KNX manual
Push button interfaces
TA 2 S, TA 4 S, TA 6 S and TA 8 S

TA 2 S KNX – 4969222

TA 4 S KNX – 4969224

TA 6 S KNX – 4969226

TA 8 S KNX – 4969228

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1 Functional characteristics

- Binary input push button interfaces
- Can be installed in flush-mounted boxes with conventional push buttons/switches
- Free allocation of functions: switch/push button, dimming, blinds, valuator, counter, sequences, temperature measurement, LED control
- Flexible LED control, thanks to an increased output power of 3mA, customary LEDs and low current LEDs can be controlled
- Inputs can be reconfigured to outputs with configurable flash and pulse function
- Colour coding of wiring pairs
- Grooves on side of housing for switch/push button clamps

TA 2 S KNX

- 2-way key interface
- 4-pole cable connection

TA 4 S KNX

- 4-way key interface
- 6-pole cable connection
- NTC inputs for actual temperature measurement

TA 6 S KNX

- 6-way key interface
- 8-pole cable connection
- NTC inputs for actual temperature measurement

TA 8 S KNX

- 8-way key interface
- 10-pole cable connection
- NTC inputs for actual temperature measurement

2 Operation

Upon application of voltage the input is activated and the configured telegram is sent.
Conventional buttons, switches or optionally sensors (thermostat, time switch, etc.) can be connected.
As an LED output, configured channels can be directly connected to an LED without a series resistor.

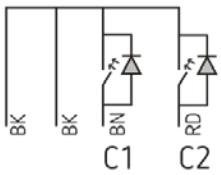
3 Technical data

3.1 Technical data TA 2 S .. TA 8 S

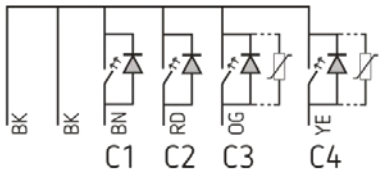
Operating voltage KNX	Bus voltage
Type of connection	Bus connection: KNX bus terminal
Power consumption as input	< 10 mA
Power consumption as output	TA 2 S 10 mA (max. 2 x LED at 3 mA) TA 4 S 12.5 mA (max. 4 x LED at 3 mA) TA 6 S, TA 8 S 15 mA (max. 6 or 8 x LED at 3 mA)
Length connecting wires	25 cm
Maximum cable length	30 m
Contact voltage	5 V DC
Contact current	0.5 mA (5 mA peak)
Ambient temperature	– 5 °C ... + 45 °C
Installation type	Flush-mounted installation
Output voltage	5 V DC
Measurement area temperature	– 5 °C ... + 45 °C
LED connection	IF max. 1 – 3 mA (adjustable), UF up to ~ 3.6 V, no series resistor required
Protection rating	IP 20 in accordance with EN 60529
Protection class	III

3.2 Wiring diagrams

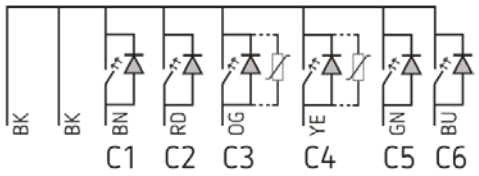
TA 2 S



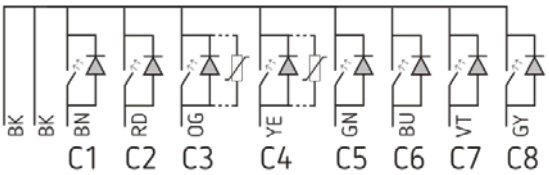
TA 4 S



TA 6 S



TA 8 S



4 The "TA 2/4/6/8 S" application programme

4.1 Selection in the product database

Manufacturer	Theben AG
Product family	Inputs
Product type	Push button interfaces
Programme names	TA 2 S, TA 4 S, TA 6 S, TA 8 S

Number of communication objects	Max. 41
Number of group addresses	254
Number of associations	254

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

4.2 Overview of communication objects

4.2.1 Switch function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1.1*	*Switching*	1 bit	-	W	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
2	*Channel I1.2*	*Switching*	1 bit	-	W	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
3	*Channel I1.3*	*Switching*	1 bit	-	W	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
5	*Channel I1*	*Block = 1*	1 bit	-	W	C	-	1,001
		Block = 0	1 bit	-	W	C	-	1,003
11-75	Channels 2 to 8 (Details: See channel 1)							

4.2.2 Push button function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1.1*	*Switching*	1 bit	-	W[1]	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
2	*Channel I1.2*	*Switching*	1 bit	-	W[2]	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
3	*Channel I1.3*	*Switching*	1 bit	-	W[3]	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
5	*Channel I1*	*Block = 1*	1 bit	-	W	C	-	1,001
		Block = 0	1 bit	-	W	C	-	1,003
11-75	Channels 2 to 8 (Details: See channel 1)							

[1] Only for the *change over* function
[2] Only for the *change over* function
[3] Only for the *change over* function

4.2.3 Dimming function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1*	*Switching*	1 bit	-	W	C	T	1,001
2	*Channel I1*	*Brighter/darker*	4 bit	-	-	C	T	3,007
		Brighter	4 bit	-	-	C	T	3,007
		Darker	4 bit	-	-	C	T	3,007
3	*Channel I1.1*	*Switching*	1 bit	-	W	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
5	*Channel I1*	*Block = 1*	1 bit	-	W	C	-	1,001
		Block = 0	1 bit	-	W	C	-	1,003
11-75	Channels 2 to 8 (Details: See channel 1)							

