

## APPLICATION PROGRAM INFORMATION

Dimmer 6 fold 10V Actuator

M/DA6.10.1

KNX/EIB-BUS

Document Version: 1.0, Date: 15. April.2015

This document describes the M/DA6.10.1-functions with the KNX-product- application:Dimmer 6ch 10V10A (V1.1).vd5

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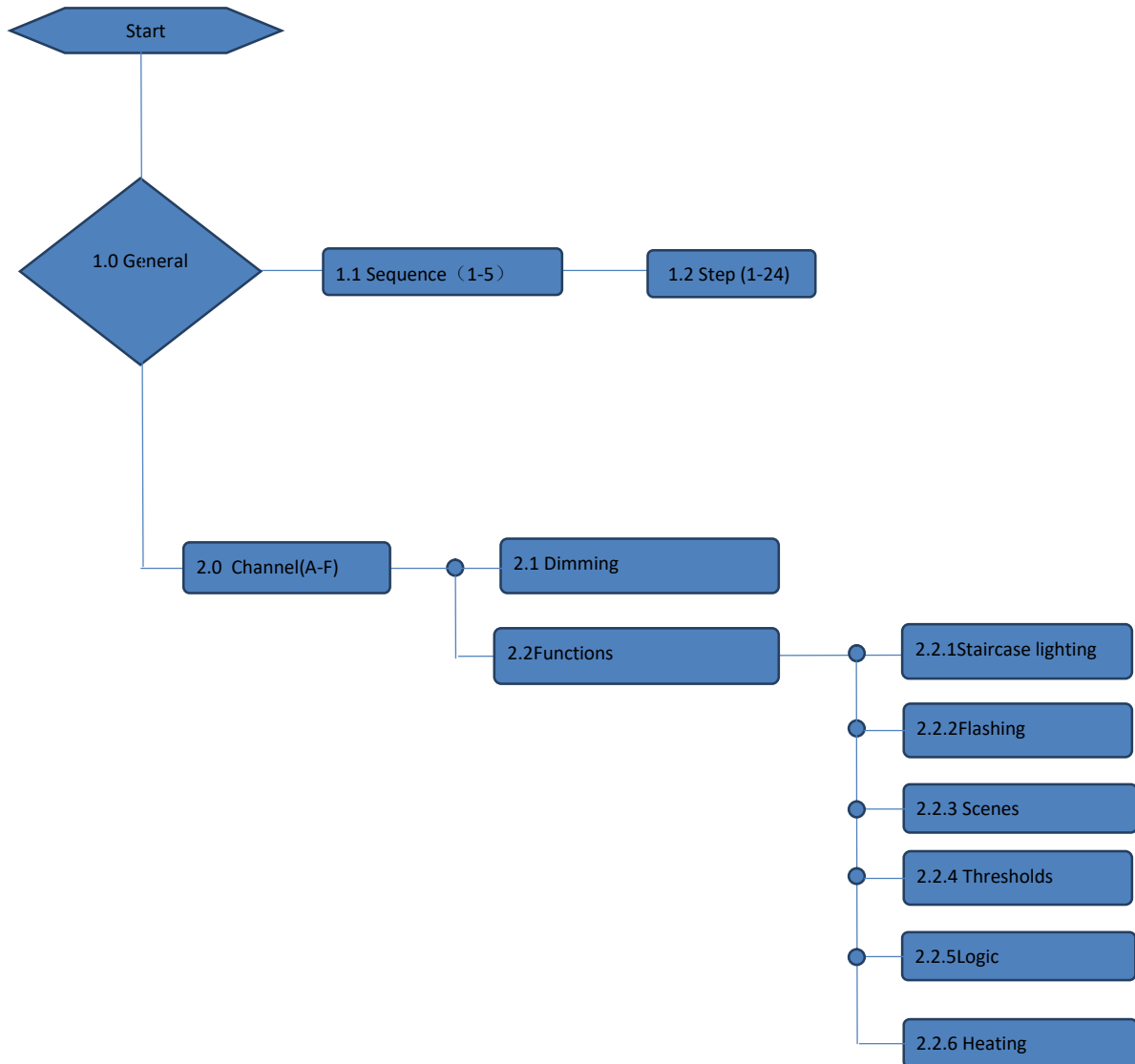
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- A. General description
- B. Function overview flowchart
- C. Function description
- D. Communication objects
- E. Assistant software for DALI group setting

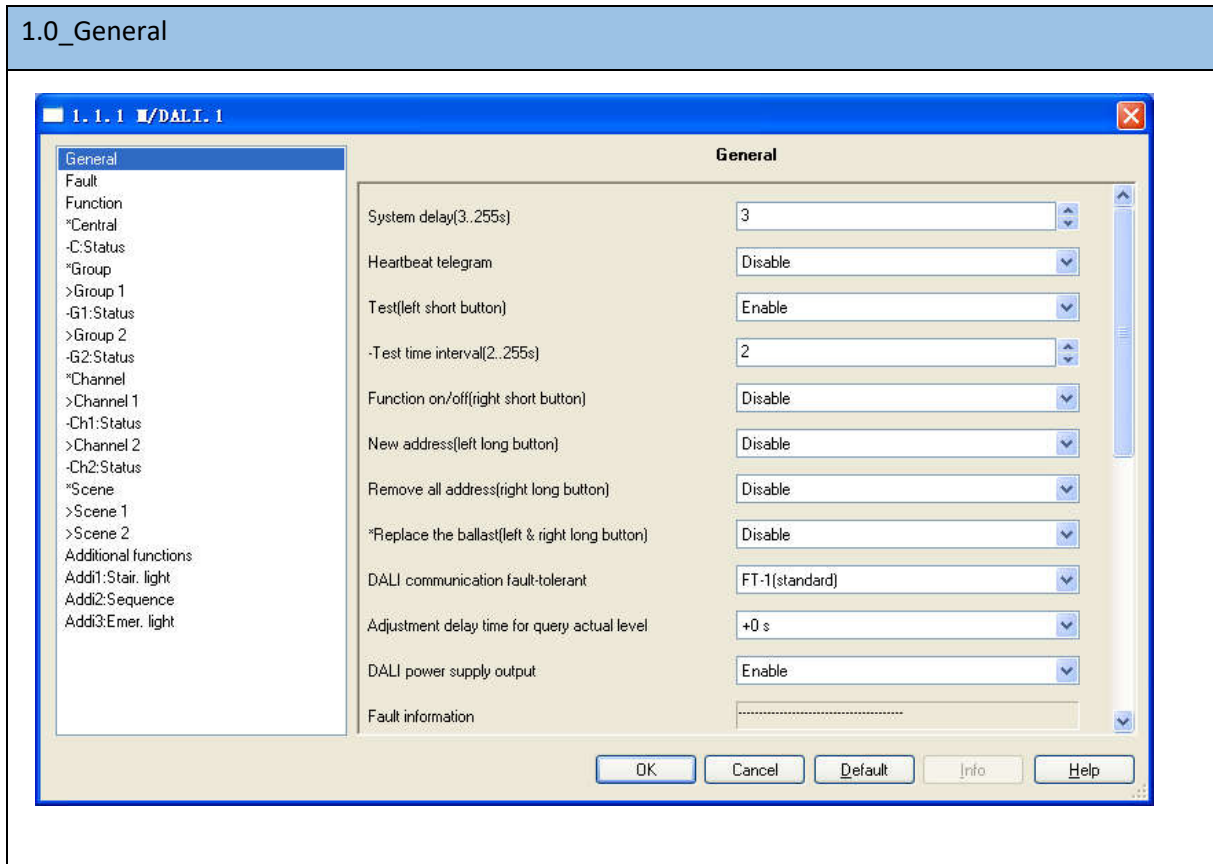
A. General description

The 6 fold 10V dimmer accuator can be used in a vararity of buildings for dimming and accuator purposes, and is designed to be installed on a 35mm DIN rail. This manual details the programming information for the dimmer/ actuator.

