APPLICATION PROGRAM INFORMATION

1/2/4/6CHDimmer

M/D01.1

M/D02.1

M/D04.1

M/R06.1

KNX/EIB-BUS

Document Version: 1.0, Date:__15. April.2015___

This document describes the M/D01.1, M/D02.1, M/D03.1, M/D04.1, M/D06.1 -functions with the KNX-product- application:Dimmer Actuator (V1.2).vd5

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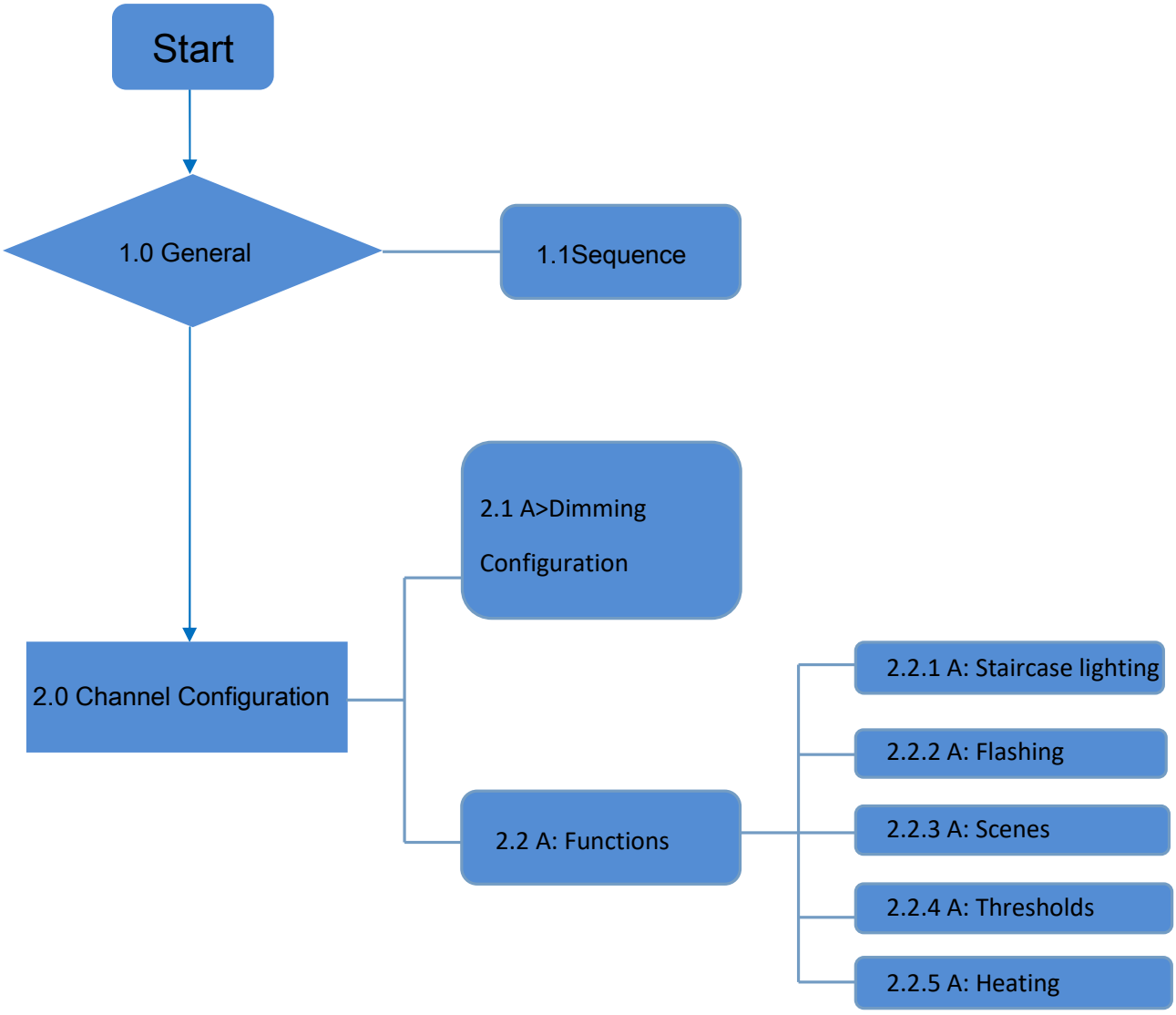
Version	Date	Comments	Author (English name)
1.0	27.3.2015	First issue	Jie Tan
1.2	9/6/2015	English text edit	Noah Barker

A.

The 01/02/04/06CH dimmer actuator can control lighting, motors, curtains, HVAC, and a variety of other equipment. This manual details the programming information for the dimmer controller.

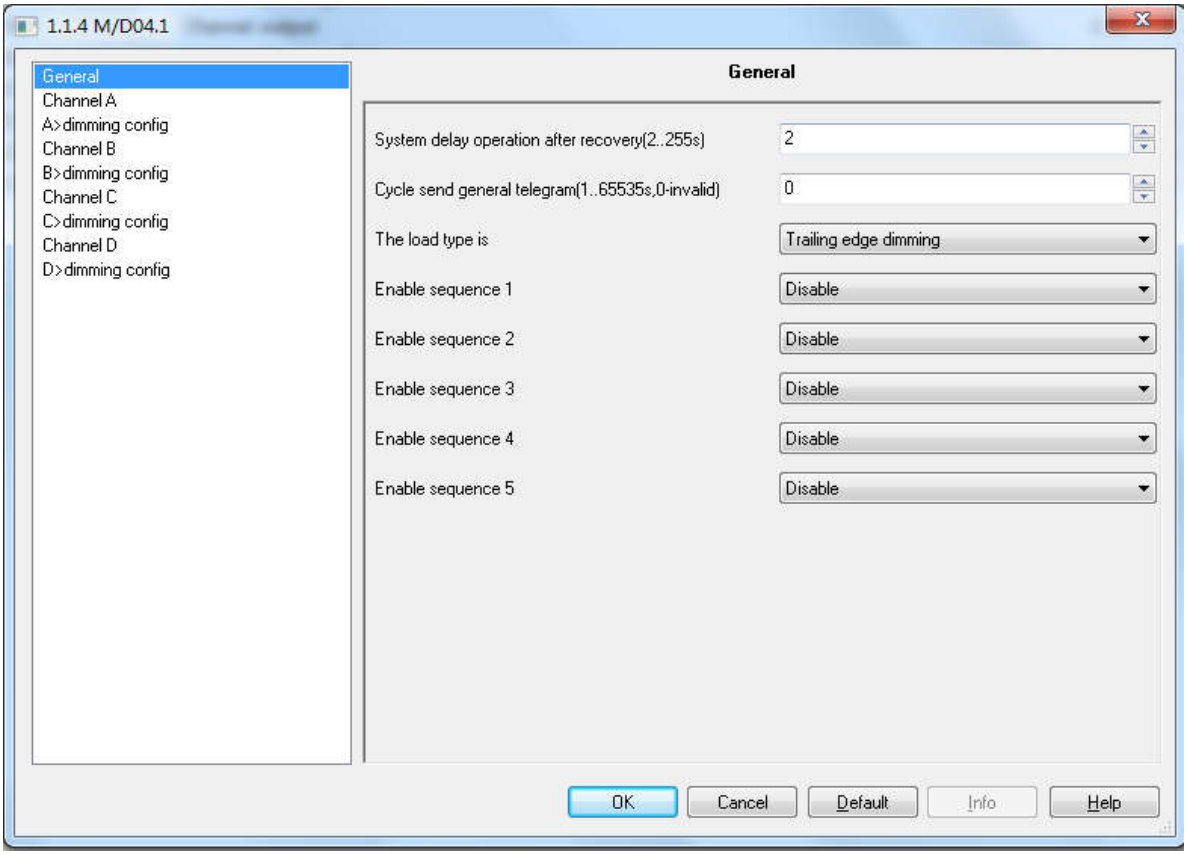
B.

