

The following parameters are available:

Table 7

Designation	Values	Description
Debouncing time	*30 ms* *50 ms* *80 ms* *100 ms* *200 ms* *1 sec.* *5 sec.* *10 sec.*	The new status of the input is only accepted after a time delay to avoid a disruptive switching process due to debouncing of the contact connected to the input. Larger values (≥ 1s.) can be used as a switch-on delay
Object type	*Switching (1-bit)* *Priority (2-bit)* *Value 0.. 255 (1-byte)* *Temperature value (2-byte)*	Channel sends: Switching telegrams Priority telegrams Any desired value between 0 and 255 A temperature value in EIS5 format

Continuation:

Designation	Values	Description
	For object type *Switching*:	
		How does the channel respond when input voltage is applied?
	None	Ignore
	On	Send ON telegram
	Off	Send OFF telegram
	Toggle	Reverse channel status (cf. notching relay)
	For object type *Priority 2-bit*	
	None	No response.
		Table 8: Telegrams
	Priority inactive (00)	
	Priority ON (11)	
	Priority OFF (10)	
	For object type *Value*	
Reaction to rising edge		Any value between 0 and 255 can be sent. These values can also be used as Percentage values or as HVAC commands *(in German HKL = Heizung/Klima/Lüftung)* .
	none	No response
	0 = 0 % (corresponds to HVAC mode: Auto)	0.0% or HVAC "auto" operating mode
	1 (corresponds to HVAC mode: Comfort)	1 or HVAC "comfort" operating mode
	2 (corresponds to HVAC mode: Standby)	2 or HVAC "standby" operating mode
	3 (corresponds to HVAC mode: Night-time temperature reduction)	3 or HVAC "night temperature reduction" operating mode
	4 (corresponds to HVAC mode: Frost protection)	4 or HVAC "frost protection" operating mode
	5 .. 255	any desired value or percentage value Percentage values are given in 5 % increments, e.g. 13 = 5 %, 26 = 10 %, 255 = 100 %.
Reaction to falling edge	See *Reaction to rising edge*	How should the channel react after the input is switched off i.e. with a signal change from 1 to 0? See Reaction to rising edge.

Table 8: Telegrams

Function	Value
Priority inactive (no control)	$0\ (00_{bin})$
Priority ON (control: enable, on)	$3\ (11_{bin})$
Priority OFF (control: disable, off)	$2\ (10_{bin})$

Continuation:

Designation	Values	Description
For *Temperature value* object type.		
Temperature value with a rising edge	*Do not send temperature value.* *0°C .. 40°C in 1°C increments*	No reaction. Send temperature value. This function can be used to send a set point value to a thermostat.
Temperature value with a falling edge	*See temperature value with a rising edge*	Which temperature values should be sent when the input signal changes from 1 to 0?
Common parameters		
Send telegram cyclically	**No** *Yes* *Only after rising edge* *Only after falling edge*	Which events should be sent cyclically?
Cycle time	*2 minutes, 3 minutes,* *5 minutes, 10 minutes,* **15 minutes**, *20 minutes* *30 minutes, 45 minutes,* *60 minutes*	At what intervals are the telegrams to be resent?
Reaction when setting the lock	**Ignore lock** *No reaction when setting the lock* *same as after rising edge* *same as after falling edge*	Disable telegrams are ignored If necessary, only respond if the lock is cancelled Send the same telegram as the one configured for *reaction to rising edge*. Send the same telegram as the one configured for *reaction to falling edge*.
Reaction when cancelling the lock	**No reaction when canceling the lock** *update* *same as after rising edge* *same as after falling edge*	If necessary, only respond if the lock is set The current status of the channel is sent. Send the same telegram as the one configured for *reaction to rising edge*. Send the same telegram as the one configured for *reaction to falling edge*.

Continuation:

Designation	Values	Description
Reaction after restoration of the bus supply	**none**	No reaction.
	update	The current status of the channel is sent.
	same as after rising edge	Reaction configured as for rising edge.
	same as after falling edge	Reaction configured as for falling edge.
	update after 5 sec. *update after 10 sec.* *update after 15 sec.*	The current channel status is sent after the selected time has elapsed.
	after 5 sec. same as after rising edge *after 10 sec. same as after rising edge* *after 15 sec. same as after rising edge*	After the selected time has elapsed, the channel reacts as if configured for rising edge.
	after 5 sec. same as after falling edge *after 10 sec. same as after falling edge* *after 15 sec. same as after falling edge*	After the selected time has elapsed, the channel reacts as if configured for falling edge.