4.2.4 Blinds function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1*	*Step/stop*	1 bit	-	-	C	T	1,010
2	*Channel I1*	*UP/DOWN*	1 bit	-	W	C	T	1,008
		UP	1 bit	-	-	C	T	1,008
		DOWN	1 bit	-	-	C	T	1,008
3	*Channel I1.1*	*Switching*	1 bit	-	W	C	T	1,001
		Priority	2 bit	-	-	C	T	2,001
		Send percentage value	1 byte	-	-	C	T	5,001
		Height % [4]	1 byte	-	-	C	T	5,001
		Send value	1 byte	-	-	C	T	5,010
		2 byte 9.x	2 bytes	-	-	C	T	9.xxx
		4 byte 14.x	4 bytes	-	-	C	T	14.xxx
4	*Channel I1.2*	*Slat %* [5]	1 byte	-	-	C	T	5,001
5	*Channel I1*	*Block = 1*	1 bit	-	W	C	-	1,001
		Block = 0	1 bit	-	W	C	-	1,003
11-75	Channels 2 to 8 (Details: See channel 1)							

[4] Upon double-click with object type = *height % + slat %*
[5] Upon double-click with object type = *height % + slat %*

4.2.5 Sequence function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1.1*	*Switching ON/OFF*	1 bit	R	-	C	T	1,001
	Channel I1.1	*Priority*	2 bit	R	-	C	T	2,003
	Channel I1.1	*Send percentage value*	1 byte	R	-	C	T	5,001
	Channel I1.1	*Send value*	1 byte	R	-	C	T	5,010
	Channel I1.1	*2 byte DPT 9.x*	2 byte	R	-	C	T	9.xxx
	Channel I1.1	*4 byte DPT 14.x*	4 byte	R	-	C	T	14.xxx
2	*Channel I1.2*	*Switching ON/OFF*	1 bit	R	-	C	T	1,001
	Channel I1.2	*Priority*	2 bit	R	-	C	T	2,003
	Channel I1.2	*Send percentage value*	1 byte	R	-	C	T	5,001
	Channel I1.2	*Send value*	1 byte	R	-	C	T	5,010
	Channel I1.2	*2 byte DPT 9.x*	2 byte	R	-	C	T	9.xxx
	Channel I1.2	*4 byte DPT 14.x*	4 byte	R	-	C	T	14.xxx
3	*Channel I1.3*	*Switching ON/OFF*	1 bit	R	-	C	T	1,001
	Channel I1.3	*Priority*	2 bit	R	-	C	T	2,003
	Channel I1.3	*Send percentage value*	1 byte	R	-	C	T	5,001
	Channel I1.3	*Send value*	1 byte	R	-	C	T	5,010
	Channel I1.3	*2 byte DPT 9.x*	2 byte	R	-	C	T	9.xxx
	Channel I1.3	*4 byte DPT 14.x*	4 byte	R	-	C	T	14.xxx
4	*Channel I1.4*	*Switching ON/OFF*	1 bit	R	-	C	T	1,001
	Channel I1.4	*Priority*	2 bit	R	-	C	T	2,003
	Channel I1.4	*Send percentage value*	1 byte	R	-	C	T	5,001
	Channel I1.4	*Send value*	1 byte	R	-	C	T	5,010
	Channel I1.4	*2 byte DPT 9.x*	2 byte	R	-	C	T	9.xxx
	Channel I1.4	*4 byte DPT 14.x*	4 byte	R	-	C	T	14.xxx
5	*Channel I1*	*Block = 1*	1 bit	R	W	C	-	1,003
	Channel I1	*Block = 0*	1 bit	R	W	C	-	1,003
11-75	Channels 2 to 8 (Details: See channel 1)							

4.2.6 LED output function

No.	Object name	Function	Length	R	W	C	T	DPT
1	*Channel I1*	*LED On / Off*	1 bit	-	W	C	-	1,001
2	*Channel I1*	*Set LED brightness 1*	1 bit	-	W	C	-	1,001
3	*Channel I1*	*Set LED brightness 1*	1 bit	-	W	C	-	1,001
4	*Channel I1*	*Set LED brightness 1*	1 bit	-	W	C	-	1,001
5	*Channel I1*	*Set LED brightness percentage*	1 byte	-	W	C	-	1,005

4.2.7 Temperature input function (only I3 and I4)

No.	Object name	Function	Length	R	W	C	T	DPT
21	*Channel I3*	*Temperature actual value*	2 byte	R	-	C	T	9,001
31	*Channel I4*	*Temperature actual value*	2 byte	R	-	C	T	9,001

4.2.8 Diagnosis object

No.	Object name	Function	Length	R	W	C	T	DPT
100	*Firmware*	*Version*	2 byte	R	-	C	T	217,001

4.3 Description of communication objects

4.3.1 Switch function

Object 1: channel I1.1
First output object of the channel (First telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 2: channel I1.2
Second output object of the channel (Second telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 3: channel I1.3
Third output object of the channel (Third telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 5: Channel I1 block = 1, or block = 0
The channel is blocked via this object.
The acting direction of the block object and behaviour when setting or cancelling the block can be set on the ***Channel 1*** parameter page.

Objects 11-75
Objects for channels I2-I8.

4.3.2 Push button function

Object 1: channel I1.1
First output object of the channel (First telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 2: channel I1.2
Second output object of the channel (Second telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 3: channel I1.3
Third output object of the channel (Third telegram).
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 5: Channel I1 block = 1, or block = 0
The channel is blocked via this object.
The acting direction of the block object and behaviour when setting or cancelling the block can be set on the ***Channel 1*** parameter page.