The 01/02/04/06CH dimmers are all programmed using the same method. Below the programming of the 4ch dimmer is used as an example.



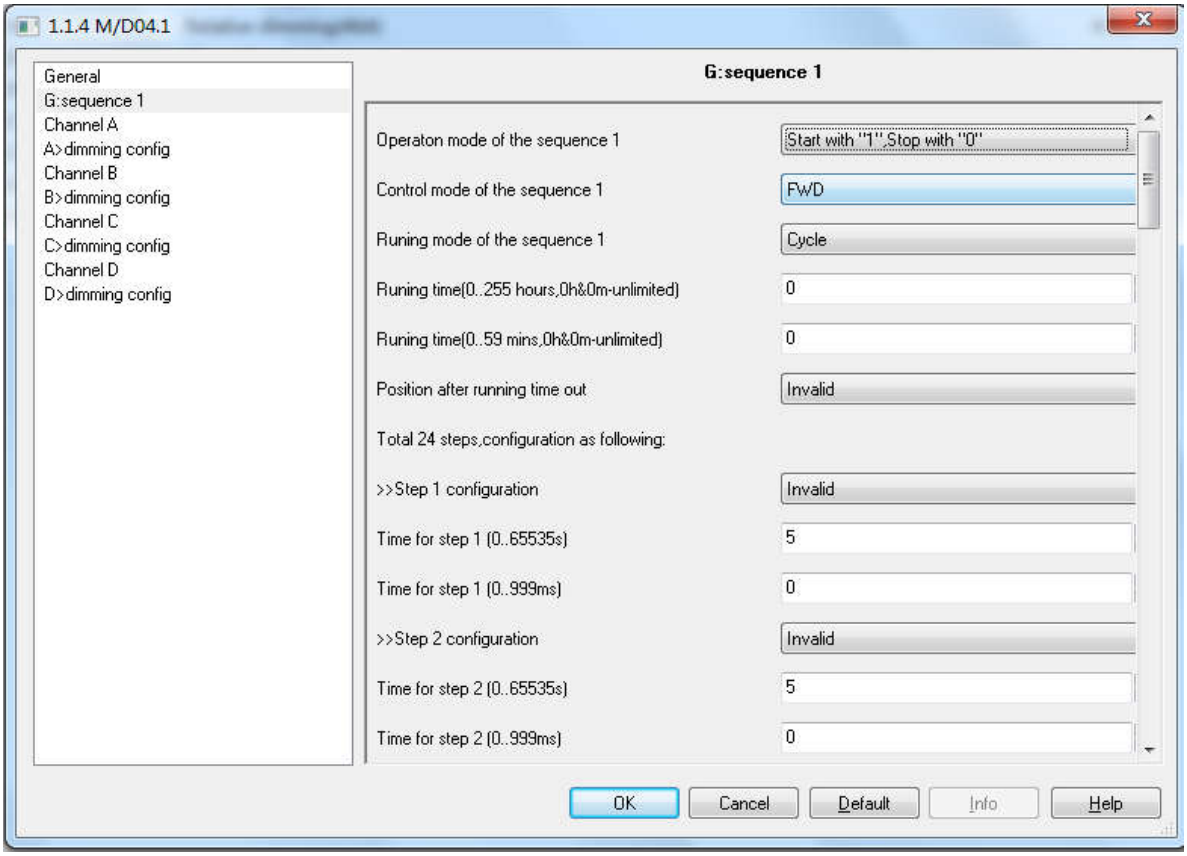
C.

1.0_General



No.	ETS-Parameter	Range (default)	Description
1	System delay operation after recovery	(2)...255s	*The operation delay time can be set for when the module is powered on.*
2	Cycle send general telegram(1…65535s, 0-invalid)	-(0-invalid) -1…65535s	*The cyclical sending of the general telegram time can be set.*
3	The load type is	-Trailing edge dimming -Leading edge dimming	*Set the load type parameters.*
4	Enable sequence 1 … Enable sequence 5	-Enable -(Disable)	*Enable or disable the sequence function.*