3.3.2.2 The "Dimming" function

With the single button operation, an input is connected to a simple push button.

With other types of operation 2 inputs and two push buttons are required per dimmer channel. That means that both inputs must be connected via common group addresses.
Example:
Group address 3/4/5 for *brighter* object from channel 1 and *darker* object from channel 2.
Group address 3/4/6 for the *switch ON/OFF* objects from channel 1 and channel 2.

Depending on the duration of the keystroke (short/ long key stroke), dimming or ON/OFF telegrams are sent to the dimmer. See below.

The following parameters are available:

Table 9

Designation	Values	Description
Debouncing time	*30 ms* **50 ms** *80 ms* *100 ms* *200 ms* *1 sec.* *5 sec.* *10 sec.*	Debouncing of the connected key (see "Switch / push button function" above)
Reaction to "long" / "short"		This input distinguishes between a long and a short keystroke, and can therefore perform two functions
	Single button operation	The dimmer is operated by a single push button. Short keystroke = ON/OFF Long keystroke = brighter / darker Release = stop
	brighter / ON	With the other models, the dimmer is operated using two keys (rocker). Short keystroke = ON Long keystroke = brighter Release = stop
	brighter / TOGGLE	Short keystroke = ON/OFF Long keystroke = brighter Release = stop
	darker / OFF	Short keystroke = OFF Long keystroke = darker Release = stop
	darker / TOGGLE	Short keystroke = ON/OFF Long keystroke = darker Release = stop

Continuation:

Designation	Values	Description
Long keystroke starting at	***300 .. 1000ms***	This function serves to clearly differentiate between long and short keystrokes. If the key is pressed at least as long as the set time, then a long keystroke will be registered.
Increments for dimmer		With a long keystroke, the dimming value is:
	100 %	Increased (or decreased) until the key is released.
	50 %	Raised by the selected value
	25 %	(or lowered)
	12,5 %	
	6 %	
	3 %	
	1,5 %	
Reaction when setting the lock	***Ignore lock***	Disable telegrams are ignored
	No response when the lock is set	It only reacts once the lock is cancelled
	ON	Send switch-on telegram
	OFF	Send switch-off telegram
Reaction to cancellation of the lock	***No response when the lock is cancelled***	Cancelling the lock does not issue a telegram
	ON	Switch dimmer on
	OFF	Switch dimmer off
Reaction after restoration of the bus supply	***none***	No reaction
	ON	Send switch-on telegram
	OFF	Send switch-off telegram
	ON after 5 sec	Send switch-on telegram with delay
	ON after 10 sec	
	ON after 15 sec	
	OFF after 5 sec	Send switch-off telegram with delay
	OFF after 10 sec	
	OFF after 15 sec	

3.3.2.3 The "Blinds" function

With the single button operation, an input is connected to a simple push button.

With other types of operation, 2 inputs and two push buttons are required per blinds channel. That means that both inputs must be connected via common group addresses.
Example:
Group address 3/5/5 for *UP* object from channel 1 **and** *DOWN* object from channel 2. Group address 3/5/6 for the *Step /Stop* object from channel 1 and channel 2.

Motion or step commands are sent to the blinds actuator depending on the duration of the keystroke (short/ long key stroke). See below.

The following parameters are available:

Table 10

Designation	Values	Description
Debouncing time	*30 ms,* **50 ms,** *80 ms, 100 ms 200 ms, 1 sec. , 5 sec., 10 sec.*	Debouncing of the connected key (see "Switch / push button function" above)
Operation	*Single button operation*	The blinds are operated with a single push button. Short keystroke = Step Long keystroke = Move
	DOWN	Short keystroke = Step Long keystroke = Lower
	UP	Short keystroke = Step Long keystroke = Raise **Run commands**: Direction change with every keystroke. The **stop command** is triggered either by releasing the button or pressing it briefly, depending on the configuration. See below: *Motion is stopped by*
Long keystroke starting at	*300 .. 1000ms*	This function serves to clearly differentiate between long and short keystrokes. If the key is pressed at least as long as the set time, then a long keystroke will be registered.
Motion is stopped by	*releasing the key* **Short keystroke**	How is the stop command triggered?
Reaction when setting the lock	**Ignore lock**	Disable telegrams are ignored
	No reaction when the lock is set	only react if the lock is cancelled
	UP	Send move up command
	DOWN	Send move down command