Objects 11-75
Objects for channels I2-I8.

4.3.3 Dimming function

Object 1: channel I1.1 switching
Switches the dimmer on and off.

Object 2: channel I1.1 lighter, darker, lighter / darker
4-bit dimming commands.

Object 3: channel I1.1 – switching, priority, percentage..
Initial object for the additional function with double-click.
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x,
4 byte DPT 14.x.

Object 5: Channel I1 block = 1, or block = 0
The channel is blocked via this object.
The acting direction of the block object and behaviour when setting or cancelling the block can be configured.

Objects 11-75
Objects for channels I2-I8.

4.3.4 Blinds function

Object 1: Channel I1 Step / Stop
Sends Step/Stop commands to the blind actuator.

Object 2: Channel I1 UP/DOWN, UP, DOWN
Sends operating command to the blind actuator.

Object 3: channel I1.1 – switching, priority, percentage value.., height % + slat %
Initial object for the additional function with double-click.
7 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x,
4 byte DPT 14.x, height %..

Object 4: channel I1.1 - slat %
Slat telegram for positioning the blinds upon double-click (together with object 3, with *object type = height + slat*).

Object 5: Channel I1 block = 1, or block = 0
The channel is blocked via this object.
The acting direction of the block object and behaviour when setting or cancelling the block can be configured.

Objects 11-75
Objects for channels I2-I8.

4.3.5 Sequence function

Object 1 "channel I1.1"
First output object of the channel.
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 2 "channel I1.2"
Second output object of the channel.
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 3 "channel I1.3"
Third output object of the channel.
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 4 "channel I1.4"
Fourth output object of the channel.
6 telegram formats can be set:
Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

Object 5 "Block = 0, Block = 1"
The channel is blocked via this object.
The acting direction and behaviour when setting or cancelling the block can be set on the block function parameter page.

4.3.6 LED output function

Object 1 "LED On / Off"
Input object:
1 = switch on connected LED.
0 = switch off LED
The switch-on brightness of the LED can either be established with the objects *set LED brightness 1,2,3*
or with the object *set LED brightness percentage*[6]

Object 2 "set LED brightness 1"
Input object:
1 = Set the LED switch-on brightness to the configured value for *brightness 1*.
0 = Resets the LED switch-on brightness to 100%.

Object 3 "set LED brightness 2"
Input object:
1 = Set the LED switch-on brightness to the configured value for *brightness 2*.
0 = Resets the LED switch-on brightness to 100%.

Object 4 "set LED brightness 3"
Input object:
1 = Set the LED switch-on brightness to the configured value for *brightness 3*.
0 = Resets the LED switch-on brightness to 100%.

Object 5 "set LED brightness percentage"
Input object:
With this object the LED switch-on brightness can be set to any value between 5% and 100%.
Values under 5% are not reliable and are interpreted as 5%.

[6] Exception: After a reset the switch-on brightness is always 100 %.

4.3.7 Temperature input function (only I3 and I4)

Object 21 "Channel I3 - temperature actual value"
Sends the temperature measured at input I3 (remote sensor or floor temperature sensor).

Object 31 "Channel I4 - temperature actual value"
Sends the temperature measured at input I4 (remote sensor or floor temperature sensor).

4.3.8 Diagnosis object

Object 100 "firmware version"
For diagnostic purposes only:
Sends the software version (firmware) of the basic device after reset of the device.
Can also be read out via the ETS.

4.4 Parameter pages overview

Parameter page	Description
Channel I1..I8	Function of the input, debounce time, number of telegrams, block function, etc. Additionally at I3 and I4: Selection of the temperature sensor, temperature calibration, etc.
Switch object 1	Object type, transmission behaviour, etc. can be set for each object individually.
Switch object 2	
Switch object 3	
Button object 1	Object type, transmission behaviour, etc. can be set for each object individually.
Button object 2	
Button object 3	
Dimming	Type of control.
Blinds	Type of control.
Double-click	Additional telegrams for *dimming* and *blinds*.
Sequence	Sequence characteristics. Activate time and block function.
Object types	Format of the 4 sequence objects.
Step 1	Set transmission behaviour, telegrams and time.
Step 2	
Step 3	
Step 4	

4.4.1 Switch function

Designation	Values	Description
Activate channel	***no*** *yes*	Use input?
Channel function	***Switch..*** *Push button..* *Dimming..* *Blinds..*	Sends, depending on whether the input is 0 or 1.
Debounce time	*30 ms,* ***50 ms,*** *80 ms* *100 ms, 200 ms,* *1 s , 5 s, 10 s*	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1s) can be used as a switch-on delay
Activate block function	***no*** *yes*	No block function. Fade in parameters for the block function.
Block telegram	***Block with 1 (standard)*** *Block with 0*	0 = enable 1 = block 0 = block 1 = enable
Send cyclically	*every min.* *every 2 min.* *every 3 min.* *...* ***every 30 min.*** *every 45 min.* *every 60 min.*	Common cycle time for all 3 output objects of the channel.
Number of telegrams	***one telegram*** *two telegrams* *three telegrams*	Each channel has 3 initial objects and can thus send up to 3 different telegrams.

4.4.1.1 Switch object 1, 2, 3

Each of the 3 objects can be configured individually on its own parameter page.