B. Below the programming method for the M/DA6.10.1 is shown.

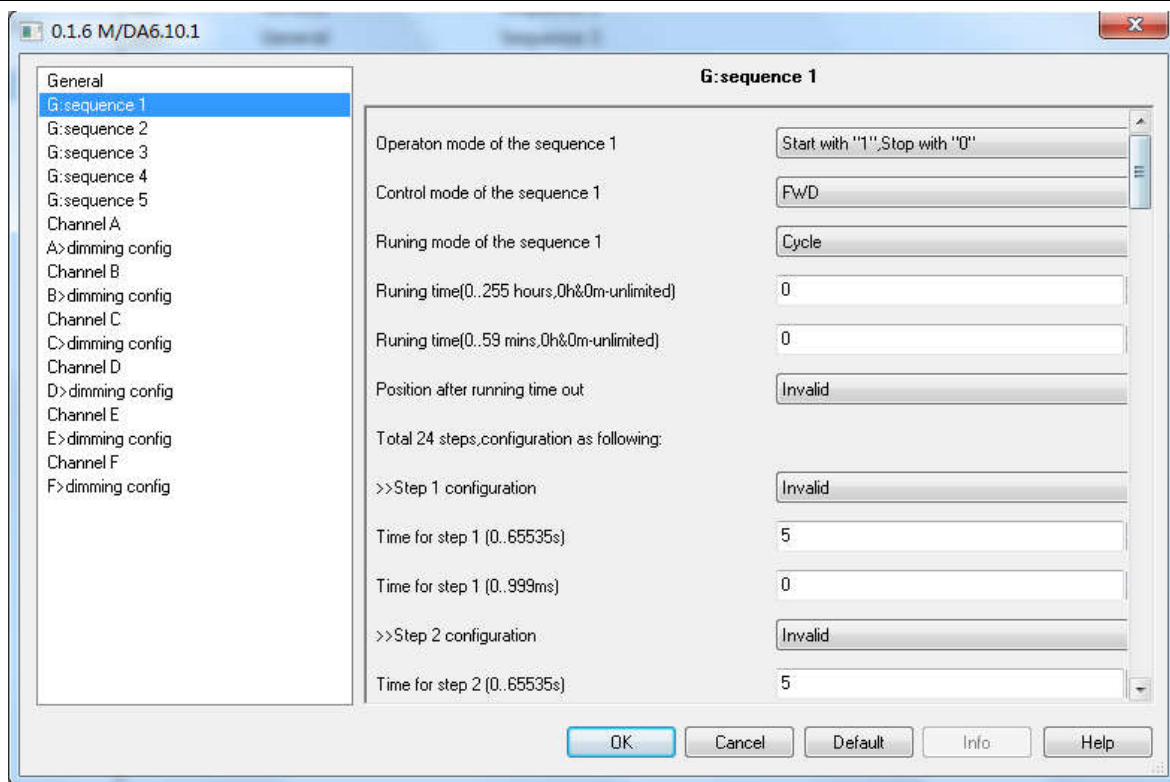


C. Description of functions:



No.	ETS-Parameter	Range (default)	Description
1	System delay	(2)..255s	The operation delay time can be set for when the module is powered on.
2	Heartbeat telegram	-(Disable) -Send value"0" cyclically -Send value"1" cyclically -Sendvalue"1/0" cyclically	Defines which telegram should be sent. -Send value"0" cyclically: Sendtelegram "0" to the bus.  -Send value"1" cyclically: Sendtelegram "1" to the bus.  -Send value"1/0" cyclically: Telegrams "0" and "1" are sent alternatly to the bus.
3	-Telegram is sent time interval(1..65535s)	1...(5)...65535s	Defines how often a telegram is sent.
4	Enable sequence 1 .... Enable sequence 5	-Enable -(Disable)	Enable or disable sequences 1-5

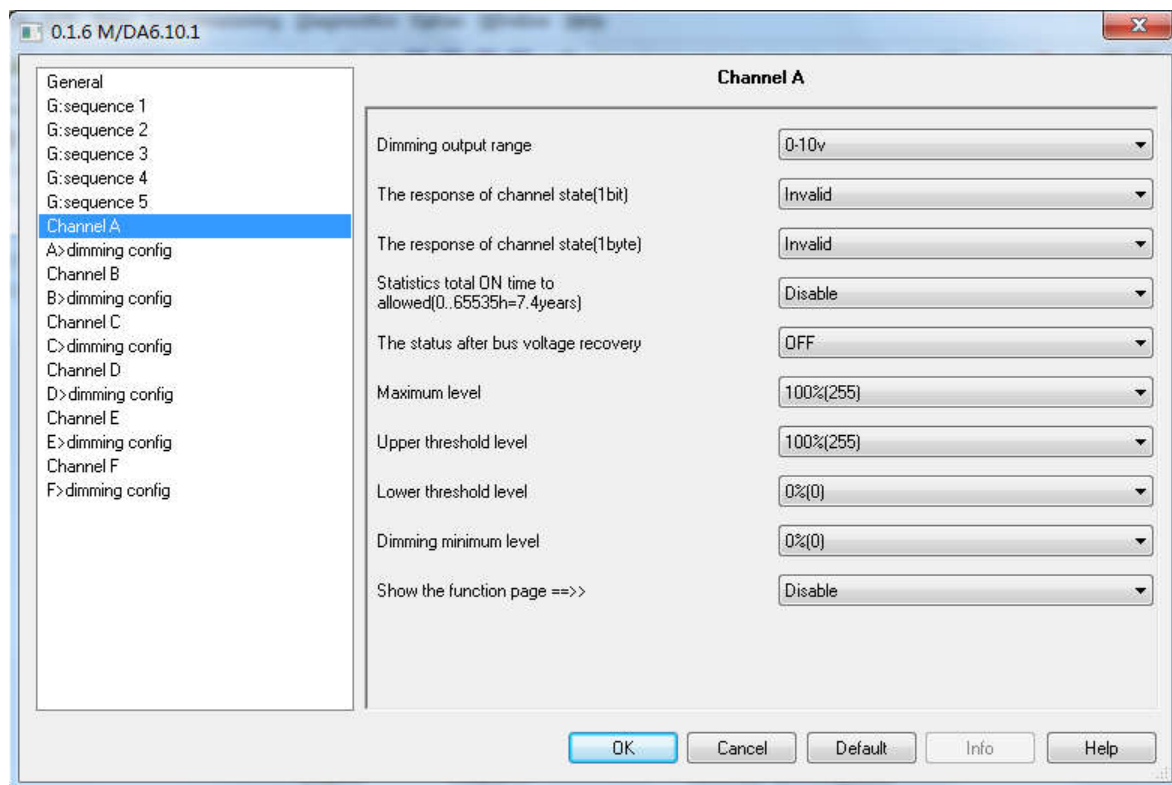
1.1\_Sequence(1-5)(All sequence’s setting is same, here, take sequence 1 as an example)



5	Operation mode of the sequence 1	--(Start with “1”, Stop with “0”) --Start with “0”, Stop with “1” --Start with “1/0”, Can’t stop	Set the operation mode for sequence 1-  Start with “1”, Stop with “0”:If a telegram is recieved with a value of “1”, sequence 1 will start. If a telegram is recieved with a value of “0”, sequence 1 will stop.  Start with “0”, Stop with “1”:If a telegram is recieved with a value of “0”, sequence 1 will start. If a telegram is recieved with a value of “1”, sequence 1 will stop.  Start with “1/0”, can’t stop: :If a telegram is recieved with a value of “1” or “0” , sequence 1 will start and not stop.
6	Control mode of the sequence 1	-(FWD) -REW -RANDOM	Set the control mode for sequence 1. FWD: Forward mode REW: Backward mode RANDOM: Random mode
7	Running mode of the sequence 1	-Single -(Cycle)	Set the running mode for sequence 1. Single: Will run once. Cycle: Will run cyclically.