Continuation:

Designation	Values	Description
Reaction when cancelling the lock	***No reaction when the lock is cancelled***	only react if the lock is set
	Up	Send move up command
	Down	Send move down command
Reaction after restoration of the bus supply	***none***	No reaction
	UP	Send move up command
	DOWN	Send move down command
	UP after 5 sec	Send delayed move up command
	UP after 10 sec	
	UP after 15 sec	
	DOWN after 5 sec	Send delayed move down command
	DOWN after 10 sec	
	DOWN after 15 sec	

3.3.2.4 The "Value" function

Basic functionality:

Pressing the connected push button triggers a value telegram.
Two different telegrams can also be sent ("long/short" function) depending on the configuration.

Table 11

Designation	Values	Description
Debouncing time	*30 ms,* **50 ms,** *80 ms* *100 ms, 200 ms, 1 sec.* *5 sec., 10 sec.*	Debouncing of the connected key (see above: "<u>The swittch /push button function</u>")
Type of value	*Value short/long*	Sends two different values, depending on whether the key is pressed for a long or short period
	Value for light scene	Send a scene number between 0 and 63.
	Value for blinds	Sends a height telegram and a slats telegram
Parameter for *the type of value "short / long"*		
Value	*Input 0 .. 255*	Value which is to be sent with a short* keystroke.
Special function after long keystroke	*no* ***Yes***	Is a different value sent by a long keystroke?
Long keystroke starting at	*1 sec.* *2 sec.* ***3 sec.*** *5 sec.*	This function serves to clearly differentiate between long and short keystrokes. If the key is pressed at least as long as the set time, then a long keystroke will be registered.
Value with a long keystroke	*Input 0 .. 255*	Value to be sent with a long keystroke
Designation	Values	Description
Parameter for the type of value "Value for light scene"		
Scene number	***Scene 1*** *..* *..* *Scene 64*	Sends the selected scene number (call scene)
Save with long time operation	***No*** *yes*	If a saved scene telegram is to be sent with a long keystroke
Long keystroke starting at	*1 sec.* *2 sec.* ***3 sec.*** *5 sec.*	This function serves to clearly differentiate between long and short keystrokes. If the key is pressed at least as long as the set time, then a long keystroke will be registered.

Continuation:

Designation	Values	Description
Parameter for the type of value "Value for blinds"		
Height	*0 .. 100 % in 5 % increments*	Sends a positioning telegram to the blinds / shutter actuator
Slats	*0 .. 100 % in 5 % increments*	What slat position should be sent to the actuator together with the positioning telegram?
Special function after long time operation		What function is carried out with a long keystroke?
	no	none
	all the way UP (0%)	Raise slats to 0% and blinds to upper stop
	all the way DOWN (100%)	Lower slats to 100% and blinds to lower stop
Common parameters		
Reaction when setting the lock	***Ignore lock***	Disable telegrams are ignored
	lock	After a lock telegram (status =1) is received, the channel no longer transmits.
Reaction when cancelling the lock	***No reaction when the lock is cancelled***	No reaction when the lock is cancelled.
	update	When the lock is cancelled (status=0), the current channel status should be resent.
Reaction after restoration of the bus supply	***None***	No reaction after restoration of the bus supply.
	as with short keystroke, send immediately	Same telegram configured as with short keystroke. Send without delay.
	as with short keystroke after 5 sec	Same telegram configured as with short keystroke. Only send after selected delay.
	as with short keystroke after 10 sec	
	as with short keystroke after 15 sec	

*If the *Special function after long keystroke* parameter is set to "no", then the length of the keystroke is irrelevant.

4 Appendix

4.1 Typical applications

4.1.1 Switching lights on/off

The TA 4 push button interface controls the switching actuator RMG 4 S.
All 4 channels are used.