Designation	Values	Description
Object type	***Switching (1 bit)*** *Priority (2 bit)* *Value 0-255* *Percentage value (1 byte)* *2 byte floating-point number* *DPT 9.x* *4 byte floating-point number* *DPT 14.x*	Telegram type for this object.
Send if input = 1	*no* ***yes***	Send if voltage is present at the input?
Telegram	*With object type = switching 1 bit*	
	ON *OFF* *BY*	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)
	With object type = priority 2 bit	
	inactive *ON* *OFF*	Function: Priority not active (no control) — Value: 0 (00_{bin}) Function: Priority ON (control: enable, on) — Value: 3 (11_{bin}) Function: Priority OFF (control: disable, off) — Value: 2 (10_{bin})
	With object type = value 0-255	
	*0-**255***	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	*0-**100 %***	Any percentage value between 0 and 100 % can be sent.
	With object type = 2 byte floating-point number	
	-670760...670760 Std.: ***0***	Any value between -670760 and 670760 can be sent.
	With object type = 4 byte floating-point number	
	-1E+38.. 1E+38 Std.: ***0***	Any value between -1E+38 and 1E+38 can be sent. Input format: The ETS only allows the input as a decimal without power. **Example:** 15234825.123456
Send if input = 0	*no* ***yes***	Send if voltage is present at the input?
Telegram	See above: Same object type as *Send if input = 1*	

Designation	Values	Description
Send cyclically	***no*** *yes, always* *only if input = 1* *only if input = 0*	When should be sent cyclically? The cycle time is set on the main parameter page of the channel.
Response after restoration of the bus supply	***none*** *update (immediately)* *update (after 5 s)* *update (after 10 s)* *update (after 15 s)*	Do not send. Send update telegram immediately or with delay.
Response when setting the block	***Ignore block*** *no response* *as with input = 1* *as with input = 0*	The block function is ineffective with this telegram. Do not respond when setting the block. Respond as with rising edge. Respond as with falling edge.
Response when cancelling the block	***no response*** *update*	Do not respond when the block is cancelled. Send update telegram.

ⓘ If a channel is blocked, no telegrams will be sent cyclically.

4.4.2 Push button function

Designation	Values	Description
Activate channel	***no*** *yes*	Use input?
Channel function	*Switch..* ***Push button..*** *Dimming..* *Blinds..*	A push button is connected to the input.
Debounce time	*30 ms,* ***50 ms,*** *80 ms* *100 ms, 200 ms,* *1 s , 5 s, 10 s*	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1s) can be used as a switch-on delay.
Activate block function	***no*** *yes*	No block function. Show block function parameter page.
Block telegram	***Block with 1 (standard)*** *Block with 0*	0 = enable 1 = block 0 = block 1 = enable
Connected push button	***NO contact*** *Opening contact*	Set the Type of connected contact.
Long button push starting at	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to clearly differentiate between long and short button push. If the push button is pressed for at least as long as the set time, then a long button push will be registered.
Time for double-click	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.
Send cyclically	*every min.* *every 2 min.* *every 3 min.* *...* ***every 30 min.*** *every 45 min.* *every 60 min.*	Common cycle time for all 3 output objects of the channel.
Number of telegrams	***one telegram*** *two telegrams* *three telegrams*	Each channel has 3 initial objects and can thus send up to 3 different telegrams.

4.4.2.1 Parameter pages button object 1, 2, 3

Each of the 3 objects can be configured individually on its own parameter page.

Designation	Values	Description
Object type	***Switching (1 bit)*** *Priority (2 bit)* *Value 0-255* *Percentage value (1 byte)* *2 byte floating-point number DPT 9.x* *4 byte floating-point number DPT 14.x*	Telegram type for this object.
Send after short operation	***do not send*** *Send telegram*	Respond to short button push?
Telegram	*With object type = switching 1 bit*	
	ON *OFF* *BY*	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)
	With object type = priority 2 bit	
	inactive *ON* *OFF*	Function: Priority not active (no control) — Value: 0 (00_{bin}) Function: Priority ON (control: enable, on) — Value: 3 (11_{bin}) Function: Priority OFF (control: disable, off) — Value: 2 (10_{bin})
	With object type = value 0-255	
	*0-**255***	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	*0-**100 %***	Any percentage value between 0 and 100 % can be sent.
	With object type = 2 byte floating-point number	
	-670760...670760 Std.: ***0***	Any value between -670760 and 670760 can be sent.
	With object type = 4 byte floating-point number	
	-1E+38.. 1E+38 Std.: ***0***	Any value between -1E+38 and 1E+38 can be sent. Input format: The ETS only allows the input as a decimal without power. **Example:** 15234825.123456
Send after long operation	***do not send*** *Send telegram*	Respond to long button push?
Telegram	See above: Same object type as with short operation.	
Send after double-click	***do not send*** *Send telegram*	Respond to double-click?
Telegram	See above: Same object type as with short operation.	

Designation	Values	Description
Send cyclically	***no*** *yes*	The cycle time is set on the main parameter page of the channel.
Response after restoration of the bus supply	***none*** *As with short (immediately)* *As with short (after 5 s)* *As with short (after 10 s)* *As with short (after 15 s)* *As with long (immediately)* *As with long (after 5 s)* *As with long (after 10 s)* *As with long (after 15 s)* *As with double-click (immediately)* *As with double-click (after 5 s)* *As with double-click (after 10 s)* *As with double-click (after 15 s)*	Do not send. Send update telegram immediately or with delay. The value to be sent depends on the value configured for long, short button push, or double-click.
Response when setting the block	***Ignore block*** *no response* *as with short* *as with long* *as with double-click*	The block function is ineffective with this telegram. Do not respond when setting the block. Respond as with a short button push. Respond as with a long button push. Respond as with a double-click.
Response when cancelling the block	***no response*** *as with short* *as with long* *as with double-click*	Do not respond when the block is cancelled. Respond as with a short button push. Respond as with a long button push. Respond as with a double-click.