8	Running time (0...255 hours, 0h&0m-unlimited)	(0)...255	Set the running time.
9	Running time (0...59 mins, 0h&0m-Unlimited)	(0)...59	Set the running time.
10	Position after running time out	-(Invalid) -Scene NO.01...Scene NO.64	Set the sceneto be activated when time out occurs.
<b>1.2_Step 1-24</b>			
11	>>Step 1 configuration ... Step 24 configuration	-(Invalid) -Scene NO.01...Scene NO.64	Set the scene for step 1...24.
12	Time for step 1 ... Time for step 24	0...(5)...65535s	Set the time for step 1...24.
13	Time for step 1 ... Time for step 1	(0)...999ms	Set the time for step 1...24.

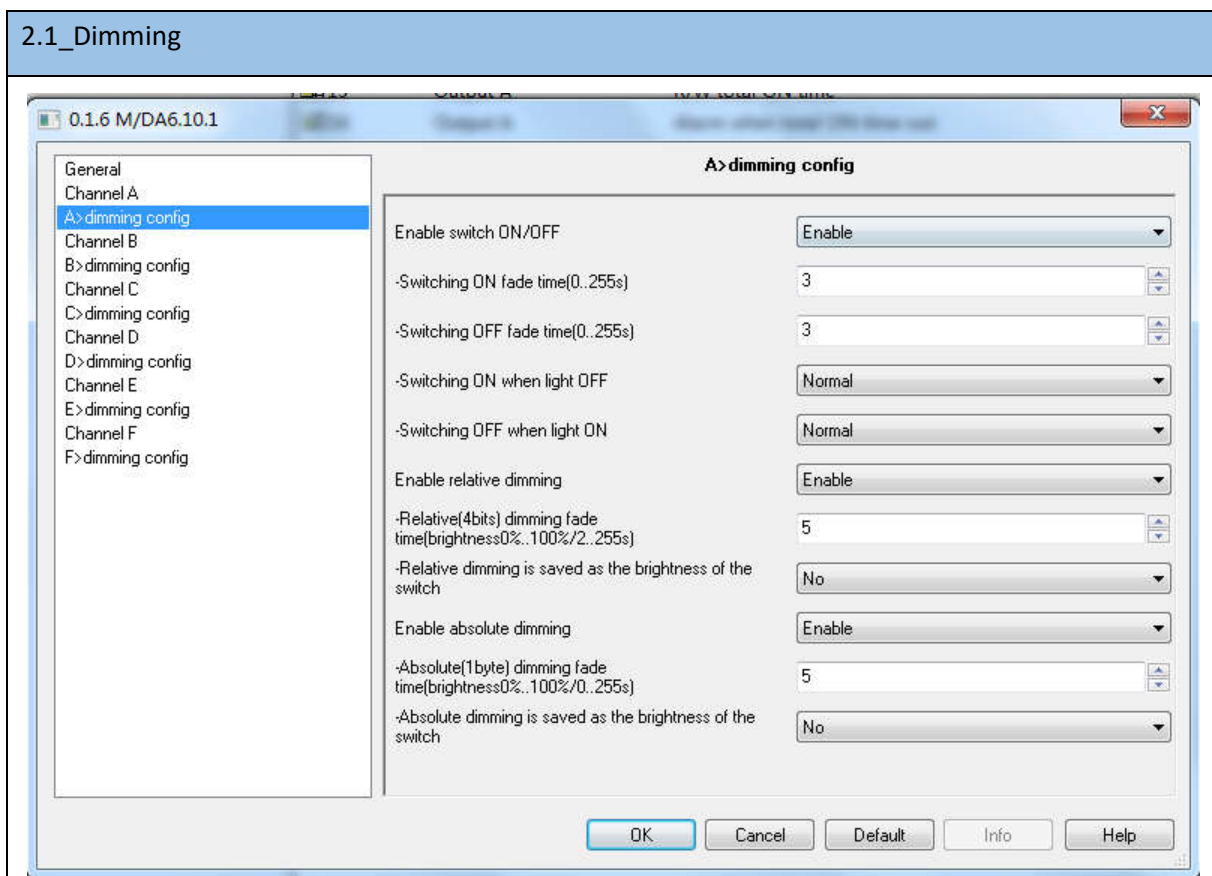
**2.0\_Channel A-F (All channel’s setting is same, here, take channel A as an example)**



No.	ETS-Parameter	Range (default)	Description
12	Dimming output range	-(0-10V) -1-10V -2-10V	Set the dimming output.
13	The response of channel state (1 bit)	-(Invalid) -1 bit always response -1 bit only changed	Set the channel state response parameters.

			<p><i>1 bit always response: The channel will always respond, if on it will respond with 1, if off it will respond with 0.</i></p> <p><i>1 bit only changed: The channel will respond only when the dimmer state has changed.</i></p>
14	The response of channel state(byte)	-(Invalid) -1 byte always response -1 byte only changed	<p><i>Set the channel state response parameters.</i></p> <p><i>1 byte always response: The channel will always respond.</i></p> <p><i>1 byte only changed: The channel will respond when the light value has changed.</i></p>
15	Statistics total ON time to allowed (0...65535h=7.4 years)	-Enable -(Disable)	<i>Enable or disable the statistics function.</i>
16	Alarm when time out (1...65535h, 0-invalid)	-1...(30000)...65535h -0-invalid	<i>Set the alarm time out parameters.</i>
17	Transmit telegram interval when alarm(1...255s)	1...(10)...255s	<i>Set the alarm time interval.</i>
18	The status after bus voltage recovery	-(OFF) -Defined brightness value -Last brightness value	<p><i>Set the status after bus voltage-</i></p> <p><i>OFF: After powered on, the channel will be OFF.</i></p> <p><i>Defined brightness value: After powered on, the channels status will be defined by the brightness value.</i></p> <p><i>Last brightness value: After powered on, the channels status will be defined by the last brightness value.</i></p>
19	Brightness value	(0%)...100%	<i>Set the brightness value parameters.</i>
20	Maximum level	0...(100%)	<i>Set the maximum level .</i>
21	Upper threshold level	0...(100%)	<i>Set the upper threshold level.</i>
22	Lower threshold level	(0)...100%	<i>Set lower threshold level.</i>
23	Dimming minimum level	(0)...100%	<i>Set the minimum dimming level.</i>
24	Show the function page==>>>	-Enable -(Disable)	<i>Enable or disable the function page.</i>