4.1.1.1 Devices:

- TA 4
- RMG 4 S

4.1.1.2 Overview
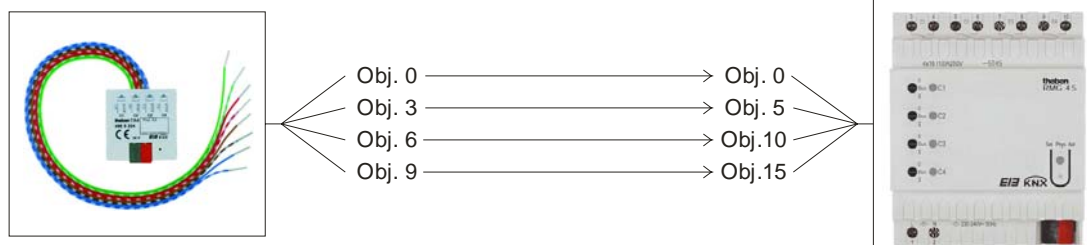
Figure 1

4.1.1.3 Objects and links

Table 12: Links

No.	TA 4 Object name	No.	RMG 4 S Object name	Comments
0	*Channel 1 switching*	0	*GM RMG 4 channel 1*	
3	*Channel 2 switching*	5	*GM RMG 4 channel 2*	TA 4 sends switching commands to RMG 4 S
6	*Channel 3 switching*	10	*GM RMG 4 channel 3*	
9	*Channel 4 switching*	15	*GM RMG 4 channel 4*	

4.1.1.4 Important parameter settings

The standard parameter settings apply for unlisted parameters.

Table 13: TA 6

Parameter page	Parameters	Setting
Channel 1 .. Channel 4	*Function of the input*	*Switch/ push button*

Table 14: RMG 4 S

Parameter page	Parameters	Setting
RMG 4 channel 1… 4	*Function*	*Switching On/Off*

4.1.2 2 Dimmer lighting groups

The TA 2 push button interface controls the dimming actuator DMG 2.
A push button is connected to each input.
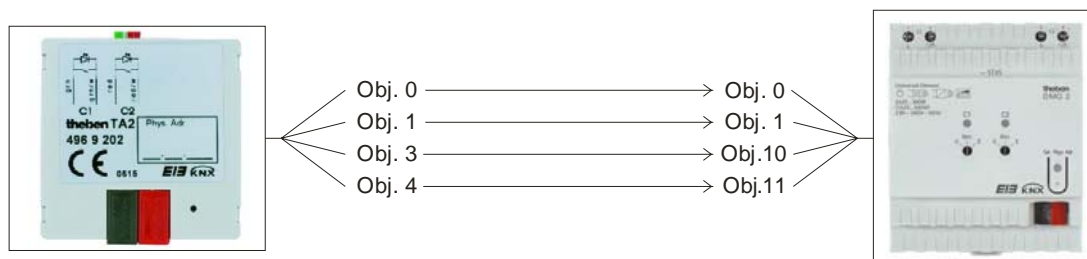
4.1.2.1 Devices:

- TA 2
- DMG 2

4.1.2.2 Overview

Figure 2

4.1.2.3 Objects and links

Table 15: Links

No.	TA 2	No.	DMG 2	Comments
	Object name		Object name	
0	*Channel 1 Switching On/Off*	0	*GM DMG 2 channel 1 Switching On/Off*	Long keystroke for brighter / darker dimmer commands.
1	*Channel 1 dimming brighter / darker*	1	*GM DMG 2 channel 1 brighter / darker*	
3	*Channel 2 Switching On/Off*	10	*GM DMG 2 channel 2 Switching On/Off*	Short keystroke for On/Off commands.
4	*Channel 2 dimming brighter / darker*	11	*GM DMG 2 channel 2 brighter / darker*	

4.1.2.4 Important parameter settings

The standard parameter settings apply for unlisted parameters.

Table 16: TA 6

Parameter page	Parameters	Setting
Channel 1 .. Channel 2	*Function of the input*	*Dimmer*
	Reaction to Long / Short	*Single button operation*

Table 17: DMG 2

Parameter page	Parameters	Setting
DMG 2 channel 1 S1	*Switching on/off with a 4-bit telegram*	*no*

4.1.3 Control 4 blinds or blinds groups

The push button interface TA 2 controls the blinds actuator JMG 4 S.
A push button is connected to each input.

