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Developer of Uniqueness

4 CHANNEL 1.5 A UNIVERSAL DIMMING MODULE

Product Manual

Version 1.0

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CONTENTS

1.) PRODUCT DESCRIPTION

ITR500-0002 – 4 Channel 1.5 A Universal Dimming Module, can dimming capability. Database uploads to the product are done with most current ETS version. The device is manufactured in accordance with electromagnetic compatibility (EMC), electrical safety and environmental conditions. ITR500-0002 device has short circuit, overload and heat protection.

1.1.) TECHNICAL INFORMATION

Product Code	**ITR500-0002**
Power Supply	EIB Power Supply
Current Consumption	5 mA (static) 15 mA (dynamic)
Dimming Power	1.5 A max @ 120-240 V AC
Output Terminals	Line In, Line Out for each channel 2.5-42 mm^2
Maximum Air Humidity	<90 RH
Temperature Range	Operation (– 5°C …45 °C) Storage (– 20°C …60 °C)
Flammability	Non-flammable Product
Type of Protection	IP 20
Dimensions	90 x 216 x 66 mm (HxWxD)
Color	Light Grey and White
Configuration	Configuration with ETS
Certificaton	KNX Certified

1.2.) PRODUCT FUNCTIONS

- The dimmer module can dimming for 4 channels independent loads.
- Leading edge dimming or trailing edge dimming for dimmer.
- Parallel channels to form a larger current output.
- The dimmers may be used for dimming ordinary incandescent lamps, low voltage halogen lamps and other light sources which support leading or trailing edge technology.
- The module functions : Statistics total ON time, status response, status recovery, over temperature protection, read temperature, over temperature alarm, staircase light, flashing light, scene control, scene dimming, sequence control, threshold control, heating actuator(PWM).
- Short circuit protection, over load protection and over heat protection.

1.3.) PRODUCT DIMENSIONS

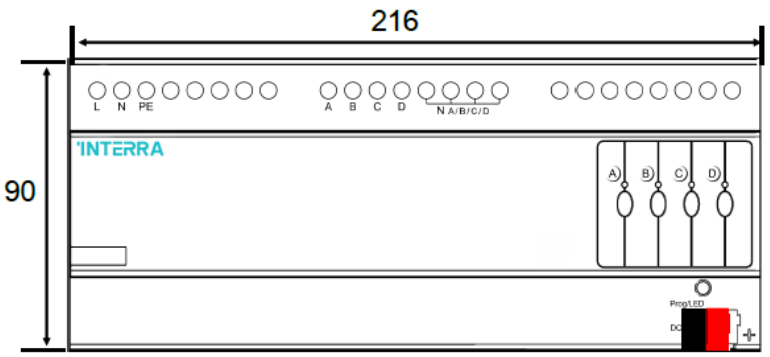

Fig 1 : Front Appearance and Measures of the Device.

The numerical values showing the dimensions above are in mm.

1.4.) CONNECTION DIAGRAM AND PROGRAMMING

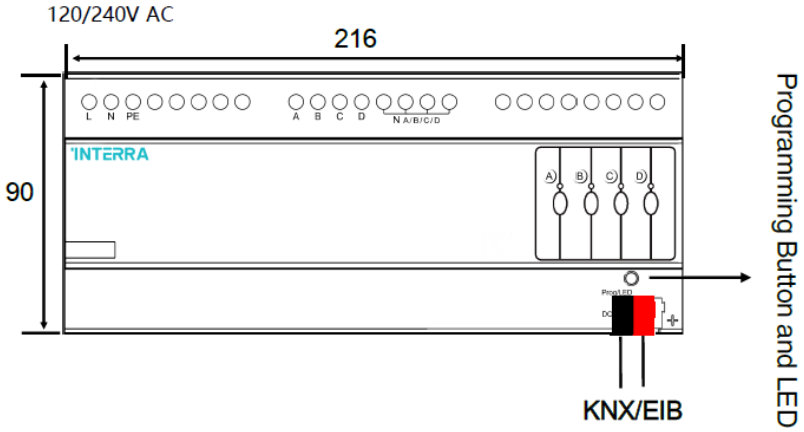

Fig 2 : KNX Connector(+ -), Programming LED and Button.

Connection to the device is via the KNX connector, AC and load wires. Once the connections have been made correctly, the device can now be programmed. The programming button is pressed first, then the programming LED is illuminated after pressing. In this way, the ETS configuration can be loaded to the device.

2.) MOUNTING

ITR500-0002 - 4 Channel 1.5 A Universal Dimming Module during mounting; AC cables, load cables and KNX / EIB cables must be labeled and completely isolated from each other. The device must be installed on a DIN rail in the distribution board and cables must be connected for loads. After making sure that there is no short or open circuit, check that the KNX cable type is correct and not short-circuited. After this process, the KNX cables must be connected with the correct color and all cables must be properly assembled. After the processes are finished, ensure that the KNX line is isolated from the AC line.