## 2.1\_Dimming

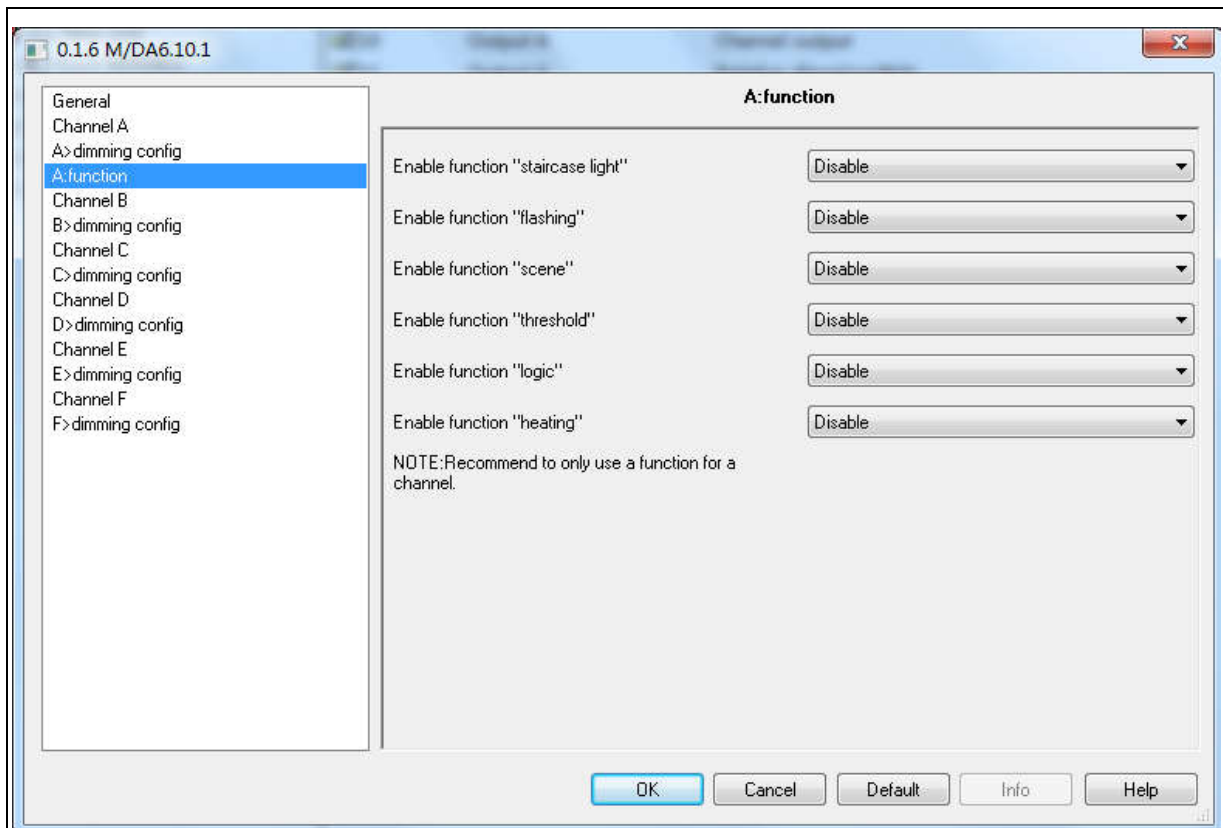


No.	ETS-Parameter	Range (default)	Description
25	Enable switch ON/OFF	-(Enable) -Disable	Enable or disable the ON/OFF switch.
26	-Switching ON fade time (0...255s)	0...(3)...255s	Set the switch ON fade time.
27	-Switching OFF fade time (0...255s)	0...(3)...255s	Set the switch OFF fade time.
28	-Switching ON when light OFF	-(Normal) -Not allowed to swicth ON	Set the parameter for switching ON when the light is OFF-



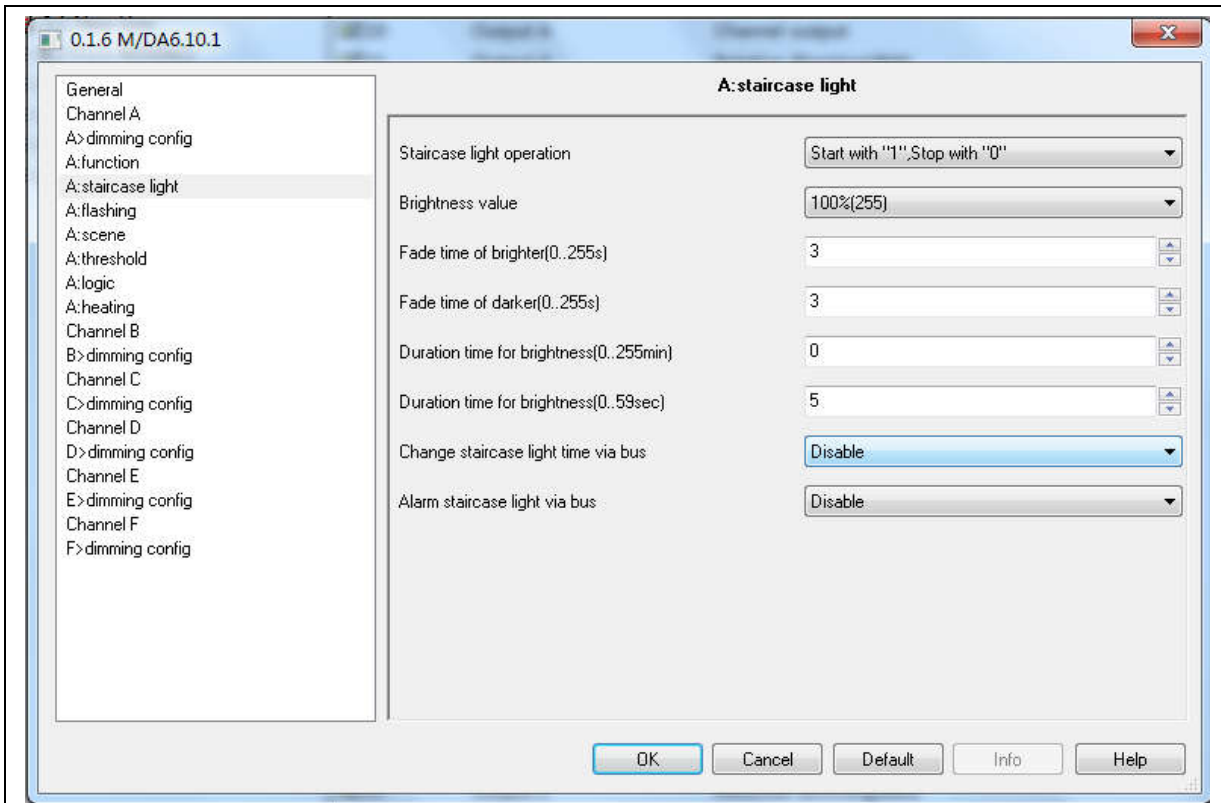
			<p><i>Normal: When the status is normal, the function can be used.</i></p> <p><i>Not allowed to switch ON: When the status is not allowed to switch ON, the function can not be used.</i></p>
29	-Switching OFF when light ON	-(Normal) -Not allowed to switch OFF	<p><i>Set the parameter for switching OFF when the light is ON-</i></p> <p><i>Normal: When the status is normal, the function can be used.</i></p> <p><i>When the status is not allowed to switch OFF, the function can not be used.</i></p>
30	Enable relative dimming	-(Enable) -Disable	<p><i>Enable/disable relative dimming-</i></p> <p><i>Enable: Allows relative dimming</i></p> <p><i>Disable: Disallows relative dimming</i></p>
31	-Relative (4bits) dimming fade time (brightness 0%...100%/2...255s)	2...(5)...255s	<i>Set the fade time for relative dimming.</i>
32	-Relative dimming is saved as the brightness of the switch	-(No) -Yes	<i>Enable/disable relative dimming.</i>
33	Enable absolute dimming	-Enable -(Disable)	<i>Enable/disable absolute dimming.</i>
34	-Absolute(1 byte) dimming fade time(brightness 0%...100%/0...255s)	0...(5)...255s	<i>Set the fade time for absolute(1 byte) dimming.</i>
35	-Absolute dimming is saved as the brightness of the switch	-Yes -(No)	<i>Enable/disable the absolute dimming saved brightness.</i>

## 2.2\_function



No.	ETS-Parameter	Range (default)	Description
36	Enable function "staircase light"	-Enable -(Disable)	Enable or disable "staircase lighting".
37	Enable function "flashing"	-Enable -(Disable)	Enable or disable "flashing".
38	Enable funcation "scene"	-Enable -(Disable)	Enable or disable "scenes".
39	Enable function "threshold"	-Enable -(Disable)	Enable or disable the "threshold" function
40	Enable function "logic"	-Enable -(Disable)	Enable or disable the "logic" function
41	Enable function "heating"	-Enable -(Disable)	Enable or disable "heating".