ⓘ If a channel is blocked, no telegrams will be sent cyclically.

4.4.3 Dimming function

Designation	Values	Description
Activate channel	***no*** *yes*	Use input?
Channel function	*Switch..* *Push button..* ***Dimming..*** *Blinds..*	The input controls a dimming actuator,
Debounce time	*30 ms,* ***50 ms,*** *80 ms* *100 ms, 200 ms,* *1 s , 5 s, 10 s*	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1s) can be used as a switch-on delay
Activate block function	***no*** *yes*	No block function. Show block function parameter page.
Block telegram	***Block with 1 (standard)*** *Block with 0*	0 = enable 1 = block 0 = block 1 = enable
Long button push starting at	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to clearly differentiate between long and short button push. If the push button is pressed for at least as long as the set time, then a long button push will be registered.
Double-click additional function	***no*** *yes*	No double-click function The double-click parameter page is shown.
Time for double-click	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.

4.4.3.1 Double-click parameter page

Designation	Values	Description
Object type	***Switching (1 bit)*** *Priority (2 bit)* *Value 0-255* *Percentage value (1 byte)* *2 byte floating-point number DPT 9.x* *4 byte floating-point number DPT 14.x*	Telegram type for this object.
Telegram	*With object type = switching 1 bit*	
	ON *OFF* *BY*	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)
	With object type = priority 2 bit	
	inactive	Function: Priority not active (no control) — Value: 0 (00_{bin})
	ON	Function: Priority ON (control: enable, on) — Value: 3 (11_{bin})
	OFF	Function: Priority OFF (control: disable, off) — Value: 2 (10_{bin})
	With object type = value 0-255	
	*0-**255***	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	*0-**100 %***	Any percentage value between 0 and 100 % can be sent.
	With object type = 2 byte floating-point number	
	-670760...670760 Std.: ***0***	Any value between -670760 and 670760 can be sent.
	With object type = 4 byte floating-point number	
	-1E+38.. 1E+38 Std.: ***0***	Any value between -1E+38 and 1E+38 can be sent. Input format: The ETS only allows the input as a decimal without power. **Example:** 15234825.123456
Send cyclically	***do not send cyclically*** *every min.* *every 2 min.* *every 3 min.* ... *every 45 min.* *every 60 min.*	How often should it be resent?
Response after restoration of the bus	***none***	Do not send.

Designation	Values	Description
supply	*As with double-click (immediately)* *As with double-click (after 5 s)* *As with double-click (after 10 s)* *As with double-click (after 15 s)*	Send update telegram immediately or with delay. The value to be sent depends on the value configured for double-click.
Response when setting the block	***Ignore block*** *no response* *as with double-click*	The block function is ineffective with this telegram. Do not respond when setting the block. Respond as with a double-click.
Response when cancelling the block	***no response*** *as with double-click*	Do not respond when the block is cancelled. Respond as with a double-click.

4.4.3.2 Dimming parameter page

Designation	Values	Description
Response to "long" / "short"		The input distinguishes between a long and a short button push, and can thus carry out 2 functions.
	One button operation	The dimmer is operated with a single push button. Short button push = ON/OFF Long button push = brighter/darker release = stop With the other variants, the dimmer is operated using 2 buttons (rocker).
	brighter/ON	Short button push = ON Long button push = brighter Release = stop
	brighter/BY	Short button push = ON / OFF Long button push = brighter Release = stop
	darker / OFF	Short button push = OFF Long button push = darker Release = stop
	darker / BY	Short button push = ON / OFF Long button push = darker Release = stop
Increment for dimming		With a long button push, the dimming value is:
	100 %	Increased (or decreased) until the button is released.
	50% *25%* *12.5%* *6%* *3%* *1.5%*	Increased by the selected value (or reduced)
Response in case of bus and mains restoration	***none***	Do not respond.
	ON	Switch on dimmer
	OFF	Switch off dimmer

Designation	Values	Description
	after 5 s ON *after 10 s ON* *after 15 s ON* *after 5 s OFF* *after 10 s OFF* *after 15 s OFF*	Switch on dimmer with delay Switch off dimmer with delay
Response when setting the block	***Ignore block***	The block function is ineffective with this telegram.
	no response	Do not respond when setting the block.
	ON	Switch on dimmer
	OFF	Switch off dimmer
Response when cancelling the block	***no response***	Do not respond when the block is cancelled.
	ON	Switch on dimmer
	OFF	Switch off dimmer

4.4.4 Blinds function

Designation	Values	Description
Activate channel	***no*** *yes*	Use input?
Channel function	*Switch..* *Push button..* *Dimming..* ***Blinds..***	The input controls a blinds actuator.
Debounce time	*30 ms,* ***50 ms,*** *80 ms* *100 ms, 200 ms,* *1 s , 5 s, 10 s*	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1s) can be used as a switch-on delay
Activate block function	***no*** *yes*	No block function. Show block function parameter page.
Block telegram	***Block with 1 (standard)*** *Block with 0*	0 = enable 1 = block 0 = block 1 = enable
Long button push starting at	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to clearly differentiate between long and short button push. If the push button is pressed for at least as long as the set time, then a long button push will be registered.
Double-click additional function	*no* ***yes***	No double-click function The double-click parameter page is shown.
Time for double-click	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms* *900 ms, 1 s*	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.