3. ETS PARAMETERS AND DESCRIPTIONS

3.1. GENERAL PARAMETER PAGE

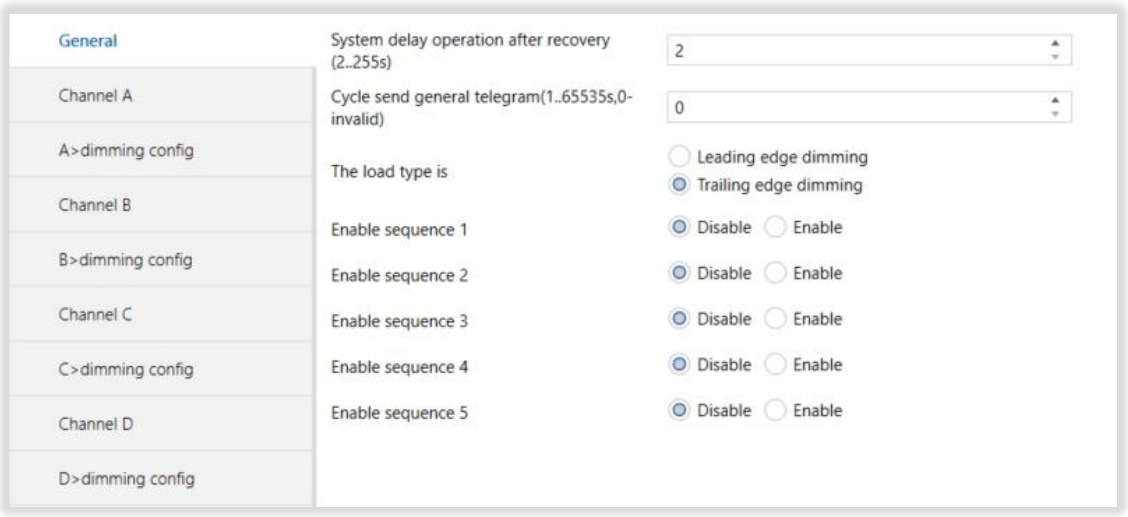

Fig 3 : General Parameter Configuration Page

3.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
System delay operation after recovery (2..255s)	This parameter, is used for set the delay time for the device after power on.	**2**..255
Cycle send general telegram (1…65535s, 0-invalid)	This parameter, is used to set the cyclical sending of the general telegram time.	**0-invalid** 1…65535s
The load type is	This parameter, is used to set the load type parameters.	**Trailing edge dimming** Leading edge dimming
Enable sequence 1 **…**	This parameter, is used to enable or disable sequences 1-5.	**Disable** Enable