4.1.3.1 Devices:
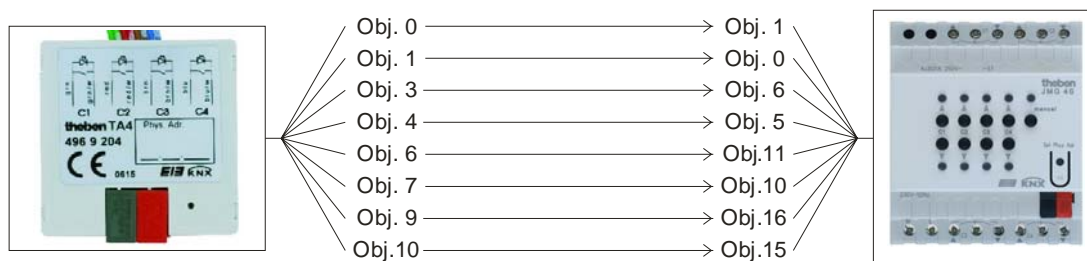
- TA 4
- JMG 4 S

4.1.3.2 Overview

Figure 3

4.1.3.3 Objects and links

Table 18: Links

No.	TA 4 Object name	No.	JMG 4 S Object name	Comments
0	*Channel 1 blinds Step / Stop*	1	*GM JMG 4 S C1 Step / Stop*	
1	*Channel 1 blinds Up / Down*	0	*GM JMG 4 S C1 Up / Down*	
3	*Channel 2 blinds Step / Stop*	6	*GM JMG 4 S C2 Step / Stop*	
4	*Channel 2 blinds Up / Down*	5	*GM JMG 4 S C2 Up / Down*	Long keystroke for Up / down run commands.
6	*Channel 3 blinds Step / Stop*	11	*GM JMG 4 S C3 Step / Stop*	
7	*Channel 3 blinds Up / Down*	10	*GM JMG 4 S C3 Up / Down*	Short keystroke for Step / Stop commands
9	*Channel 4 blinds Step / Stop*	16	*GM JMG 4 S C4 Step / Stop*	
10	*Channel 4 blinds Up / Down*	15	*GM JMG 4 S C4 Up / Down*	

4.1.3.4 Important parameter settings

The standard parameter settings apply for unlisted parameters.

Table 19: TA 4

Parameter page	Parameters	Setting
Channel 1 .. Channel 4	*Function of the input*	*Blinds*
	Operation	*Single button operation*

Table 20: JMG 4 S

Parameter page	Parameters	Setting
JMG 4 S	*Type of curtain*	*Blinds*

4.1.4 12 x switching light on/off

Two TA 6 push button interfaces control the RMG 4 S with 2 RME 4 S upgrade modules.

4.1.4.1 Devices:

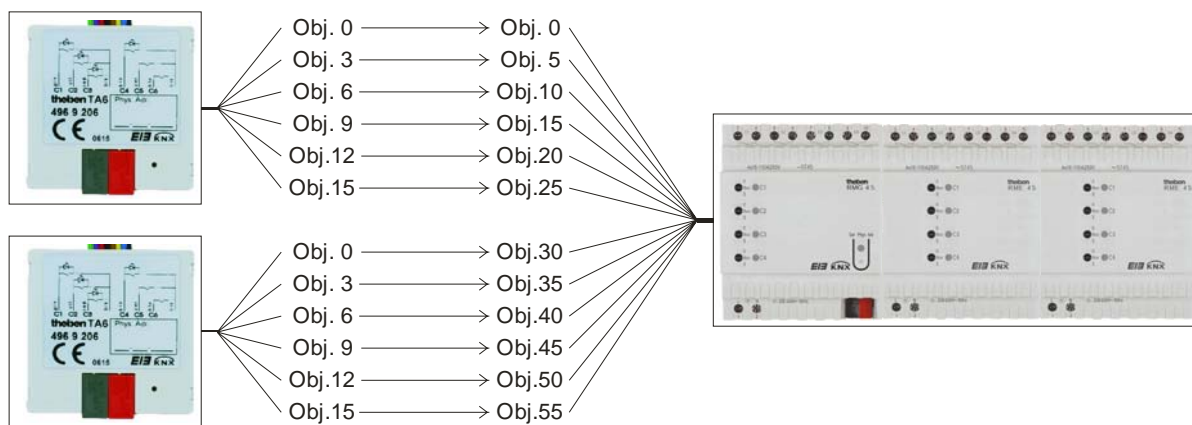- 2x TA 6
- RMG 4 S + 2 x RME 4 S

4.1.4.2 Overview

Figure 4

4.1.4.3 Objects and links

Table 21: Links

No.	1st TA 6 Object name	No.	RMG 4 S Object name	Comments
0	*Channel 1 switching*	0	*RMG 4 channel 1*	First push button interface and RMG 4 S (basic module)
3	*Channel 2 switching*	5	*RMG 4 channel 2*	
6	*Channel 3 switching*	10	*RMG 4 channel 3*	
9	*Channel 4 switching*	15	*RMG 4 channel 4*	
12	*Channel 5 switching*	20	*EM1 RME 4 channel 1*	First push button interface and first MiX upgrade module RME 4 S
15	*Channel 6 switching*	25	*EM1 RME 4 channel 2*	