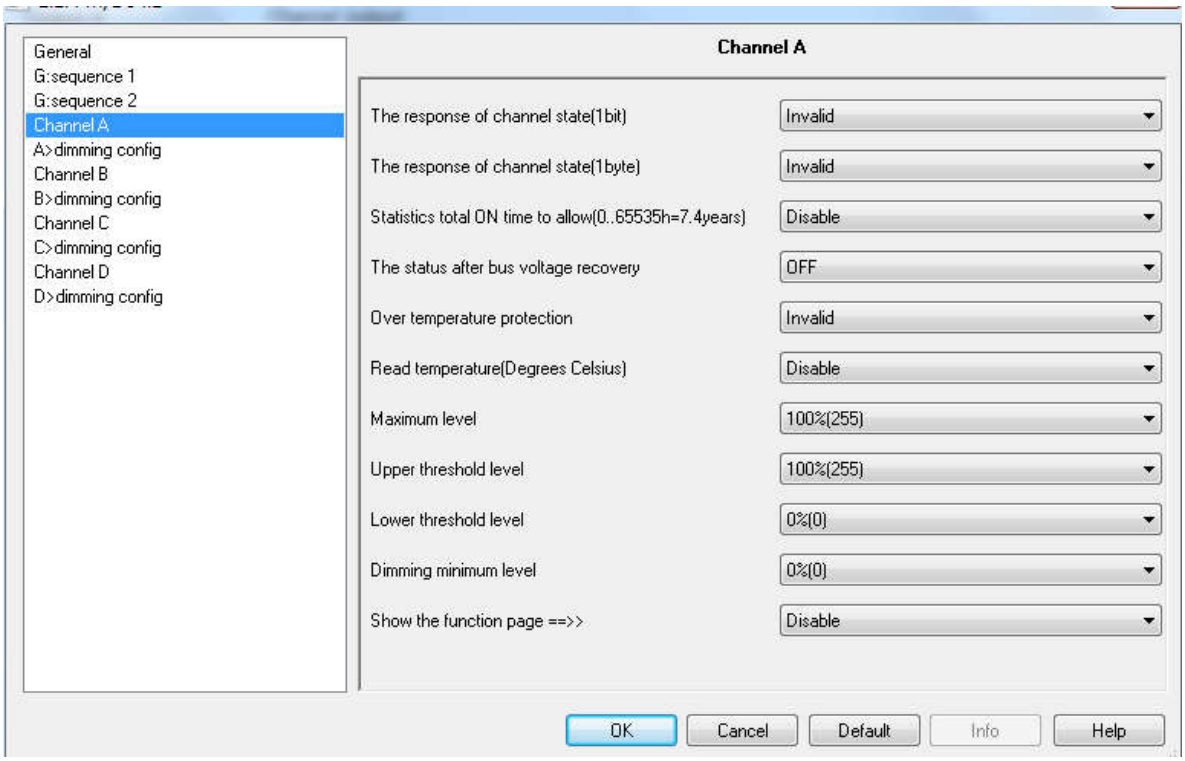
1.1_Sequence (All sequence's setting is same, here, take sequence 1 as an example)



No.	ETS-Parameter	Range (default)	Description
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	*To set the operation mode for sequence 1-* *Start with "1", and stop with "0":* *If a telegram valueof "1" is received, the 1st sequence will start. If a telegram value of "0" is received, sequence 1 will stop. If sequence "0" is running, and a telegram value of "1" is received sequence 1 will start.* *If sequence "1" is active, and a telegram value of "1" is received, sequence "1" will stop.* *If sequence "1/0" is active, and a telegram value of 1/0 is received, 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 one time* *Cycle: Will run repeatedly*
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 scene time out.*
11	>>Step 1 configuration … Step 24 configuration	-(Invalid) -Scene NO.01…Scene NO.64	*Set the scene for steps 1…24*
12	Time for step 1…24(0…65535s)	0…(5)…65535s	*Set the time(s) for step 1…24*
13	Time for step 1…24(0…999ms)	0…(999)ms	*Set the time(ms) for step 1…24*

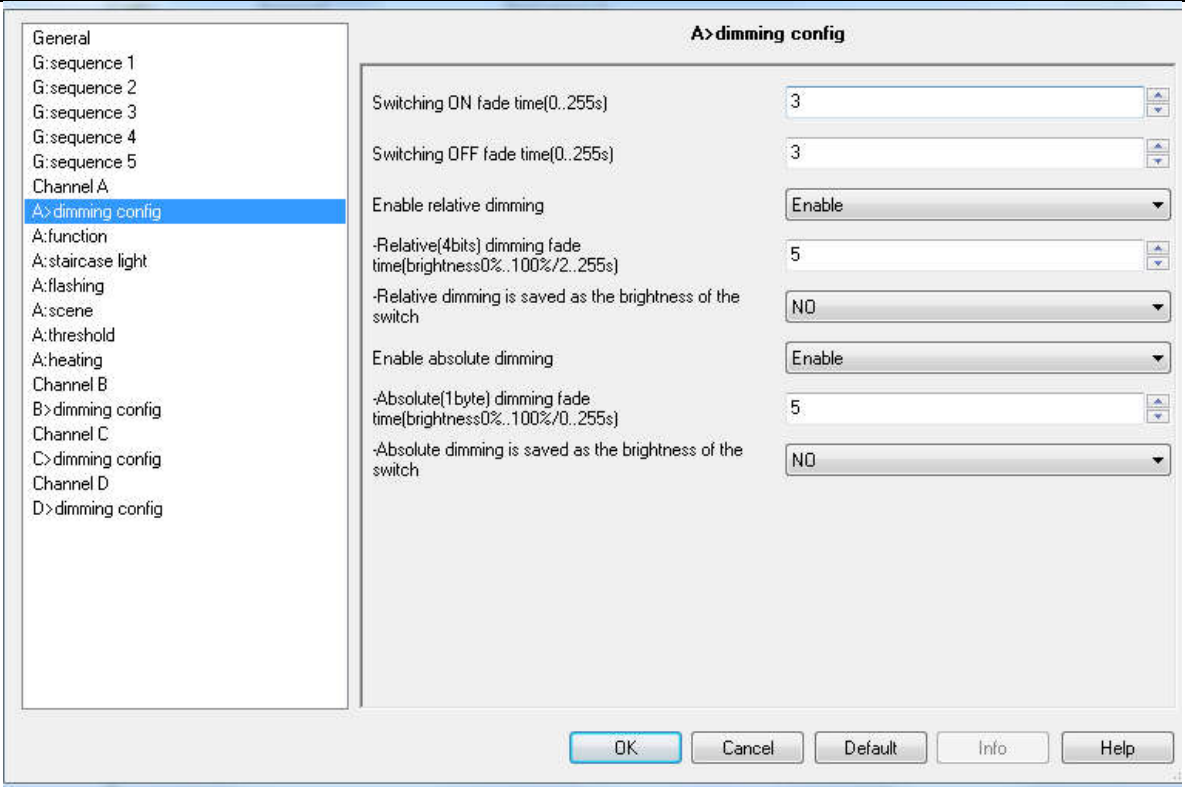
2.0_Channel Configuration (All channel setting is same. Here take channel A as an example)