4.4.4.1 Double-click parameter page

Designation	Values	Description
Object type	***Switching (1 bit)*** *Priority (2 bit)* *Value 0-255* *Percentage value (1 byte)* *2 byte floating-point number* *DPT 9.x* *4 byte floating-point number* *DPT 14.x* *Height % + slat %*	Telegram type for this object.
Telegram	*With object type = switching 1 bit*	
	ON *OFF* *BY*	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)
	With object type = priority 2 bit	
		Function / Value
	inactive	Priority not active (no control) / 0 (00_{bin})
	ON	Priority ON (control: enable, on) / 3 (11_{bin})
	OFF	Priority OFF (control: disable, off) / 2 (10_{bin})
	With object type = value 0-255	
	*0-**255***	Any value between 0 and 255 can be sent.
	With object type = percentage value *1 byte*	
	*0-**100 %***	Any percentage value between 0 and 100 % can be sent.
	With object type = 2 byte floating-point number	
	-670760...670760 Std.: ***0***	Any value between -670760 and 670760 can be sent.
	With object type = 4 byte floating-point number	
	-1E+38.. 1E+38 Std.: ***0***	Any value between -1E+38 and 1E+38 can be sent. Input format: The ETS 4 only allows the input as a decimal without power. **Example:** 15234825.123456
	With object type = height % + slat %	
	Height	Upon double-click 2 telegrams are sent simultaneously: Required blind height
	Slat	Required slat position.

Designation	Values	Description
Send cyclically	***do not send cyclically*** *every min.* *every 2 min.* *every 3 min.* ... *every 45 min.* *every 60 min.*	How often should it be resent?
Response after restoration of the bus supply	***none*** *As with double-click (immediately)* *As with double-click (after 5 s)* *As with double-click (after 10 s)* *As with double-click (after 15 s)*	Do not send. Send update telegram immediately or with delay. The value to be sent depends on the value configured for double-click.
Response when setting the block	***Ignore block*** *no response* *as with double-click*	The block function is ineffective with this telegram. Do not respond when setting the block. Respond as with a double-click.
Response when cancelling the block	***no response*** *as with double-click*	Do not respond when the block is cancelled. Respond as with a double-click.

4.4.4.2 Blinds parameter page

Designation	Values	Description
Operation		The input distinguishes between a long and a short button push, and can thus carry out 2 functions.
	One button operation	The blinds are operated with a single push button. Short button push = Step. Long button push = Move.
	DOWN	Short button push = Step. Long button push = lowering.
	OPEN	Short button push = Step. Long button push = raising.
Movement is stopped by	*releasing the button* ***Short operation***	How is the stop command to be triggered?
Response in case of bus and mains restoration	***none***	Do not react.
	UP	Raise blinds
	DOWN	Lower blinds
	after 5 s UP *after 10 s UP* *after 15 s UP*	Raise blinds with delay
	after 5 s DOWN *after 10 s DOWN* *after 15 s DOWN*	Lower blinds with delay
Response when setting the block	***Ignore block***	The block function is ineffective with this telegram.
	no response	Do not respond when setting the block.
	UP	Raise blinds
	DOWN	Lower blinds
Response when cancelling the block	***no response***	Do not respond when the block is cancelled.
	ON	Raise blinds
	OFF	Lower blinds

4.4.5 Sequence function

Designation	Values	Description
Channel function	*Switch..* *Push button..* *Dimming..* *Blinds..* Sequence..	The input starts a telegram sequence.
Debounce time	*30 ms,* ***50 ms,*** *80 ms* *100 ms, 200 ms,* *1 s , 5 s, 10 s*	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1s) can be used as a switch-on delay
Activate block function	***no*** *yes*	No block function. Show block function parameter page.
Block telegram	***Block with 1 (standard)*** *Block with 0*	0 = enable 1 = block 0 = block 1 = enable
Connected push button	***NO contact*** *Opening contact*	Set the Type of connected contact.
Sequence details	***Step 1-2-3-4-1-2-3-4*** *Step 1-2-3-4-3-2-1*	In which order should the steps be processed?
Advancing the sequence	***via button*** *time-controlled*	The change to the next step is exclusively triggered by a button push. Once triggered, the sequence is automatically executed. The interval between 2 steps can be individually set for each step.
Restart sequence automatically	***no*** *yes*	The sequence is only executed once. Once started the sequence is repeated an unlimited number of times and can, depending on the configuration, be stopped with a double-click or a long button push.
With a long button push	*no function* ***set to step 1*** *End sequence*	Long button push will be ignored. Reset sequence to the beginning. End time-controlled sequence.
Long button push starting at	***300 ms****, 400 ms* *500 ms, 600 ms* *700 ms, 800 ms*	Serves to clearly differentiate between long and short button push.

Designation	Values	Description
	900 ms, 1 s	If the push button is pressed for at least as long as the set time, then a long button push will be registered.
On double-click	***no function***	Long button push will be ignored.
	set to step 1	Reset sequence to the beginning.
	End sequence	End time-controlled sequence.
Response after restoration of the bus supply	***none***	No response.
	Step 1 (immediately)	Reset sequence immediately
	Step 1 (after 5 s) *Step 1 (after 10 s)* *Step 1 (after 15 s)*	Reset sequence with delay

4.4.6 LED parameter

These parameters apply to all channels configured as *LED output*.

Designation	Values	Description
Flashing - duty cycle	*100..2000 ms* Default = ***500 ms***	Required duty cycle (1000 ms = 1 second).
Flashing - switch-off duration	*100..2000 ms* Default = ***500 ms***	Required switch-off duration.
Pulsing - interval	*1000 – 5000 ms* Default = ***2000 ms***	Distance between 2 light pulses.