Enable sequence 5		

3.2. G:SEQUENCE 1-5

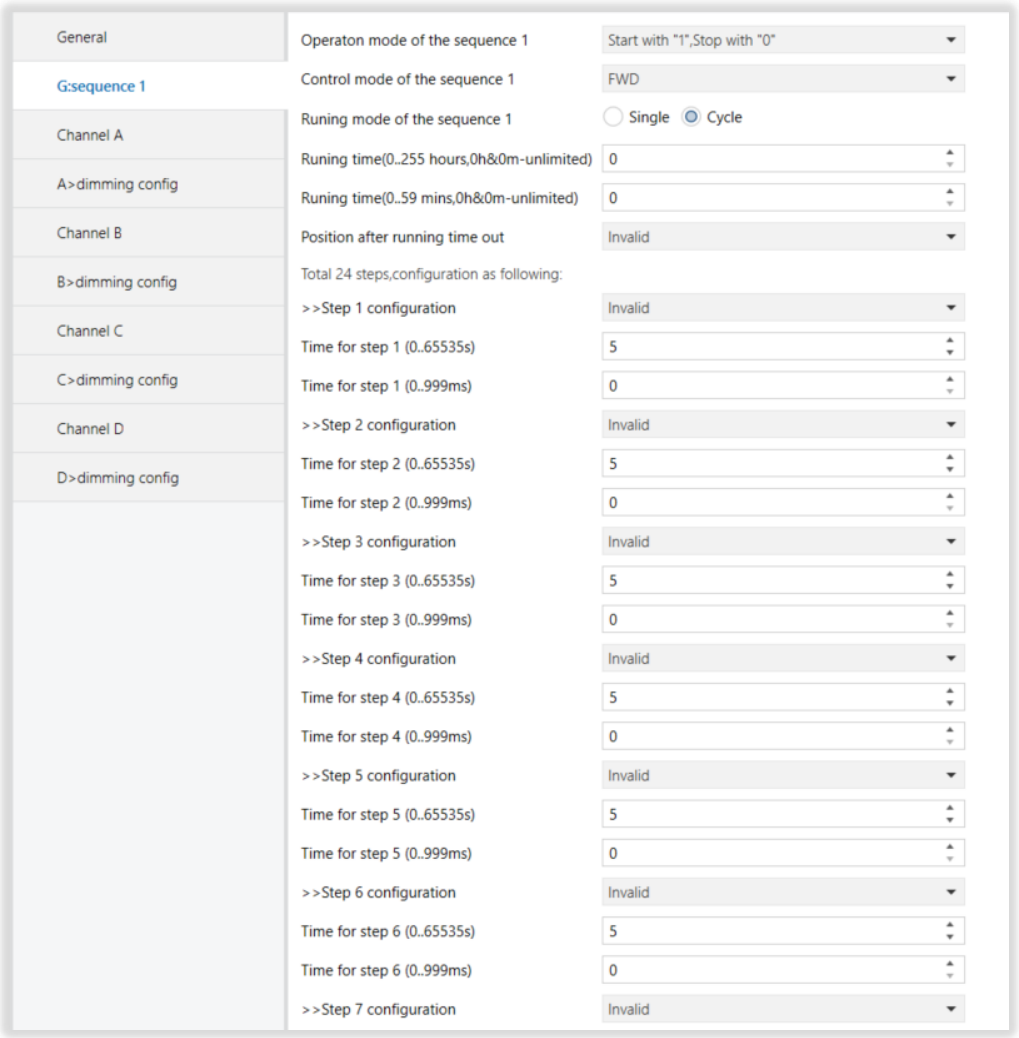

Fig 4 : G:Sequence Parameter Page

3.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES

Operation mode of the sequence 1	This parameter, is used to set the operation mode for sequence 1. **Start with "1", Stop with "0" :** If a telegram is received with a value if '1', sequence 1 will start. If a telegram is received with value of '0', sequence 1 will stop. **Start with "0", Stop with "1" :** If a telegram is received with a value of '0', sequence 1 will start. If a telegram is received with value of '1', sequence 1 will stop. **Start with "1/0", Can't stop :** If a telegram is received with a value of '0' or '1', sequence 1 will start and not stop.	**Start with "1", Stop with "0"** Start with "0", Stop with "1" Start with "1/0", Can't stop
Control mode of the sequence 1	This parameter, is used to set the control mode for sequence 1. **FWD :** Forward mode. **REW :** Backward mode. **RANDOM :** Random mode.	**FWD** REW RANDOM
Running mode of the sequence 1	This parameter, is used to set the running mode for sequence 1. **Single :** Will rune once. **Cycle :** Will run cyclically.	Single **Cycle**
Running time (0…255 hours, 0h&0m-unlimited)	This parameter, is used to set the running time in hours.	**0**…255
Running time (0…59 mins, 0h&0m-unlimited)	This parameter, is used to set the running time in minutes.	**0**…59
Position after running time out	This parameter, is used to set the scene to be activated when time out occurs.	**Invalid** Scene NO.01..Scene NO.64
>>Step 1 configuration **…** **Step 24 configuration**	This parameter, is used to set the scene for step 1…24.	**Invalid** Scene NO.01..Scene NO.64
Time for step 1 **…** **Time for step 24**	This parameter, is used to set the time for step 1…24 is seconds.	0**…5**…65535s
Time for step 1 **…** **Time for step 24**	This parameter, is used to set the time for step 1…24 in miliseconds.	**0**…999ms

3.3. CHANNEL A-F

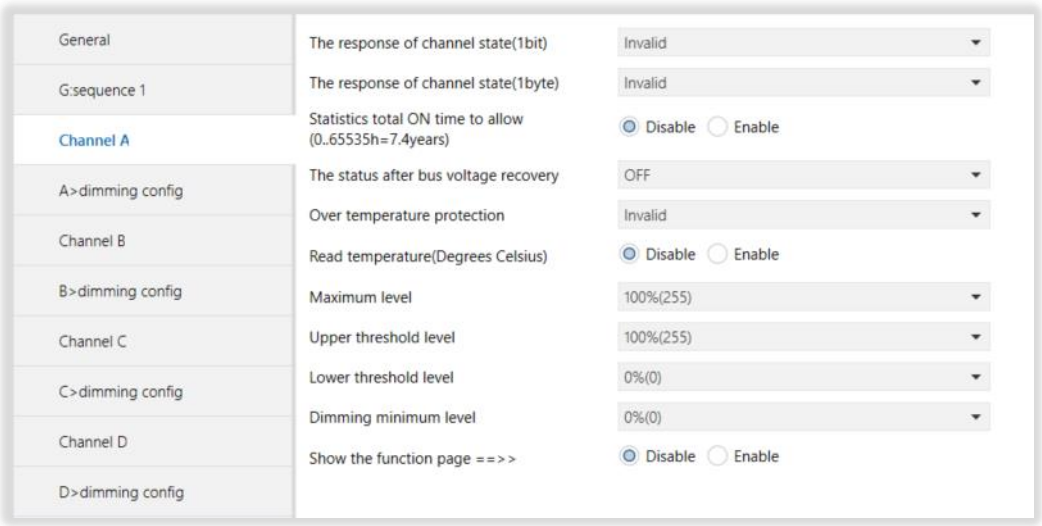

Fig 5 : Channel A-F Parameter Page

3.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
The response of channel state (1 bit)	This parameter, is used to set the channel state response parameters(1 bit). **1 bit always response :** The channel will always respond, if on it will respond with 1, if off it will respond with 0. **1 bit only changed :** The channel will respond only when the dimmer state has changed.	**Invalid** 1 bit always response 1 bit only changed
The response of channel (1 byte)	This parameter, is used to set the channel state response parameters(1 byte). **1 byte always response :** The channel will always respond. **1 byte only changed :** The channel will respond when the light value has changed.	**Invalid** 1 byte always response 1 byte only changed
Statistics total ON time to allowed (0…65535h=7.4 years)	This parameter, is used to enable or disable statistics function.	**Disable** Enable
Alarm when time out (1…65535h, 0-invalid)	This parameter, is used to set the alarm timeout parameters.	1…**30000**…65535h 0-invalid
Transmit telegram interval when alarm(1…255s)	This parameter, is used to set the alarm time interval.	1…**10**…255s

The status after bus voltage recovery	This parameter, is used to set the status after bus voltage. **OFF :** After powered on, the channel will be OFF. **Defined brightness value :** After powered on, the channels status will be defined by the brightness value. **Last brightnes value :** After powered on, the channels status will be defined by the last brightness value.	**OFF** Defined brightness value Last brightness value
Brightness value	This parameter, is used to set the brightness value parameters.	**0%**...100%
Over temperature protection	This parameter, is used to 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.	**Invalid** Alarm OFF Reduce power
Compare temperature for alarm base(Degrees Celsius)	This parameter, is used to set the alarm activation temperature.	70…**80**…90°C
Alarm temperature time interval (1…255s)	This parameter, is used to set the alarm telegram time interval.	1…**5**…255s
Compare temperature for OFF base(Degrees Celsius)	This parameter, is used to set the OFF base temperature.	70…**80**…90°C
Alarm temperature(Degrees Celsius)	This parameter, is used to enable or disable the temperature alarm.	**Disable** Enable
Alarm temperature time interval (1…255s)	This parameter, is used to set the alarm telegram time interval.	1…**5**…255s
Compare temperature for alarm base(Degrees Celsius)	This parameter, is used to set the temperature for the alarm base.	70…**80**…90°C
Reduce the relative power value(-X%/5C)	This parameter, is used to set the relative power reduction value.	-5…**-10**…-50%
Alarm temperature(Degrees Celsius)	This parameter, is used to enable or disable the temperature alarm.	**Disable** Enable
Alarm temperature time interval (1…255s)	This parameter, is used to set the alarm telegram time interval.	1…**5**…255s