No.	ETS-Parameter	Range (default)	Description
14	The response of channel state(1 bit)	-(Invalid) -1 bit always response -1 bit only changed	*Set the response parameters for the channel.* *1 bit always response: The channel will always respond.*

			If the channel is ON, it will respond with 1. *If the channel is OFF, it will respond with 0.* *1 bit only changed: The channel will only respond when the dimmer state has changed.*
15	The response of channel state(byte)	-(Invalid) -1 byte always response -1 byte only changed	*Set theresponse parameters for the channel state-* *1 byte always response: The channel will always respond.* *1 byte only changed: The channel will only respond when the lighting value has changed.*
16	Statistics total ON time to allow (0…65535h=7.4years)	-Enable -(Disable)	*Enableordisable the statistics function*
17	Alarm when time out(1…65535h,0-invalid)	-1…(30000)…65535h -0-invalid	*Set the alarm parameters for time out*
18	Transmit telegram interval when alarm(1…255s)	1…(10)…255	*Set the alarm time interval*
19	The status after bus voltage recovery	-(OFF) -Defined brightness value -Last brightness value	*Set the status after bus voltage-* *OFF: After powered on, the channel is OFF.* *Defined brightness value: After powered on, the channel status is defined by the brightness value.* *Last brightness value: After powered on, the channel' status is defined by the last brightness value.*
20	Brightness value	(0%)…100%	*Set thebrightness value parameters.*
21	Over temperature protection	-(Invalid) -Alarm -OFF -Reduce power	*Set the over temperature protection parameters.* *-Invalid: The function is invalid* *-Alarm: The over temperature alarm will be activated.* *-OFF: The over temperature will be deactivated.* *-Reduce: If the set temperature is exceeded, the power supply will be reduced.*
-Alarm			
22	Compare temperature for alarm base(Degrees Celsius)	70…(80)…90(C)	Set the alarm activation temperature.
23	Alarm temperature time interval(1…255s)	1…(5)…255s	*Set the alarm telegram time interval.*
- OFF			
24	Compare temperature for alarm base(Degrees Celsius)	70…(80)…90(C)	Set the base temperature.

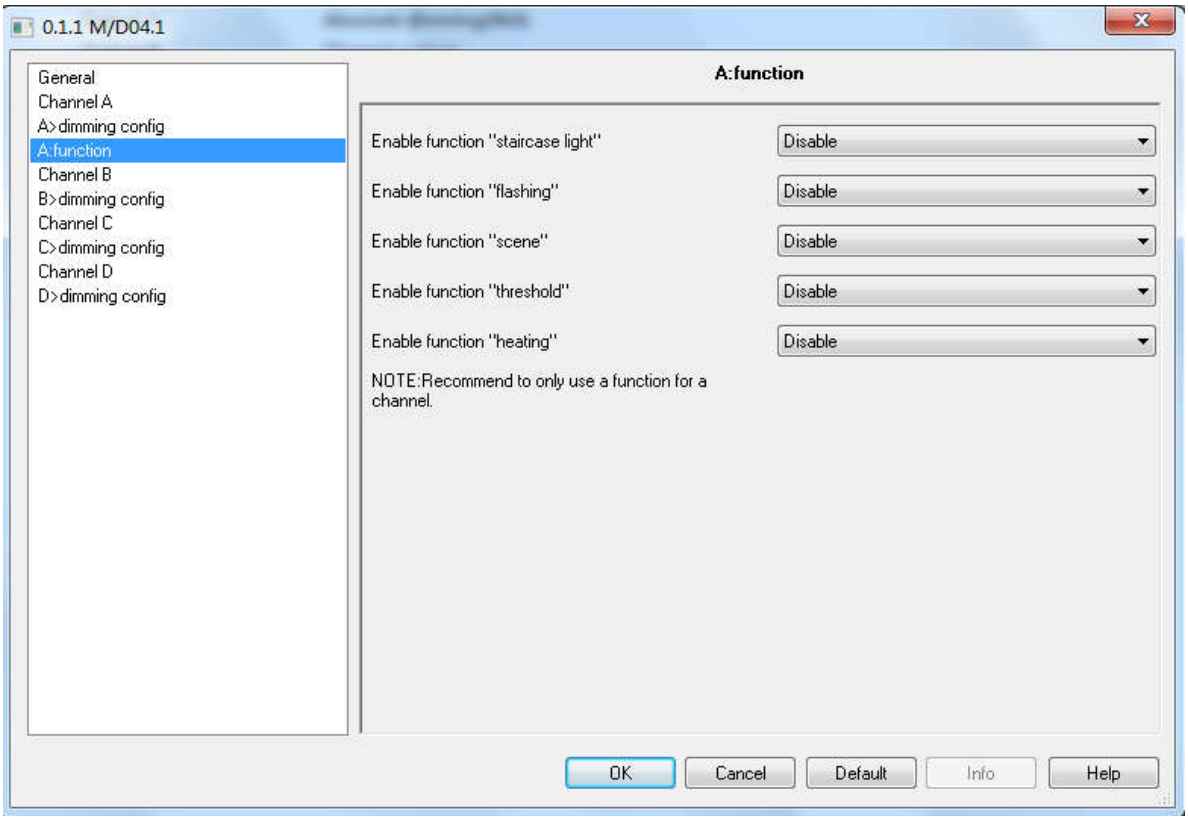
25	Alarm temperature(Degrees Celsius)	-Enable -(Disable)	*Enable or disable the temperature alarm.*
26	Alarm temperature time interval(1…255s)	1…(5)…255s	*Set the alarm telegram time interval.*
	- Reduce power		
27	Compare temperature for alarm base(Degrees Celsius)	70…(80)…90(C)	Set the temperature for the alarm base.
28	Reduce the relative power value(-X%/5C)	-5…(-10)…-50%	*Set the relative power reduction value.*
29	Alarm temperature(Degrees Celsius)	-Enable -(Disable)	*Enable or disable the temperature alarm.*
30	Alarm temperature time interval(1…255s)	1…(5)…255s	*Set the alarm telegram time interval.*
31	Read temperature (Degrees Celsius)	-Enable -(Disable)	*Enable or disable the read temperature function.*
32	Maximum level	0…(100%)	*Set the maximum level.*
33	Upper threshold level	0…(100%)	*Set the upper threshold level.*
34	Lower threshold level	(0)…100%	*Set the lower threshold level.*
35	Dimming minimum level	(0)…100%	*Set the minimum dimming level.*
36	Show the function page==>>	-Enable -(Disable)	*Enable or disable the function page.*
2.1 A>dimming configuration			