No.	2nd TA 6 Object name	No.	RMG 4 S Object name	Comments
0	*Channel 1 switching*	30	*EM1 RME 4 channel 1*	Second push button interface and first MiX upgrade module RME 4 S
3	*Channel 2 switching*	35	*EM1 RME 4 channel 1*	
6	*Channel 3 switching*	40	*EM2 RME 4 channel 1*	Second push button interface and second MiX upgrade module RME 4 S
9	*Channel 4 switching*	45	*EM2 RME 4 channel 2*	
12	*Channel 5 switching*	50	*EM2 RME 4 channel 1*	
15	*Channel 6 switching*	55	*EM2 RME 4 channel 1*	

4.1.4.4 Important parameter settings

The standard parameter settings apply for unlisted parameters.

Table 22: TA 6

Parameter page	Parameters	Setting
Channel 1 .. Channel 6	*Function of the input*	*Switch/ push button*

Table 23: RMG 4 S

Parameter page	Parameters	Setting
General	*Number of upgrade modules*	*2 upgrade modules*
	Type of 1st upgrade module EM1	*EM1 is a RME4 S or RME4 C load*
	Type of 2nd upgrade module EM2	*EM2 is a RME4 S or RME4 C load*
RMG 4 channel 1... 4	*Function*	*Switching On/Off*
EM1 RME 4 channel 1... 4	*Function*	*Switching On/Off*
EM2 RME 4 channel 1... 4	*Function*	*Switching On/Off*

4.2 Conversion of percentages to hexadecimal and decimal values

%	Decimal	Hexadecimal	%	Decimal	Hexadecimal	%	Decimal	Hexadecimal
0%	0	$00	34%	87	$56	68%	173	$AD
1%	3	$02	35%	89	$59	69%	176	$AF
2%	5	$05	36%	92	$5B	70%	179	$B2
3%	8	$07	37%	94	$5E	71%	181	$B5
4%	10	$0A	38%	97	$60	72%	184	$B7
5%	13	$0C	39%	99	$63	73%	186	$BA
6%	15	$0F	40%	102	$66	74%	189	$BC
7%	18	$11	41%	105	$68	75%	191	$BF
8%	20	$14	42%	107	$6B	76%	194	$C1
9%	23	$16	43%	110	$6D	77%	196	$C4
10%	26	$19	44%	112	$70	78%	199	$C6
11%	28	$1C	45%	115	$72	79%	201	$C9
12%	31	$1E	46%	117	$75	80%	204	$CC
13%	33	$21	47%	120	$77	81%	207	$CE
14%	36	$23	48%	122	$7A	82%	209	$D1
15%	38	$26	49%	125	$7C	83%	212	$D3
16%	41	$28	50%	128	$7F	84%	214	$D6
17%	43	$2B	51%	130	$82	85%	217	$D8
18%	46	$2D	52%	133	$84	86%	219	$DB
19%	48	$30	53%	135	$87	87%	222	$DD
20%	51	$33	54%	138	$89	88%	224	$E0
21%	54	$35	55%	140	$8C	89%	227	$E2
22%	56	$38	56%	143	$8E	90%	230	$E5
23%	59	$3A	57%	145	$91	91%	232	$E8
24%	61	$3D	58%	148	$93	92%	235	$EA
25%	64	$3F	59%	150	$96	93%	237	$ED
26%	66	$42	60%	153	$99	94%	240	$EF
27%	69	$44	61%	156	$9B	95%	242	$F2
28%	71	$47	62%	158	$9E	96%	245	$F4
29%	74	$49	63%	161	$A0	97%	247	$F7
30%	77	$4C	64%	163	$A3	98%	250	$F9
31%	79	$4F	65%	166	$A5	99%	252	$FC
32%	82	$51	66%	168	$A8	100%	255	$FF
33%	84	$54	67%	171	$AA			