Read temperature(Degrees Celsius)	This parameter, is used to enable or disable the read temperature function.	**Disable** Enable
Maximum level	This parameter, is used to set the maximum level.	0…**100%**
Upper threshold level	This parameter, is used to set the upper threshold level.	0…**100%**
Lower threshold level	This parameter, is used to set the lower threshold level.	**0**…100%
Dimming minimum level	This parameter, is used to set the minimum dimming level.	**0**…100%
Show the function page==>>	This parameter, is used to enable or disable the function page.	Enable **Disable**

3.4. DIMMING

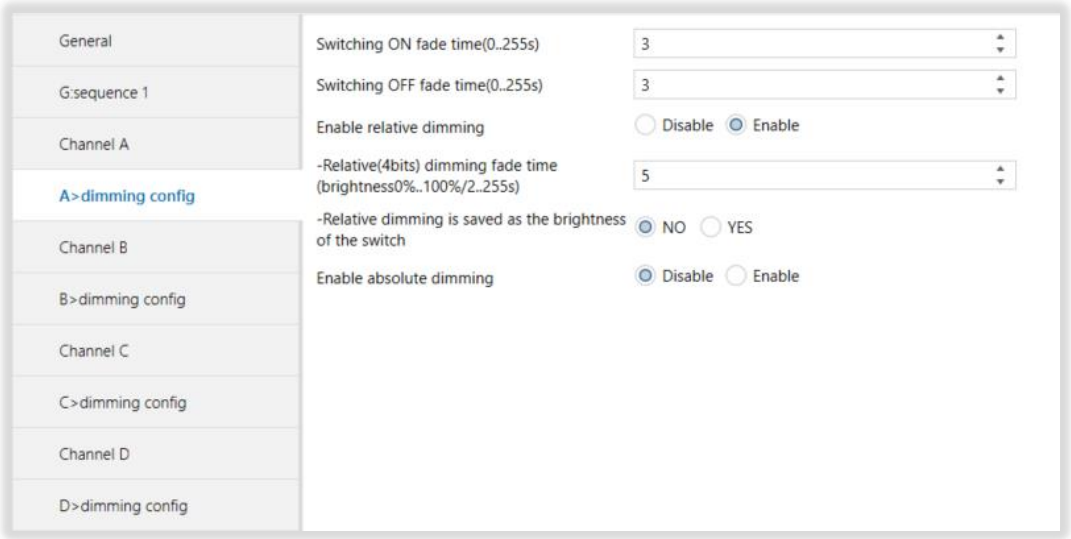

Fig 6 : Dimming Parameter Page

3.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
-Switching ON fade time (0…255s)	This parameter, is used to set the switch ON fade time.	0…**3**…255s
-Switching OFF fade time (0…255s)	This parameter, is used to set the switch OFF fade time.	0…**3**…255s

Enable relative dimming	This parameter, is used to enable or disable the relative dimming. **Disable :** Disallows relative dimming. **Enable :** Allows relative dimming.	Disable **Enable**
-Relative (4 bits) dimming fade time (brightness 0%...100%/2…255s)	This parameter, is used to set the fade time for relative dimming.	2…**5**…255s
-Relative dimming is saved as the brightness of the switch	This parameter, is used to enable or disable the relative dimming	**No** Yes
Enable absolute dimming	This parameter, is used to enable or disable absolute dimming.	**Disable** Enable
-Absolute (1 byte) dimming fade time (brightness0%...100% /0..255s)	This parameter, is used to set the fade time for absolute(1 byte) dimming.	0…**5**…255s
-Absolute dimming is saved as the brightness of the switch	This parameter, is used to enable or disable the absolute dimming saved brightness.	**No** Yes

3.5. FUNCTION

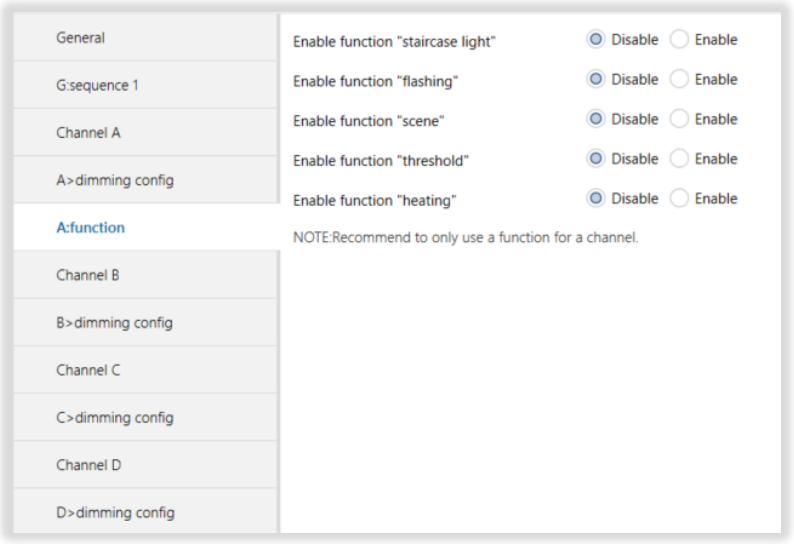

Fig 7 : Function Parameter Page

3.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES

Enable function “staircase light”	This parameter, is used to enable or disable the “staircase light” function.	**Disable** Enable
Enable function “flashing”	This parameter, is used to enable or disable the “flashing” function.	**Disable** Enable
Enable function “scene”	This parameter, is used to enable or disable the “scene” function.	**Disable** Enable
Enable function “threshold”	This parameter, is used to enable or disable the “threshold” function.	**Disable** Enable
Enable function “heating”	This parameter, is used to enable or disable the “heating” function.	**Disable** Enable