37	Switching ON fade time(0…255s)	0…(3)…255s	*Set the switching on fade time.*
38	Switching OFF fade time (0…255s)	0…(3)…255s	*Set the switching off fade time.*
39	Enable relative dimming	-(Enable) -Disable	*Enable or disable relative dimming.*

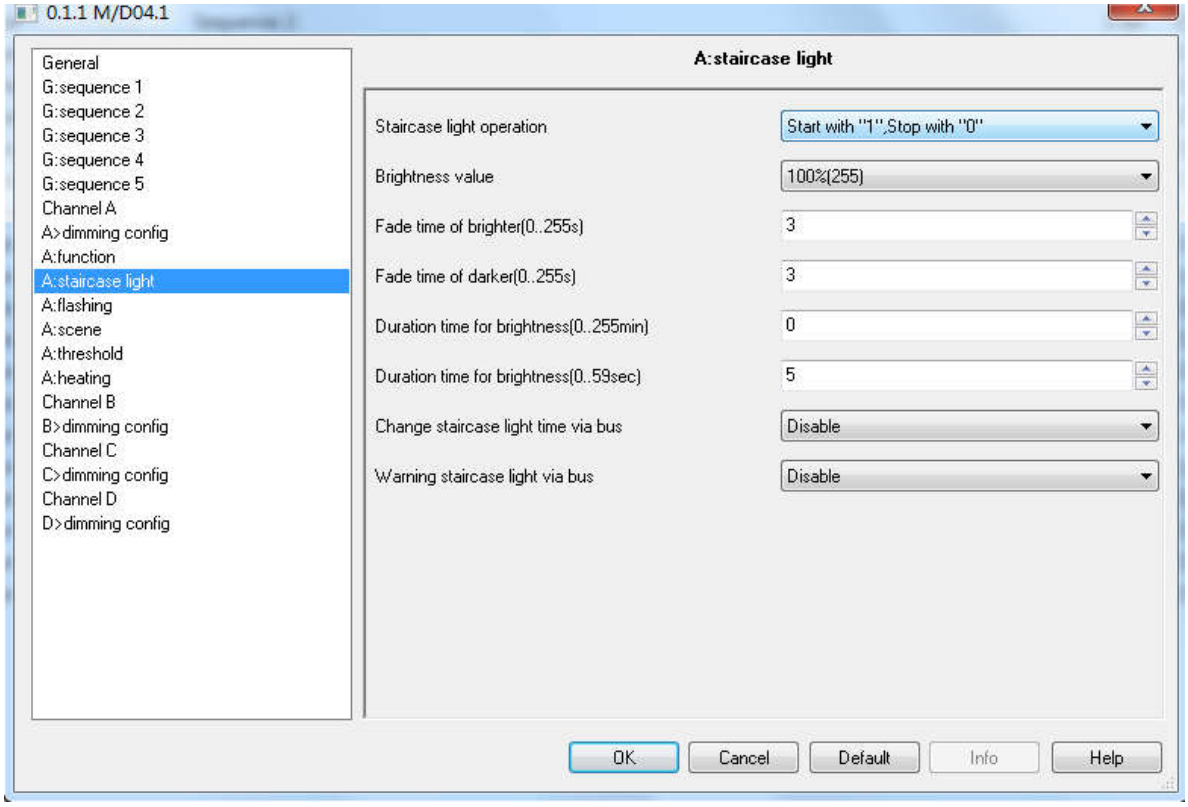
40	-Relative (4bits) dimming fade time (brightness 0%...100%/2…255s)	2…(5)…255s	*Set the relative fade time for 4bit dimming.*
41	-Relative dimming is saved as the brightness of the switch	-Yes -(No)	*Enable or disable relative dimming memory.*
42	Enable absolute dimming	-Enable -(Disable)	*Enable or disable absolute dimming.*
43	-Absolute(1 byte) dimming fade time(brightness 0%...100%/0…255s)	0…(5)…255s	*Set the absolute fade time for 1bit dimming.*
44	-Absolute dimming is saved as the brightness of the switch	-Yes -(No)	*Enable or disable absolute dimming memory.*

2.2 A:Function



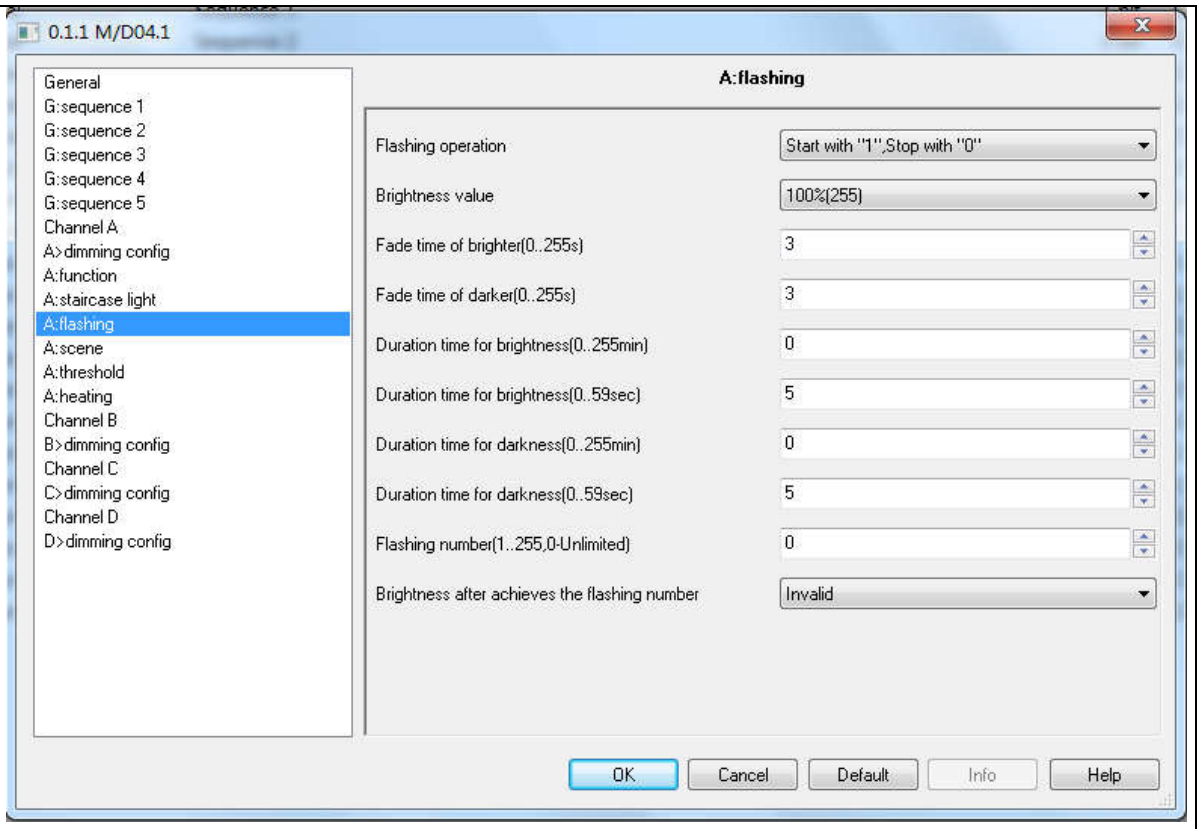
45	Enable function “staircase light”	-Enable -(Disable)	Enable or disable “staircase lighting”.
46	Enable function “flashing”	-Enable -(Disable)	Enable or disable “flashing”.
47	Enable funcation “scene”	-Enable -(Disable)	Enable or disable “scenes”.
48	Enable function “threshold”	-Enable -(Disable)	Enable or disable the “threshold” function.
49	Enable function “heating’	-Enable -(Disable)	Enable or disable “heating”.