5 Typical applications

These typical applications are designed to aid planning and are not to be considered an exhaustive list. It can be extended and updated as required.
Standard or customer-defined parameter settings apply for the parameters not listed here.

5.1 Switching light

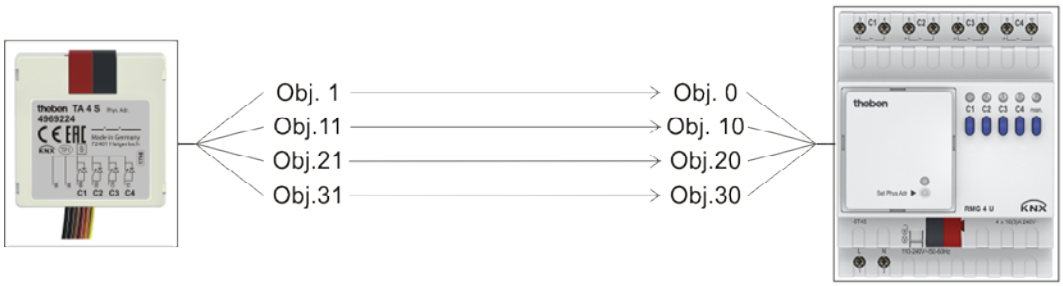
The push button interface TA4 S is connected to a 4-way push button and controls the switch actuator RMG 4 U.

All 4 channels are used.

5.1.1 Devices

- TA 4 S (4969224)
- RMG 4 U (4930223)

5.1.2 Overview



5.1.3 Objects and links

Links

No.	TA 4 S Object name	No.	RMG 4 U Object name	Comment
1	*Channel 1 switching*	0	*RMG 4 U channel C1*	TA 4 S sends switch commands to RMG 4 U
11	*Channel 2 switching*	10	*RMG 4 U channel C2*	
21	*Channel 3 switching*	20	*RMG 4 U channel C3*	
31	*Channel 4 switching*	30	*RMG 4 U channel C4*	

5.1.4 Important parameter settings

TA 4 S

Parameter page	Parameters	Setting
Channel 1 (2,3,4)	*Activate channel*	*yes*
	Channel function	*Push button*
Switch object	*Object type*	*Switching*
	Send if input = 1	*yes*
	Telegram	*BY*
	Send if input = 0	*no*

RMG 4 U

Parameter page	Parameters	Setting
RMG 4 U channel C1... C4: Configuration options	*Channel function*	*Switching On / Off*
	Activation of function via	*Switching object*

5.2 2 lighting groups dimming (one button operation)

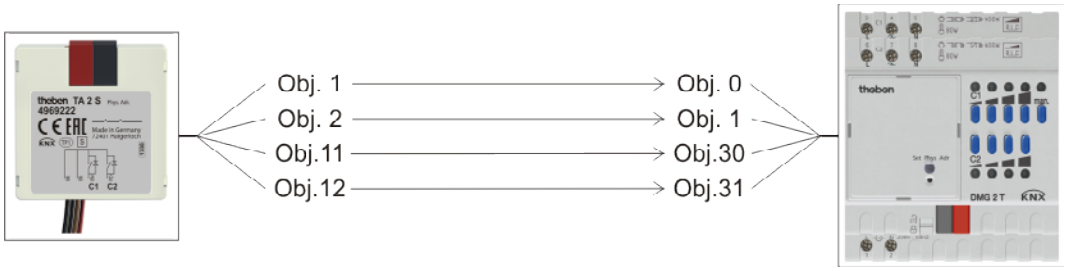
The push button interface TA 2 S controls both channels of the dimming actuator DMG 2 T.
One single button is used per lighting group (dimming actuator channel).

One brief keystroke switches the light on or off.
With a long button push the brightness changes.
When the button is pressed again the dimming direction changes (brighter / darker).

5.2.1 Devices

- TA 2 S (4969222)
- DMG 2 T (4930270)

5.2.2 Overview



5.2.3 Objects and links

Table 15: Links

No.	TA 2 S Object name	No.	DMG 2 T Object name	Comment
1	*Channel 1 Switching*	0	*DMG 2 T channel 1 Switch On/Off*	Long button push for brighter / darker dimming commands. Short button push for On / Off commands.
2	*Channel 1 Brighter/Darker*	1	*DMG 2 T channel 1 Brighter/Darker*	
11	*Channel 2 Switching*	30	*DMG 2 T channel 2 Switch On/Off*	
12	*Channel 2 Brighter/Darker*	31	*DMG 2 T channel 2 Brighter/Darker*	

5.2.4 Important parameter settings

TA 2 S

Parameter page	Parameters	Setting
Channel 1 (2)	*Activate channel*	*yes*
	Channel function	Dimming
Dimming	*Reaction to long/short*	One button operation

DMG 2 T

Parameter page	Parameters	Setting
Dimming response	*Switching on/off with a 4-bit Telegram*	*no*

5.3 2 lighting groups dimming (2 rocker buttons)

The push button interface TA 4 S controls both channels of the dimming actuator DMG 2 T.
One rocker button is used per lighting group (dimming actuator channel).

One brief keystroke switches the light on or off.
With a long button push the brightness changes.