3.6. STAIRCASE LIGHT FUNCTION

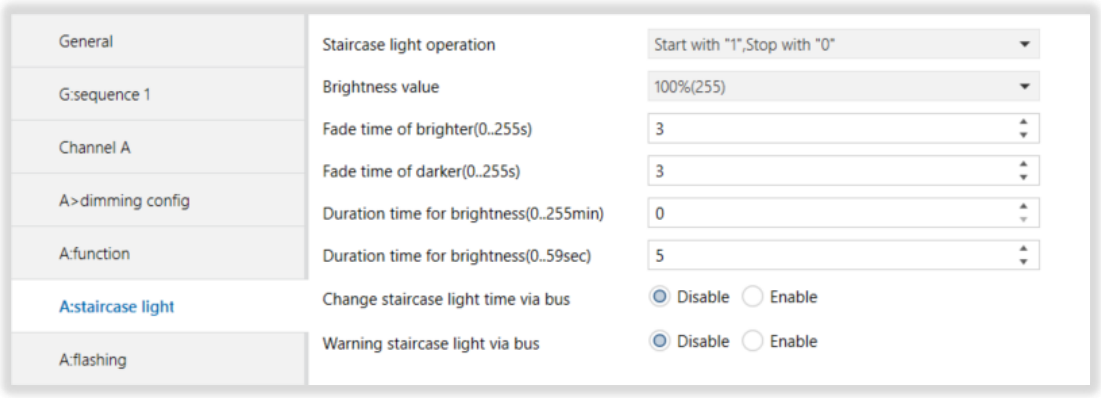

Fig 9 : Staircase Light Function Parameter Page

3.6.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Staircase light operation	This parameter, is used to set the parameters for staircase lighting operation. **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 the staircase function will be invalid.	**Start with “1”, Stop with “0”** Start with “1”, Invalid with “0” Start with “1/0”, Can’t stop

	Start with "1/0", Can't stop : If telegram "1/0" is received, the staircase lighting will remain constantly active.	
Brightness value	This parameter, is used to set the light intensity.	0…**100%**
Fade time of brighter(0…255s)	This parameter, is used to set the rate at which the lighting intensity increases.	0…**3**…255s
Fade time of darker(0…255s)	This parameter, is used to set the rate at which the lighting intensity decreases.	0…**3**…255s
Duration time for brightness (0…255min)	This parameter, is used to set the time to attain maximum brightness.	**0**...255s
Duration time for brightness (0…59sec)	This parameter, is used to set the time to attain maximum brightness.	0…**5**…59
Change staircase light time via bus	This parameter, is used to 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.	**Disable** Enable
Warning staircase light via bus	This parameter, is used to enable or disable the staircase warning light via the bus. **Enable :** Allows an alarm to be triggered. **Disable :** Does not allow an alarm to be triggered.	**Disable** Enable