2.2.1 A: staircase light



50	Staircase light operation	-(start with “1”, Stop with “0”) -Start with “1”, Invalid with “0” -Start with “1/0”, Can’t stop	Setting the parameters for staircase lighting- Start with “1”, Stop with “0”: If telegram “1” is received, the staircase lighting will activate, if telegram “0” is received the staircase

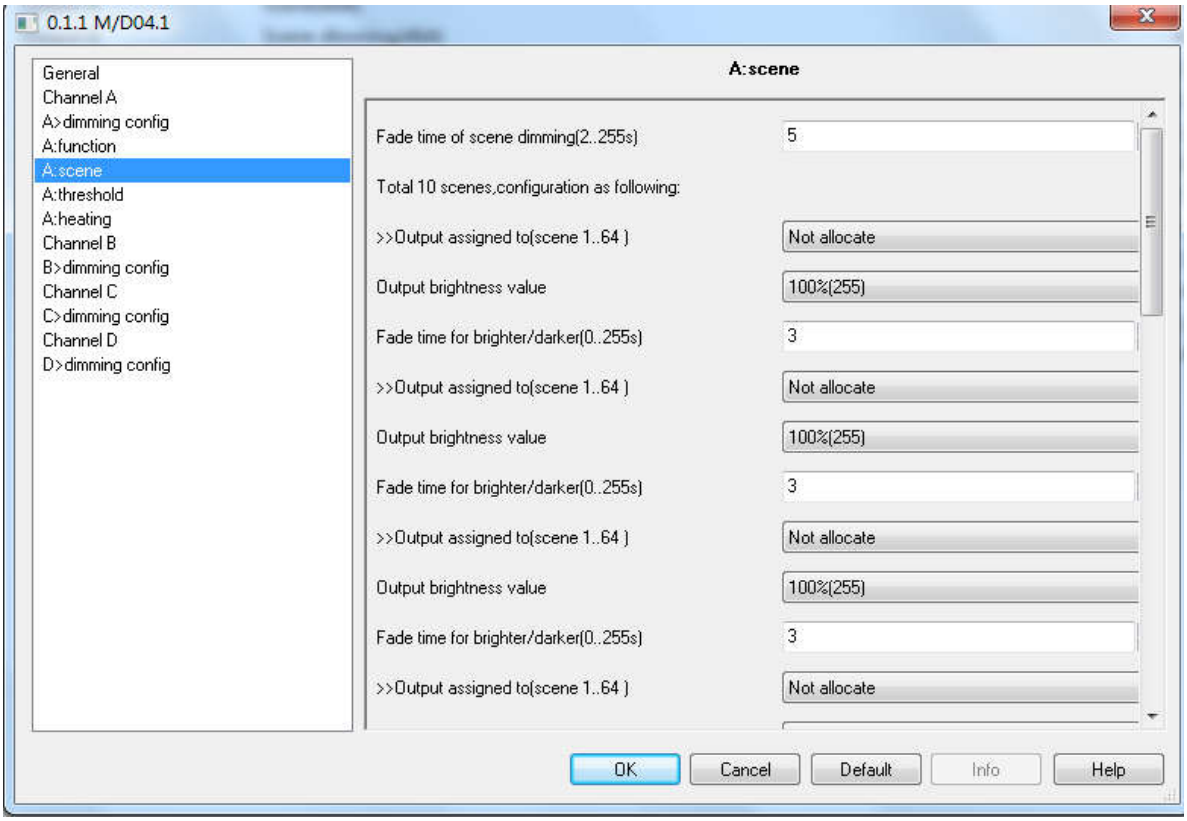
			lighting will deactivate. Start with “1”, Invalid with “0”: If telegram “1” is received, the staircase lighting will activate,if telegram “0” is received thefuncation will be invalid. Start with “1/0”, Can’t stop: If telegram “1/0” is received, the the staircase lighting will remain constantly active.
51	Brightness value	0…(100%)	Set the light intensity.
52	Fade time of brighter(0…255s)	0…(3)…255s	Set the rate at which the lighting intensity increases.
53	Fade time of darker (0…255s)	0…(3)…255s	Set the dimming time.
54	Duration time for brightness(0…255min)	(0)…255s	Set the time to attain maxinum brightness.
55	Duration time for brightness(0…59sec)	0…(5)…59(Sec)	Set the time to attain maxinum brightness.
56	Change staircase light time via bus	-Enable -(Disable)	Enable or disable staircase lighting times- Enable: Allows the staircase lighting time to be modifyed. Disable: Does not allow the staircase lighting time to be modifyed. If this is set the lighting can only be set via the database.
57	Warning staircase light via bus	-Enable -(Disable)	Enable or disable the staircase warning light via the bus.
2.2.2 Flashing			