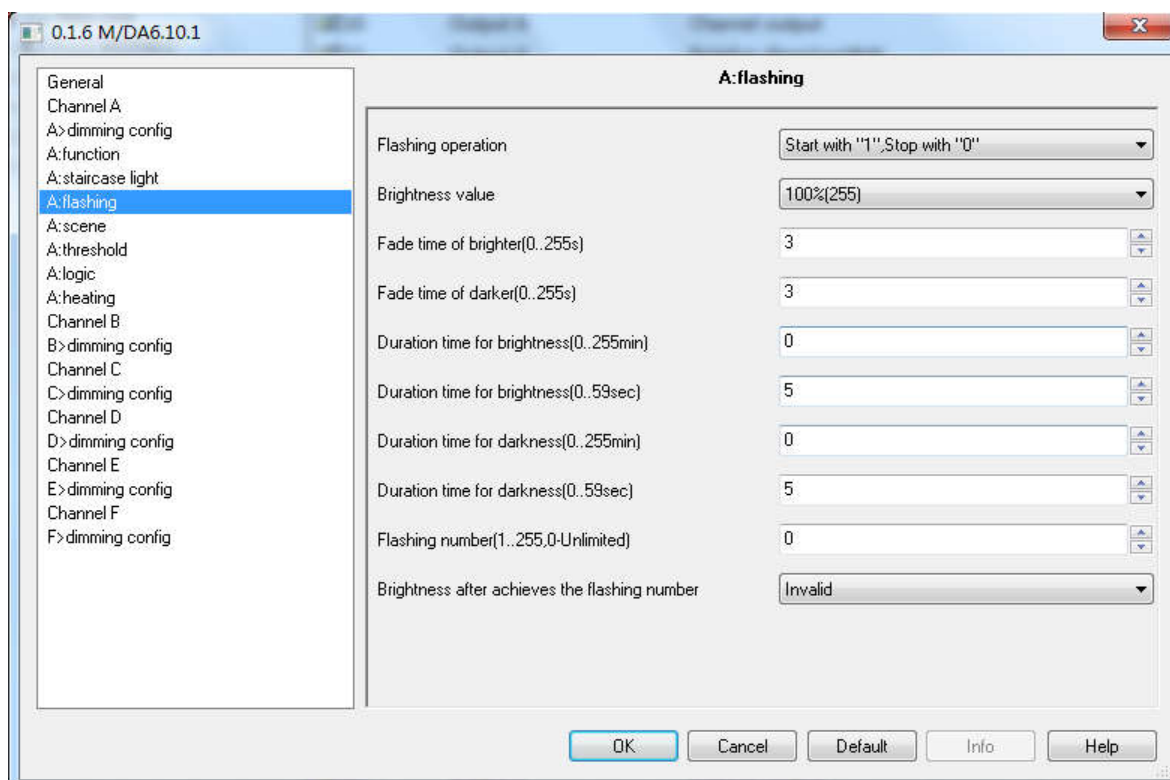
2.2.1\_ Staircase light



42	Staircase light operation	<p>-(start with "1", Stop with "0")</p> <p>-Start with "1", Invalid with "0"</p> <p>-Start with "1/0", Can't stop</p>	<p>Setting the parameters for staircase lighting-</p> <p>Start with "1", Stop with "0": If telegram "1" is received, the staircase lighting will activate, if telegram "0" is received the staircase lighting will deactivate.</p> <p>Start with "1", Invalid with "0": If telegram "1" is received, the staircase lighting will activate,if telegram "0" is received thefunction will be invalid.</p> <p>Start with "1/0", Can't stop: If telegram "1/0" is received, the the staircase lighting will remain constantly active.</p>
43	Brightness value	0...(100%)	Set the light intensity.
44	Fade time of brighter(0...255s)	0...(3)...255s	Set the rate at which the lighting intensity increases.
45	Fade time of darker (0...255s)	0...(3)...255s	Set the dimming time.

46	Duration time for brightness(0...255min)	(0)...255s	Set the time to attain maximum brightness.
47	Duration time for brightness(0...59sec)	0...(5)...59(Sec)	Set the time to attain maximum brightness.
48	Change staircase light time via bus	-Enable -(Disable)	Enable or disable staircase lighting times-  Enable: Allows the staircase lighting time to be modified.  Disable: Does not allow the staircase lighting time to be modified. If this is set the lighting can only be set via the database.
49	Alarm staircase light via bus	-Enable -(Disable)	Enable or disable the staircase warning light via the bus-  Enable: Allows a alarm to be triggered  Disable: Does not allow an alarm to be triggered.