3.7. FLASHING FUNCTION

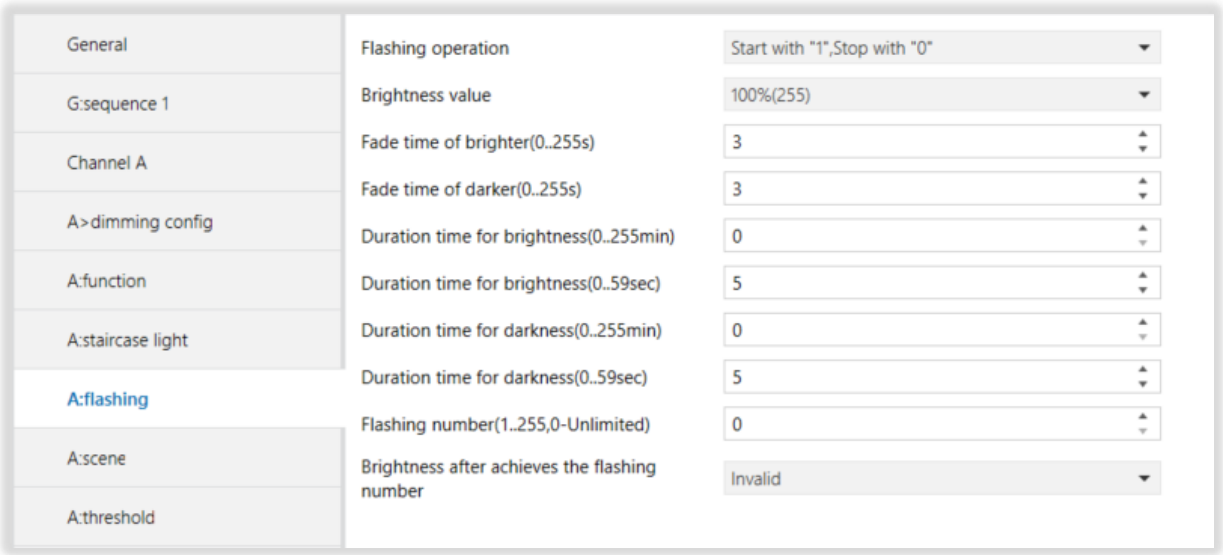

Fig 10 : Flashing Function Parameter Page

3.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Flashing operation	This parameter, is used to set the parameters for flashing operation. **Start with "1", Stop with "0" :** If telegram "1" is received, flashing function will be activated, if telegram "0" is received flashing function will be deactivated. **Start with "0", Stop with "1" :** If telegram "0" is received, flashing function will be activated, if telegram "1" is received flashing function will be deactivated. **Start with "1/0", Can't stop :** If telegram "1/0" is received, the flashing function will remain constantly active.	**Start with "1", Stop with "0"** Start with "0", Stop with "1" Start with "1/0", Can't stop
Brightness value	This parameter, is used to set the brightness value.	0…**100%**
Fade time of brighter(0…255s)	This parameter, is used to set the rate at which the lighting intensity increases.	0…**3**…255s
Fade time of darker(0…255s)	This parameter, is used to set the rate at which the lighting intensity decreases.	0…**3**…255s
Duration time for brightness (0…255min)	This parameter, is used to set the brightness duration time in minutes.	**0**…255min
Duration time for brightness (0…59sec)	This parameter, is used to set the brightness duration time in seconds.	0…**5**…59sec
Duration time for darkness (0…255min)	This parameter, is used to set the darkness duration time in minutes.	**0**…255min
Duration time for darkness (0…59sec)	This parameter, is used to set the darkness duration time in seconds.	0…**5**…59sec
Flashing number(1…255, 0-Unlimited)	This parameter, is used to set the number of flashes.	**0-unlimited** 1…255
Brightness after achieves the flashing number	This parameter, is used to set the brightness parameters for after a set number of flashes has been activated.	**Invalid** 0…100%

3.8. SCENE FUNCTION

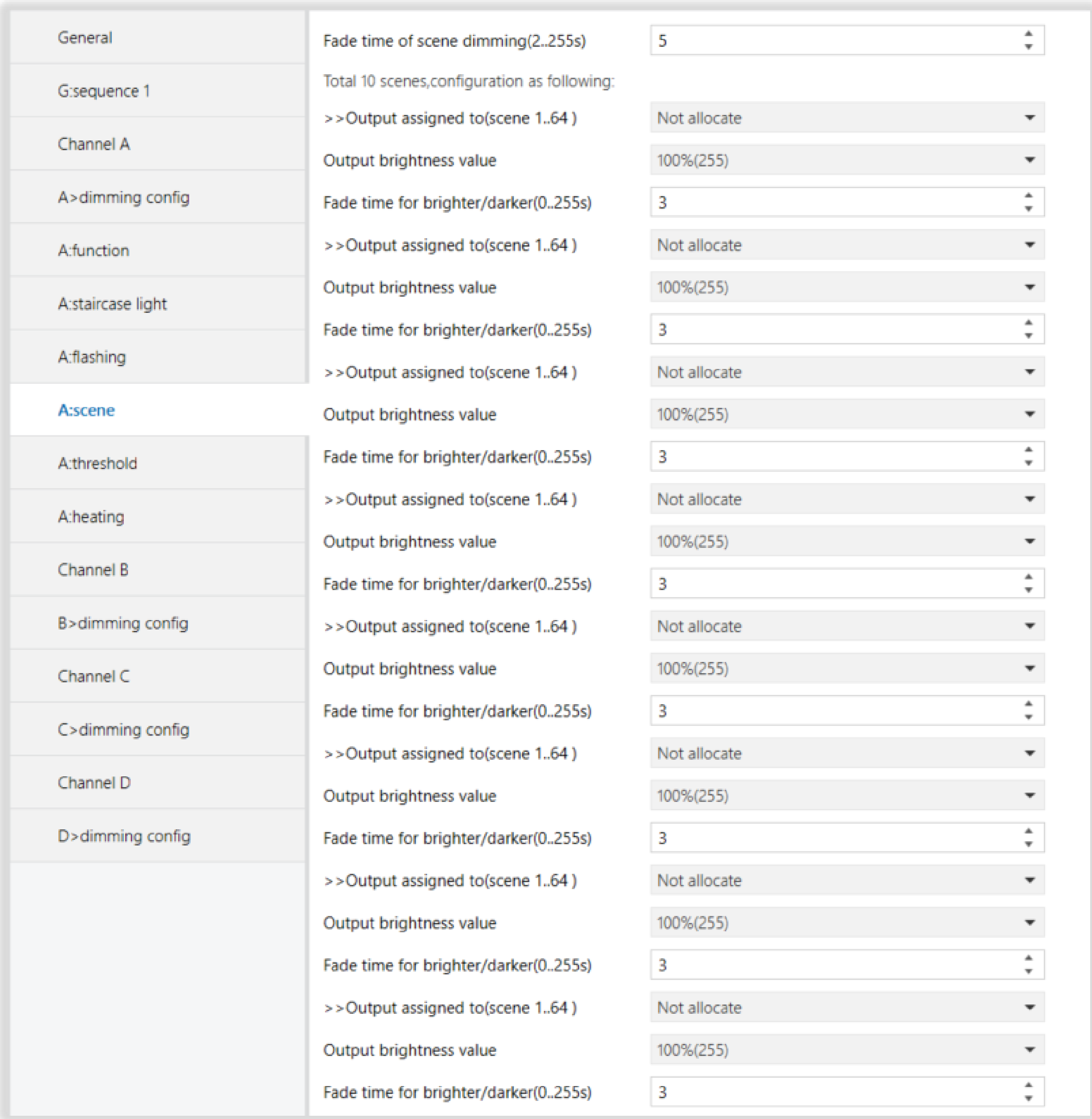

Fig 10 : Scene Function Parameter Page

3.8.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Fade time of scene dimming (2…255s)	This parameter, is used to set the fade time for scene dimming.	2…**5**…255s
Total 10 scenes, configuration as following:		

>> Output assigned to(scene 1...64)	This parameter, is used to set the output scene.	**Not allocate** Scene No 1...Scene No.64
Output brightness value	This parameter, is used to set the output brightness value.	0…**100%**
Fade time for brighter/darker (0…255s)	This parameter, is used to set the brightenig and dimming fading rate.	0…**3**…255s