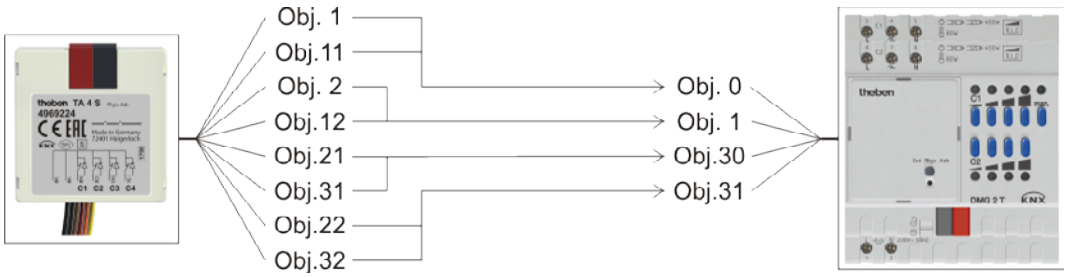
- top button → brighter
- bottom button → darker

One rocker button is used per lighting group, that is, 2 inputs.
The top and bottom buttons of a rocker button send the telegram to the dimming actuator via a common group address.

5.3.1 Devices

- TA 4 S (4969222)
- DMG 2 T (4930270)

5.3.2 Overview



5.3.3 Objects and links

Links

No.	TA 4 S Object name	No.	DMG 2 T Object name	Comment
1	*Channel 1 Switching*	0	*DMG 2 T Channel C1 Switch On/Off*	First lighting group: Sends On/Off commands to the dimming actuator with a short button push,
11	*Channel 2 Switching*			
2	*Channel 1 Brighter*	1	*DMG 2 T Channel C1 Brighter/Darker*	Sends brighter/darker commands to the dimming actuator with a long button push.
12	*Channel 2 Darker*			
21	*Channel 3 Switching*	30	*DMG 2 T Channel C2 Switch On/Off*	Second lighting group: Sends On/Off commands to the dimming actuator with a short button push,
31	*Channel 4 Switching*			
22	*Channel 3 Brighter*	31	*DMG 2 T Channel C2 Brighter/Darker*	Sends brighter/darker commands to the dimming actuator with a long button push.
32	*Channel 4 Darker*			

5.3.4 Important parameter settings

TA 4 S

Parameter page	Parameters	Setting
Channel 1 (2,3,4)	*Activate channel*	*yes*
	Channel function	Dimming
(Channel 1) ***Dimming***	*Reaction to long/short*	Brighter/On[7]
(Channel 2) ***Dimming***	*Reaction to long/short*	Darker/Off[8]
(Channel 3) ***Dimming***	*Reaction to long/short*	Brighter/On[9]
(Channel 4) ***Dimming***	*Reaction to long/short*	Darker/Off[10]

DMG 2 T

Parameter page	Parameters	Setting
Dimming response	*Switching on/off with a 4-bit Telegram*	*no*

[7] Brighter/BY is also possible.
[8] Darker/BY is also possible.
[9] Brighter/BY is also possible.
[10] Darker/BY is also possible.

5.4 Controlling 4 blinds or blind groups

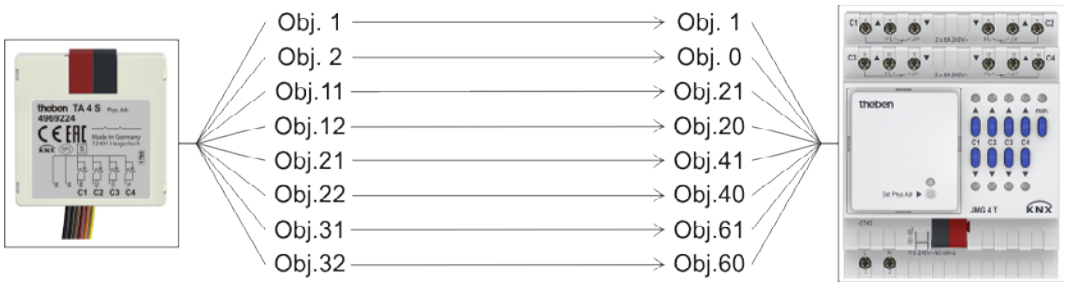
The push button interface TA 2 S controls the blind actuator JMG 4 T.

A push button is connected to each input.
A long button push raises or lowers the blinds.
A short button push triggers the step/stop function.

5.4.1 Devices

- TA 4 S (4969224)
- JMG 4 T (4930250)

5.4.2 Overview



5.4.3 Objects and links

Links

No.	TA 4 S Object name	No.	JMG 4 T Object name	Comment
1	*Channel 1 Step/stop*	1	*JMG 4 T C1 Step/stop*	Long button push for Up/down operating commands. Short button push for Step/stop commands.
2	*Channel 1 Up/Down*	0	*JMG 4 T C1 Up/Down*	
11	*Channel 2 Step/stop*	21	*JMG 4 T C2 Step/stop*	
12	*Channel2 Up/Down*	20	*JMG 4 T C2 Up/Down*	
21	*Channel 3 Step/stop*	41	*JMG 4 T C3 Step/stop*	
22	*Channel 3 Up/Down*	40	*JMG 4 T C3 Up/Down*	
31	*Channel 4 Step/stop*	61	*JMG 4 T C4 Step/stop*	
32	*Channel 4 Up/Down*	60	*JMG 4 T C4 Up/Down*	

5.4.4 Important parameter settings

TA 4 S

Parameter page	Parameters	Setting
Channel 1 (2,3,4)	*Activate channel*	*yes*
	Channel function	Blinds
Blinds	*Operation*	One button operation

JMG 4 T

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

6 Appendix

6.1 Conversion of percentages to decimal and hexadecimal values

%	Dec.	Hex.	%	Dec.	Hex.	%	Dec.	Hex.
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			