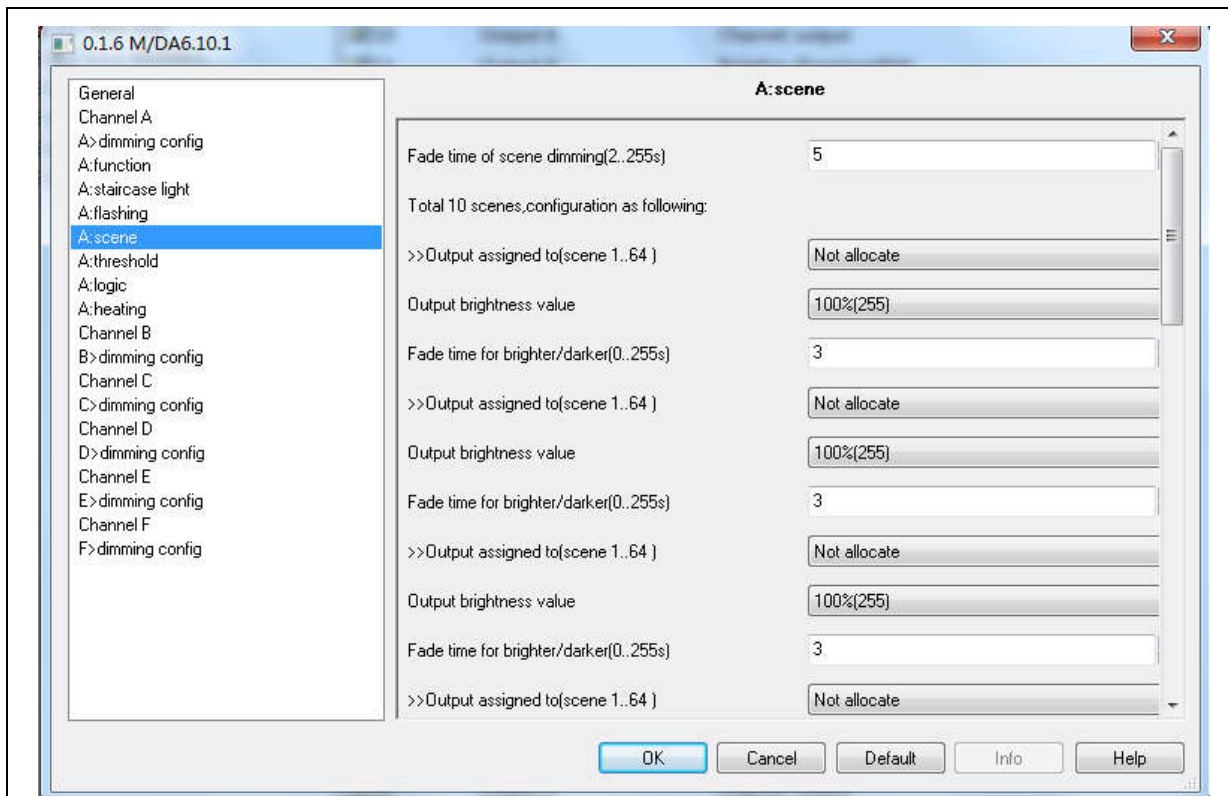
### 2.2.2\_flashing



No.	ETS-Parameter	Range (default)	Description
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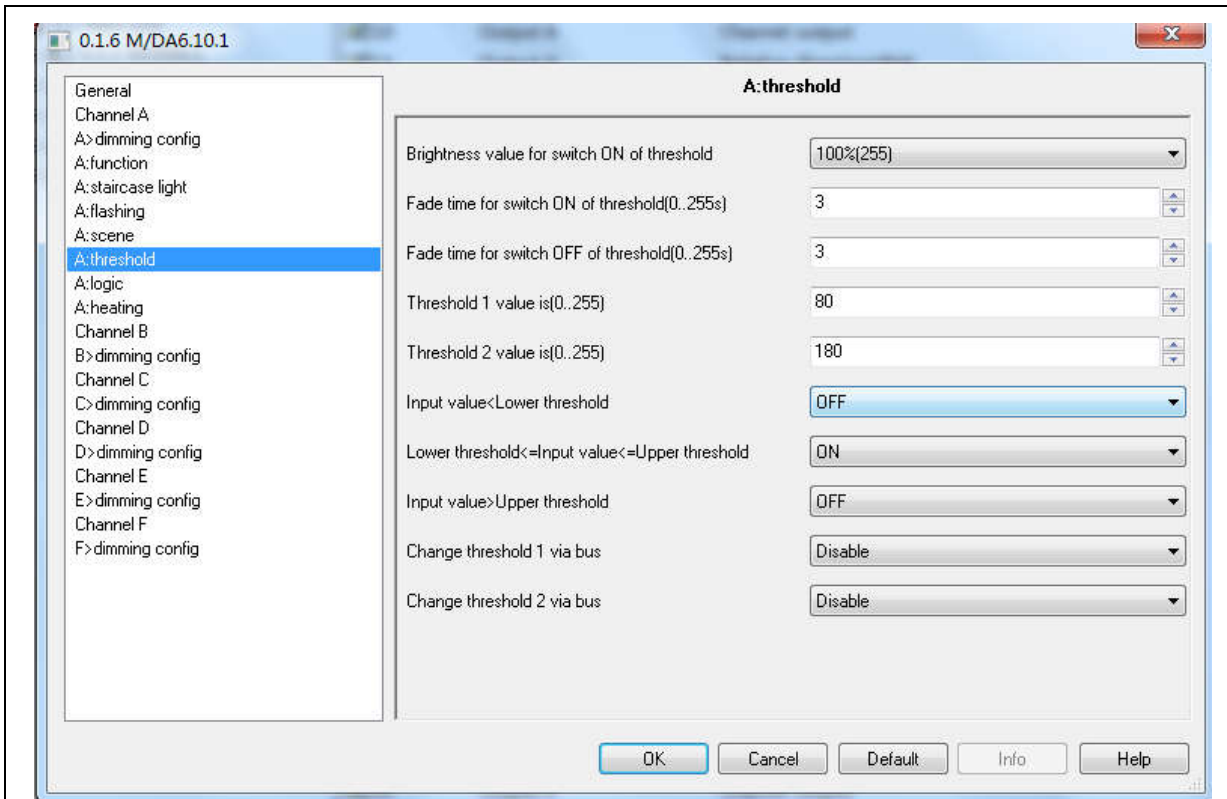
50	Flashing operation	- (Start with "1", Stop with "0") - Start with "0", Stop with "1" - Start with "1/0", Can't stop	Setting the parameters for 'flashing'-  Start with "1", Stop with "0": If telegram "1" is received, 'flashing' will be activated, if telegram "0" is received 'flashing' will be deactivated.  Start with "0", Stop with "1": If telegram "0" is received, 'flashing' will be activated, if telegram "1" is received 'flashing' will be deactivated.  Start with "1/0", Can't stop: If telegram "1/0" is received, 'flashing' will remain constantly active.
51	Brightness value	0...(100%)	Set the brightness value.
52	Fade time of brighter (0...255s)	0...(3)...255s	Set the rate at which the lighting intensity increases.
53	Fade time for darker (0...59Sec)	0...(3)...59Sec	Set the dimming time.
54	Duration time for brightness (0...255min)	(0)...255min	Set the brightness duration time.
55	Duration time for brightness (0...59Sec)	0...(5)...59Sec	Set the brightness duration time.
56	Duration time for darkness (0...255min)	(0)...255min	Set the brightness duration time.
57	Duration time for darkness (0...59Sec)	0...(5)...59Sec	Set the brightness duration time.
58	Flashing number(1...255, 0-Unlimited)	-(0-unlimited) -1...255	Set the number of flashes.
59	Brightness after achieves the flashing number	-(Invalid) -0...100%	Set the brightness parameters for after a set number of flashes has been achieved.

### 2.2.3\_scene



No.	ETS-Parameter	Range (default)	Description
60	Fade time of scene dimming (2...255s)	2...(5)...255s	Set the fade time for scene dimming.
61	Total 10 scenes, configuration as following:		
62	>>Output assigned to (scene 1...64)	-(Not allocate) -Scene No 1...Scene No 64	Set the output scene.
63	Output brightness value	0...(100%)	Set brightness output value.
64	Fade time for brighter/darker(0...255s)	0...(3)...255s	Set the brightening and dimming fading rate.