3.9. THRESHOLD FUNCTION

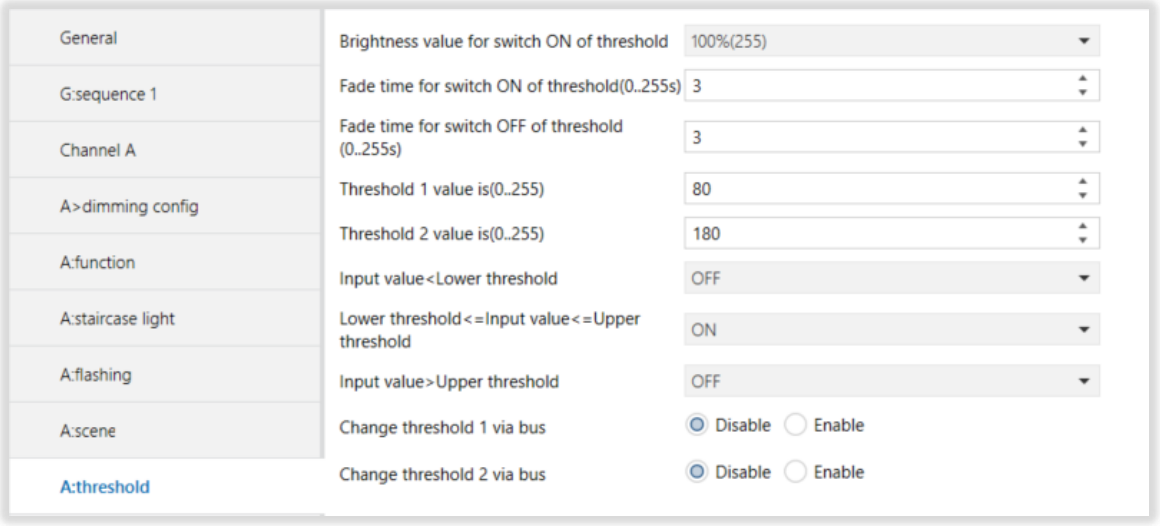

Fig 11 : Threshold Function Parameter Page

3.9.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Brightness value for switch ON of threshold	This parameter, is used to set the brightness value when switched on.	0…**100%(255)**
Fade time for switch ON of threshold(0…255s)	This parameter, is used to set the switch on fade time.	0…**3**…255s
Fade time for switch OFF of threshold(0…255s)	This parameter, is used to set the switch off fade time.	0…**3**…255s
Threshold 1 value is (0…255)	This parameter, is used to set the value for threshold 1.	0…**80**…255
Threshold 2 value is (0…255)	This parameter, is used to set the value for threshold 2.	0…**180**…255

Input value <=Lower threshold	This parameter, is used to 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.	Unchanged ON **OFF**
Lower threshold <= Input value <= Upper threshold	This parameter, is used to set 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.	Unchanged OFF **ON**
Input value >Upper threshold	This parameter, is used to set the input upper 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.	Unchanged ON **OFF**
Change threshold 1 via bus	This parameter, is used to enable or 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.	**0**...59
Change threshold 2 via bus	This parameter, is used to enable or disable the threshold 2 function. **Enable :** The value of threshold 2 can be changed from the bus. **Disable :** The value of threshold 2 can not be changed from the bus.	0...**10**...59

3.10. HEATING FUNCTION

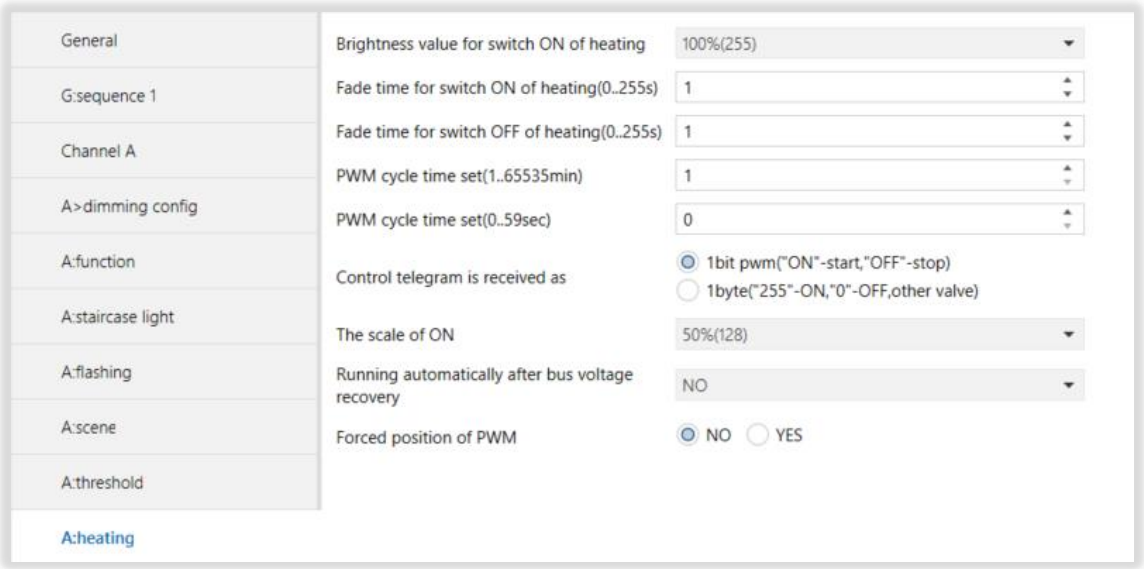

Fig 12 : Heating Function Parameter Page

3.11.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Brightness value for switch ON of heating	This parameter, is used to set the brightness value for when heating is switched on.	0…**100%**
Fade time for switch ON of heating (0…255s)	This parameter, is used to set the rate at which the heating intensity increases when switched ON.	0…**1**…255
Fade time for switch OFF of heating(0…255s)	This parameter, is used to set the rate at which the heating intensity decreases when switched OFF.	0…**1**…255
PWM cycle time set (1…65535min)	This parameter, is used to set the PWM cycle time.	**1…**65535min
PWM cycle time set(1…59sec)	This parameter, is used to set the PWM cycle time.	**0**...59sec
Control telegram is received as	This parameter, is used to set the control type. **1 bit pwm(“ON”-start, “OFF”-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).	**1 bit pwm(“ON”-start, “OFF”-stop)** 1 byte(“255”-ON, “0”-OFF, other value)