58	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.
59	Brightness value	0…(100%)	Set the brightness value.
60	Fade time of brighter (0…255s)	0…(3)…255s	Set the rate at which the lighting intensity increases.
61	Fade time for darker (0…59Sec)	0…(3)…59Sec	Set the dimming time.
62	Duration time for brightness (0…255min)	(0)…255min	Set the brightness duration time.
63	Duration time for brightness	0…(5)…59Sec	Set the brightness duration

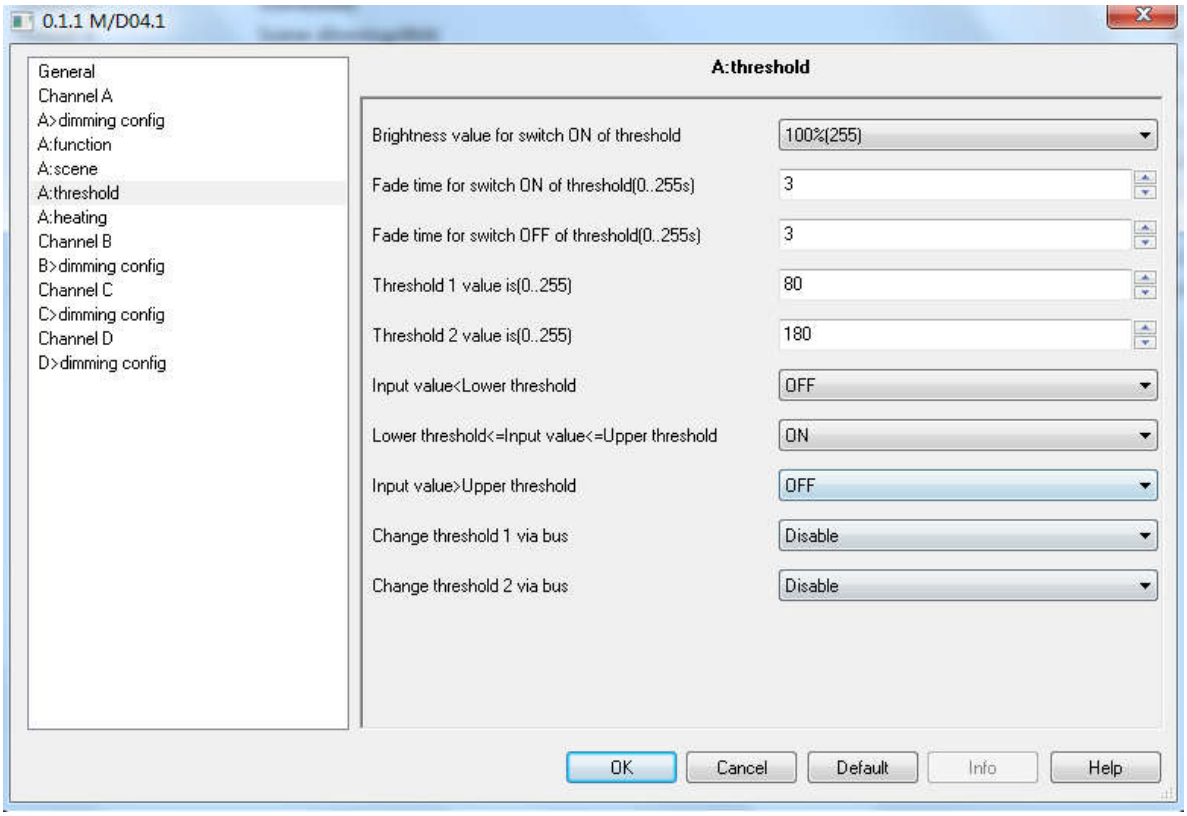
	(0…59Sec)		time.
64	Duration time for darkness (0…255min)	(0)…255min	Set the darkness duration time.
65	Duration time for darkness (0…59Sec)	0…(5)…59Sec	Set the darkness duration time.
66	Flashing number(1…255, 0-Unlimited)	-(0-unlimited) -1…255	Set the number of flashes.
67	Brightness after achieves the flashing number	-(Invalid) -0…100%	Set the brightness parameters for after a set number of flashes has been achived.

2.2.3 A:Scene



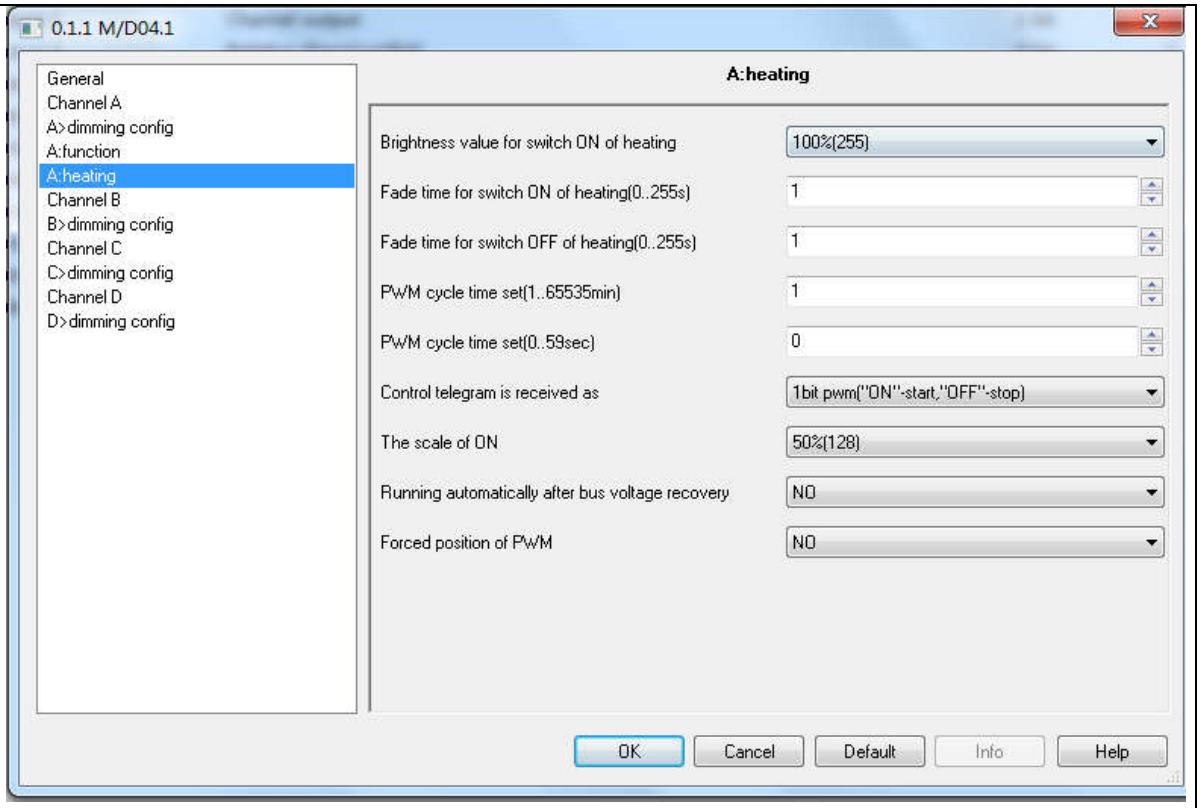
68	Fade time of scene dimming (2…255s)	2…(5)…255s	Set the fade time for scene dimming.
69	Total 10 scenes, configuration as following:		
70	>>Output assigned to (scene 1…64)	-(Not alloacate) -Scene No 1…Scene No 64	Set the output scene.
71	Output brightness value	0…(100%)	Set the brightness output value.
72	Fade time for brighter/darker(0…255s)	0…(3)…255s	Set the brightening and dimming fading rate.