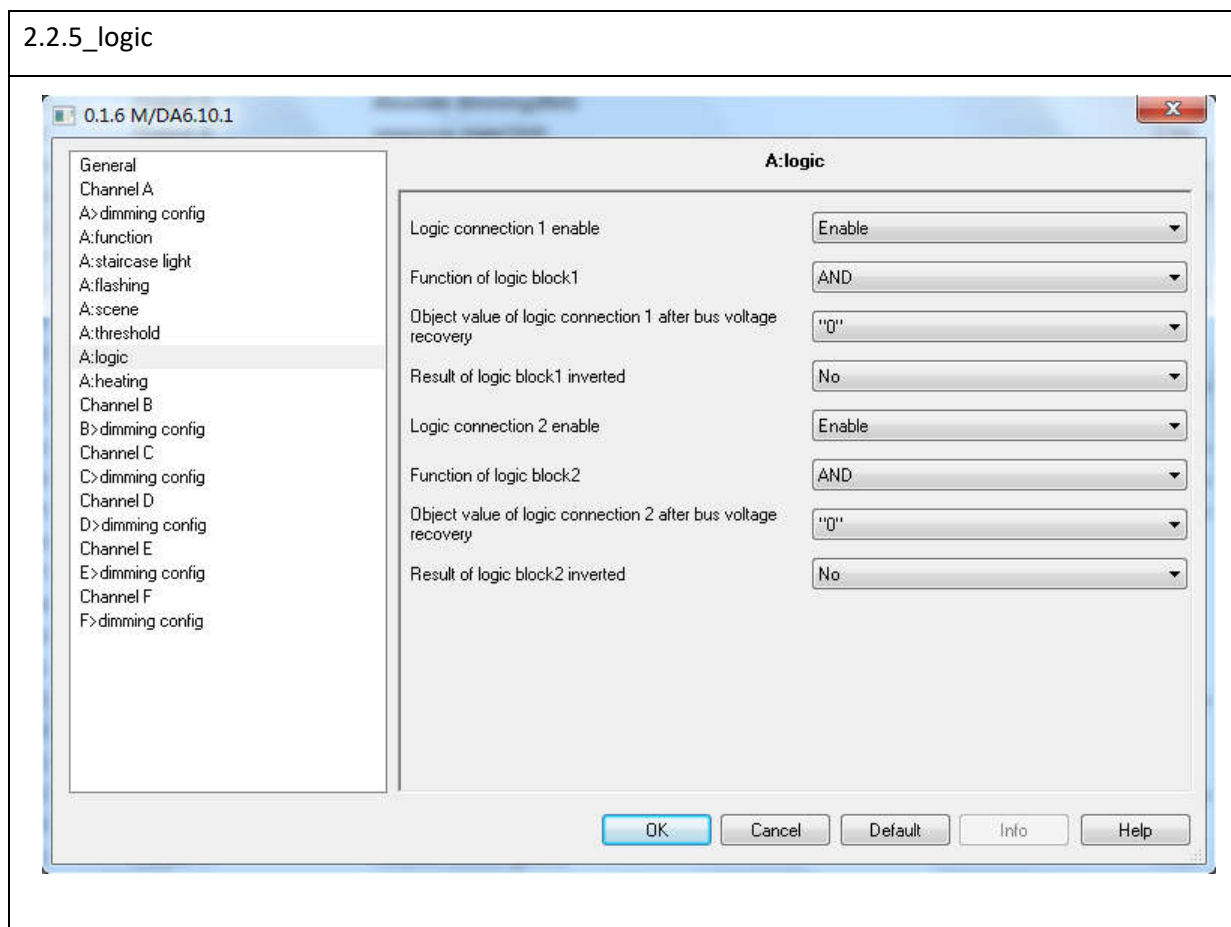
#### 2.2.4\_Threshold



No.	ETS-Parameter	Range (default)	Description
65	Brightness value for switch ON of threshold	0...(100%)	Set the brightness value when switched on.
66	Fade time for switch ON of threshold (0...255s)	0...(3)...255s	Set the switch on fade time.
67	Fade time for switch OFF of threshold (0...255s)	0...(3)...255s	Set the switch off fade time.
68	Threshold 1 value is (0...255)	0...(80)...255	Set the value for threshold 1
69	Threshold 2 value is (0...255)	0...(180)...255	Set the value for threshold 2
70	Input value <=Lower threshold	-Unchanged -ON -(OFF)	Set the <= lower threshold input value status- Unchanged: The switch position will not change.  ON: The switch position is set to ON.  OFF: The switch position is set to OFF.
71	Lower threshold <=Input value <=Upper threshold	-Unchanged -(ON) -OFF	Set the status for the lower threshold <=input value <=upper threshold-  Unchanged: The switch position will not change.  ON: The switch position is set to ON  OFF: The switch position is set to OFF

72	Input value> Upper threshold	-Unchanged -ON -(OFF)	Set the upper input threshold value status-  Unchanged: The switch position will not change.  ON: The switch position is set to ON.  OFF: The switch position is set to OFF.
73	Change threshold 1 via bus	-Enable -(Disable)	Enable/disable the threshold 1 function-  Enable: The value of threshold 1 can be changed from the bus.  Disable: The value of threshold 1 can not be changed from the bus.
74	Change threshold 2 via bus	-Enable -(Disable)	Enable/disable the threshold 2 function- Enable: The value of threshold 1 can be changed from the bus.  Disable: The value of threshold 1 can not be changed from the bus.

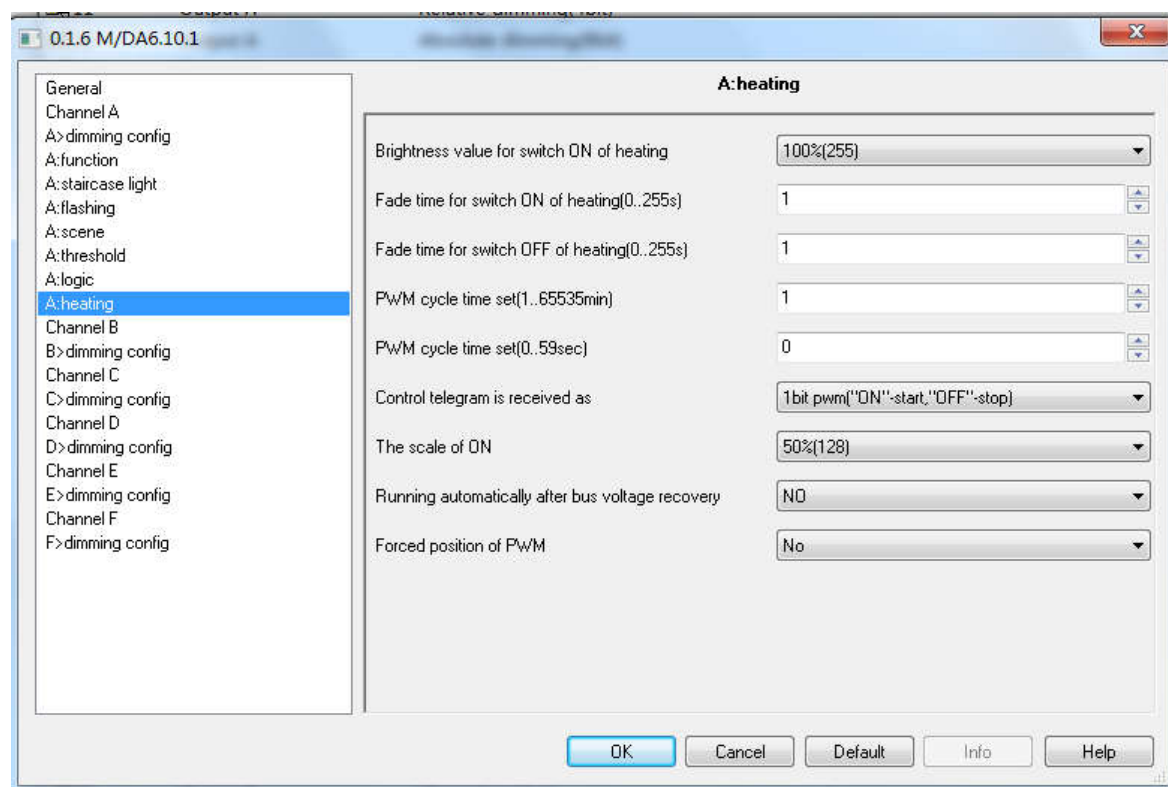
### 2.2.5\_logic





No.	ETS-Parameter	Range (default)	Description
75	Logic connection 1 enable	-Enable -(Disable)	<i>Enable or disable logic connection 1.</i>
76	-Function of logic block 1	-(And) -OR -XOR -GATE	<p><i>Set the logic block 1 functions-</i></p> <p><i>And: Boolean calculation is according to "AND".</i></p> <p><i>OR: Boolean calculation is according to "OR".</i></p> <p><i>XOR: Boolean calculation is according to "XOR".</i></p> <p><i>GATE: When the Condition 1 is set to '1', the channel will pass through logic block 1 to logic block 2.</i></p>
77	Object value of logic connection 1 after bus voltage recovery	-('0') - '1'	<i>Send the logic 1 connection parameters after bus voltage recovery.</i>
78	Result logic of block 1 inverted	-Yes -(No)	<i>Enable or disable the inversion of results from logic block 1.</i>
79	Logic connection 2 enable	-Enable -(Disable)	<i>Enable or disable logic connection 2.</i>
80	-Function of logic block 2	-(And) -OR -XOR -GATE	<p><i>Set the logic block 1 functions-</i></p> <p><i>And: Boolean calculation is according to "AND".</i></p> <p><i>OR: Boolean calculation is according to "OR".</i></p> <p><i>XOR: Boolean calculation is according to "XOR".</i></p> <p><i>GATE: When the Condition 1 is set to '1', the channel will pass through logic block 1 to logic block 2.</i></p>
81	-Object value of logic connection 2 after bus voltage recovery	-('0') - '1'	<i>Send the logic 2 connection parameters after bus voltage recovery.</i>
82	Result logic of block 2 inverted	-Yes -(No)	<i>Enable or disable the inversion of results from logic block 2.</i>

## 2.2.6 heating



No.	ETS-Parameter	Range (default)	Description
83	Brightness value for switch ON of heating	0...(100%)	Set the brightness value for when heating is switched on.
84	Fade time for switch ON of heating (0...255s)	0...(1)...255	Set the rate at which the heating intensity increases when switched ON.