The scale of ON	This parameter, is used to set the value for scale of ON.	1…**50**…100%
Running automatically after bus voltage recovery	This parameter, is used to 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.	**NO** Defined value Recovery
-Position of the valve	This parameter, is used to set the value for position of the valve.	0…**50**…100%
Forced position of PWM	This parameter, is used to enable or disable the forced PWM position.	Yes **No**
-Valve of PWM	This parameter, is used to set the value for valve of PWM.	0…**50**…100%

4. ETS OBJECTS AND DESCRIPTIONS

There are several parameters and functions with the same feature when making the relevant configurations from the parameter pages. The objects of the same properties are the same, and only the names of the objects are different. Hence, in this section, 1 of the objects with the same feature is explained.

4.1. GENERAL

At the following table, the objects associated with the general parameter page are described.

Object Name	Function	Type	Flags
General	Heartbeat telegram	1 bit	C T
This object, is used to send cycles. If value “1” is sent by the telegram, the next telegram will have a value of “0”.			
General	Sequence1	1 bit	C W U
This object, is used to enable or disable the sequence1. If telegram “0” is sent the sequence 1 will be disabled, if telegram “1” is sent the sequence will be enabled.			
General	Sequence2	1 bit	C W U
This object, is used to enable or disable the sequence2. If telegram “0” is sent the sequence 1 will be disabled, if telegram “1” is sent the sequence will be enabled.			
General	Sequence3	1 bit	C W U
This object, is used to enable or disable the sequence3. If telegram “0” is sent the sequence 1 will be disabled, if telegram “1” is sent the sequence will be enabled.			
General	Sequence4	1 bit	C W U
This object, is used to enable or disable the sequence4. If telegram “0” is sent the sequence 1 will be disabled, if telegram “1” is sent the sequence will be enabled.			
General	Sequence5	1 bit	C W U
This object, is used to enable or disable the sequence5. If telegram “0” is sent the sequence 1 will be disabled, if telegram “1” is sent the sequence will be enabled.			

4.2. OUTPUT N

At the following table, the objects associated with the output n are described.

Object Name	Function	Type	Flags
Output A	Channel output	1 bit	C W U
This object, is used to set the channel output with control ON/OFF.			
Output A	Relative dimming(4 bit)	4 bit	C W U
This object, is used for relative dimming. When the “increase” telegram is received, the value will be increased. When the “decrease” telegram is received, the value will be decreased.			

Output A	Absolute dimming (8 bit)	1 Byte	C W U
This object, is used for absolute dimming. When the absolute dimming telegram is received, the lights will be dimmed according to the telegrams value.			

4.3. RESPONSE STATE

At the following table, the objects associated with the response state are described.

Object Name	Function	Type	Flags
Output A	Response state (1 bit)	1 bit	C R T
This object, is used for response the state, when response state is “1”, the channel is ON. If the response state is “0”, the channel is OFF.			
Output A	Response state (1 byte)	1 Byte	C R T
This object, is used for the response state of the output channel brightness.			

4.4. STATISTIC ON TIME

At the following table, the objects associated with the statistic on time are described.

Object Name	Function	Type	Flags
Output A	R/W total ON time	2 Byte	C R W T U
This object, is used if the initial value is changed. The statistical ON time will increase again every hour.			
Output A	Alarm when total ON time out	1 bit	C R T
This object, is used to trigger an alarm, when statistical ON time has reached the maximum set value.			

4.5. TEMPERATURE

At the following table, the objects associated with the temperature are described.

Object Name	Function	Type	Flags
Output A	Temperature alarm	1 bit	C R T
This object, is used to trigger an alarm when a set temperature is exceeded.			
Output A	Read temperature	2 byte	C R T
This object, is used to read the channel output temperature.			

4.6. STAIRCASE LIGHT

At the following table, the objects associated with the staircase light are described.

Object Name	Function	Type	Flags
Output A	Staircase light	1 bit	C W U
This 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.			
Output A	Change staircase light time	2 Byte	C W U
This object, is used to change the staircase lighting illumination time.			
Output A	Warning staircase light	1 bit	C R T
This object is used to set the alarm status lighting.			

4.7. FLASH

At the following table, the object associated with the flash are described.

Object Name	Function	Type	Flags
Output A	Flashing	1 bit	C W U
This object, is used for flashing function. When the start value is received, the lighting channel will flash.			

4.8. SCENE

At the following table, the objects associated with the scene are described.

Object Name	Function	Type	Flags
Output A	Scene(8 bit)	1 byte	C W U
This object, is used to call or save the channel output scene.			
Output A	Scene dimming(4 bit)	4 bit	C W U
This object, is used for scene dimming.			

4.9. THRESHOLD

At the following table, the objects associated with the threshold are described.

Object Name	Function	Type	Flags
Output A	Threshold input	1 Byte	C W U
This object, is used for threshold input. The input value is compared with threshold 1 and threshold 2.			
Output A	Change threshold 1	1 Byte	C W U

This object, is used to change threshold 1 via the bus network.			
Output A	Change threshold 2	1 Byte	C W U
This object, is used to change threshold 2 via the bus network.			

4.10. HEATING

At the following table, the objects associated with the heating are described.

Object Name	Function	Type	Flags
Output A	Heat with 1 bit control	1 bit	C W U
This 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.			
Output A	Heat with 1 byte control	1 byte	C W U
This object, 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.			

CONTACT INFORMATION

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