2.2.4 A:threshold



73	Brightness value for switch ON of threshold	0…(100%)	Set thebrightness value when switched on.
74	Fade time for switch ON of threshold (0…255s)	0…(3)…255s	Set the switch on fade time.
75	Fade time for switch OFF of threshold (0…255s)	0…(3)…255s	Set the switch off fade time.
76	Threshold 1 value is (0…255)	0…(80)…255	Set the value for threshold 1
77	Threshold 2 value is (0…255)	0…(180)…255	Set the value for threshold 2
78	Input value <=Lower threshold	-Unchanged -ON -(OFF)	Set the <= lower threshold input value status- Unchanged: The switch position will not change. ON: The swich position is set to ON. OFF: The switch position is set to OFF.
79	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 swich position is set to ON OFF: The switch position is set to OFF
80	Input value> Upper threshold	-Unchanged -ON -(OFF)	Set the upper input threshold value status- Unchanged: The switch position will not change. ON: The swich position is set to ON. OFF: The switch position is set to OFF.
81	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.
82	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 A: heating		



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 switch on fade time.
85	Fade time for switch OFF of heating (0…255s)	0…(1)…255	Set the switch off fade time.
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 recieved, the PWM will stop. 1 byte (“255”-ON, “0”-OFF, other value):If telegram“255” is recieved , 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 automaticallly after bus voltage recovery	-(NO) -Defined value -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 value	0…(50)…100%	Set the value for position of the vavle
92	Forced position of PWM	-Yes -(No)	Enable/disable the forced PWM position.
93	-Valve of PWM	1…(50%)…100	Set the value for valve of PWM

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D.Communication Objects

D.0 General

Objects “General”

0	General	Send cycles	1 bit	C R - T -	Low
1	General	Sequence 1	1 bit	C - W - U	Low
2	General	Sequence 2	1 bit	C - W - U	Low
3	General	Sequence 3	1 bit	C - W - U	Low
4	General	Sequence 4	1 bit	C - W - U	Low
5	General	Sequence 5	1 bit	C - W - U	Low

NO.	Object name	Function	Flags	Data type
0	General	Send cycles	C R T	DPT1.003 1bit
This communication object is used to send cycles. E.g. If value “1” is sent by the telegram, the next telegram sent will have a value of “0”.				
1…5	General	Sequence 1…5	C W U	DPT1.010 1bit
These communication objects are used to enable/disable the sequence. If a telegram with a value of ‘1’ is sent, the sequence will be enabled. If a telegram with a value of ‘0’ is sent, the sequence will be disabled.				

D.1 Channel N output (Below the output of A is used 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
This communication object is used for channel output, and can control ON/OFF.				
11	Output A	Relative dimming (4 bit)	C W U	DPT3.007 4bit
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.				
12	Output A	Absolute dimming (8 bit)	C W U	DPT5.001 1byte
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.				

Objects "Response state"

13	Output A	Respone state(1bit)	1 bit C R - T -
14	Output A	Respone state(1byte)	1 Byte C R - T -

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

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	DPT7.001 2 byte
This communication object is used if the initial value is changed. The Statistical ON time will increase again every hour.				
16	Output A	Alarm when total ON time out	C R T	DPT1.005 1 bit
This communication object is used to trigger an alarm, when the statistical ON time has reached the maximum set value.				

Objects"Temperature"

NO.	Object name	Function	Flags	Data type
17	Output A	Temperature alarm	C R T	DPT1.005 1 bit
This communication object is used to trigger an alarm when a set temperature is exceeded.				
18	Output A	Read temperature	C R T	DPT 9.001 2 byte
This communication object is used to read the channel output temperature.				

Objects “Staircase light”

NO.	Object name	Function	Flags	Data type
19	Output A	Staircase light	C W U	DPT 1.001 1 bit
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.				
20	Output A	Change staircase light time	C W U	DPT7.005 2 byte
This communication object is used to change the staircase lighting illumination time.				
21	Output A	Warning staircase light	C R T	DPT 1.005 1 bit
This communication object is used for the staircase warning light.				

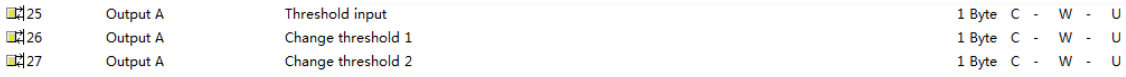
Objects “flash”

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

Objects “Scene”

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

Objects “threshold”



NO.	Object name	Function	Flags	Data type
25	Output A	Threshold input	C W U	DPT 5.004 1 byte
This communication object is used for threshold input. The input value is compared with threshold 1 and threshold 2.				
26	Output A	Change threshold 1	C W U	DPT5.004 1 byte
27	Output A	Change threshold 2	C W U	DPT5.004 1 byte
This communication object is used to change threshold 1 or 2 via the bus network.				

Objects “ Heating”

NO.	Object name	Function	Flags	Data type
28	Output A	Heat with 1 bit control	C W U	DPT 1.001 1 bit
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.				

28	Output A	Heat with 1 byte control	C W U	DPT5.004 1 byte
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.				
29	Output A	Forced position	C W U	DPT1.001 1 bit
This communicationobject is used to force the PWM position.				

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