85	Fade time for switch OFF of heating (0...255s)	0...(1)...255	Set the rate at which the heating intensity decreases when switched OFF.
86	PWM cycle time set(1...65535min)	(1)...65535min	Set the PWM cycle time.
87	PWM cycle time set(0...59Sec)	(0)...59Sec	Set the PWM cycle time.
88	Control telegram is received as	-(1 bit pwm("ON"-start,"OFF"-stop)) -1 byte ("255"-ON, "0"-OFF, other value)	Set the control type-  1 bit PWM (1-start/0-stop): If telegram "1" is received, the PWM will start, if telegram "0" is received, the PWM will stop.  1 byte ("255"-ON, "0"-OFF, other value): If telegram "255" is received, the PWM will switch ON. If telegram "0" is received, the PWM will stop and the PWM status will be set according to the other value(1...254).
89	The scale of ON	1...(50%)...100%	Set the value for scale of ON
90	Running automatically after bus voltage recovery	-(NO) -Defined valve -Recovery	Set the PWM parameters-  No:The PWM will run a customised value.  Defined Valve: The PWM will run a defined value.  Recovery: The PWM will run automatically.
91	-Position of the valve	0...(50)...100%	Set the value for position of the valve
92	Forced position of PWM	-Yes -(No)	Enable or disable the forced PWM position.
93	-Valve of PWM	0...(50%)...100	Set the value for valve of PWM

D. Communication objects

Object "General"				
0	General	Heartbeat telegram	1 bit	C - - T - 1 bit DPT_Enable
0	General	Heartbeat telegram	1 bit	C - - T - 1 bit DPT_Enable
0	General	Heartbeat telegram	1 bit	C - - T - 1 bit DPT_Enable
1	General	Sequence 1	1 bit	C - W - U 1 bit DPT_Start
2	General	Sequence 2	1 bit	C - W - U 1 bit DPT_Start
3	General	Sequence 3	1 bit	C - W - U 1 bit DPT_Start
4	General	Sequence 4	1 bit	C - W - U 1 bit DPT_Start
5	General	Sequence 5	1 bit	C - W - U 1 bit DPT_Start
NO.	Objectname	Function	Flags	Data type
0	General	Heartbeat telegram	CT	DPT 1.003 1bit
0	General	Heartbeat telegram	CT	DPT 1.003 1bit
0	General	Heartbeat telegram	CT	DPT 1.003 1bit
These communication objects are used to enable or disable the heartbeat telegram function. If enabled the heartbeat telegram will be sent, if disabled it will not be sent.				
1	General	Sequence1	C W U	DPT 1.010 1bit

2	General	Sequence 2	C W U	DPT1.010 1bit
3	General	Sequence 3	C W U	DPT 1.010 1bit
4	General	Sequence 4	C W U	DPT1.010 1bit
5	General	Sequence 5	C W U	DPT 1.010 1bit
These communication objects are used to enable or disable sequences. If telegram “0” is sent the sequences will be disabled, if telegram “1” is sent the sequences will be enabled.				

D 1 Channel N output (All channel’s setting is same, here take output A as an example)

Objects “Output N”				
10	Output A	Channel output		1 bit C - W - U
11	Output A	Relative dimming(4bit)		4 bit C - W - U
12	Output A	Absolute dimming(8bit)		1 Byte C - W - U
NO.	Object name	Function	Flags	Data type
10	Output A	Channel output	C W U	DPT1.001 1bit
<i>This communication object is used for channel output, and can control ON/OFF.</i>				
11	Output A	Relative dimming (4 bit)	C W U	DPT3.007 4bit
<i>This communication object is used for relative dimming. When the “increase” telegram is received, the value will go UP. When the “decrease” telegram is received, the value will go down.</i>				
12	Output A	Absolute dimming (8 bit)	C W U	DPT5.001 1byte
<i>This communication object is used for absolute dimming. When the absolute dimming telegram is received, the lights will be dimmed according to the telegrams value.</i>				

Objects “Response state”
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13	Output A	Response state(1bit)	1 bit	C R - T -
14	Output A	Response state(1byte)	1 Byte	C R - T -

NO.	Object name	Function	Flags	Data type
13	Output A	Response state (1bit)	C R T	DPT1.001 1 bit
<i>This communication object is used for response the state, when the response state is "1", the channel is ON. If the response state is "0", the channel is OFF.</i>				
14	Output A	Response state (1 byte)	C R T	DPT5.001 1 byte
<i>This communication object is used for the response state of the output channel brightness.</i>				

Objects "Statistic ON time"

15	Output A	R/W total ON time	2 Byte	C R W T U
16	Output A	Alarm when total ON time out	1 bit	C R - T -

NO.	Object name	Function	Flags	Data type
15	Output A	R/W total ON time	C R W T U	DPT7.007 2 byte
<i>This communication object is used if the initial value is changed. The Statistical ON time will increase again every hour.</i>				
16	Output A	Alarm when total ON time out	C R T	DPT1.005 1 bit
<i>This communication object is used to trigger an alarm, when the statistical ON time has reached the maximum set value.</i>				

Objects "Staircase light"

17	Output A	Staircase light	1 bit	C - W - U 1 bit DPT_Switch
18	Output A	Change staircase light time	2 Byte	C - W - U
19	Output A	Alarm staircase light	1 bit	C R - T -
...	...	...	...	...

NO.	Object name	Function	Flags	Data type
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17	Output A	Staircase light	C W U	DPT 1.001 1 bit
<i>This communication object is used for staircase lighting. If telegram "1" is received, the staircase lighting will be activated. If telegram "0" is received, the staircase lighting will be deactivated.</i>				
18	Output A	Change staircase light time	C W U	DPT7.005 2 byte
19	Output A	Alarm case light	C R T	DPT 1.005 1 bit
<i>This communication object is used to change the staircase lighting illumination time.</i>				

No	Object name	Function	Flags	Data type
20	Output A	Flashing	C W U	DPT1.001 1 bit
<i>This communication object is used for the flashing function. When the start value is received, the lighting channel will flash.</i>				

NO.	Object name	Function	Flags	Data type
21	Output A	Scene(8 bit)	C W U	DPT18.001 1 byte
22	Output A	Scene dimming(4bit)	C W U	DPT 3.007 4 bit
<i>This communication object is used to call or save the channel output scene.</i>				
<i>This communication object is used for scene dimming</i>				

NO.	Object name	Function	Flags	Data type
23	Output A	Threshold input	C W U	2 Byte
24	Output A	Change threshold 1	C W U	2 Byte
25	Output A	Change threshold 2	C W U	2 Byte

23	Output A	Threshold input	C W U	DPT 5.004 1 byte
<i>This communication object is used for threshold input. The input value is compared with threshold 1 and threshold 2.</i>				
24	Output A	Change threshold 1	C W U	DPT5.004 1 byte
25	Output A	Change threshold 2	C W U	DPT5.004 1 byte
<i>This communication object is used to change threshold 1 or 2 via the bus network.</i>				

NO.	Object name	Function	Flags	Data type
26	Output A	Logic connection 1	C W U	DPT 1.002 1bit
27	Output A	Logic connection 2	C W U	DPT 1.002 1 bit

*These communication objects are used to set the logic state.*

NO.	Object name	Function	Flags	Data type
28	Output A	Heat with 1 bit control	C W U	DPT 1.001 1 bit
<i>This communication object is used for the heating actuator, if telegram "1" is received the PWM will start. If telegram "0" is received the PWM will stop.</i>				
28	Output A	Heat with 1 byte control	C W U	DPT5.004 1 byte
<i>This communication is used to modify the PWM value by receiving 1 byte data. If telegram "255" is received, the output will be on. If telegram "0" is received, the output will be OFF.</i>				



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