SPWM-75/150/240-KN

User Manual

LED Drivers with KNX Interface







The SPWM-KN series is MeanWell AC/DC LED driver with constant-voltage PWM output. It is available in 75W, 150W and 240W power ratings with 12V, 24V and 48V output-voltage options, suitable for various LED light-strips to realize color-temperature, color and brightness adjustment. SPWM-75/150-KN accepts 100-305VAC input; the 240W model supports 180-305VAC input. Featuring up to 90% efficiency and fan-less natural cooling, SPWM-75/240-KN operates reliably at case temperature from -20℃ to +90℃ (-20℃ ~ +80℃ for SPWM-150-KN) under free-air conditions. Equipped with KNX bus dimming, multiple functional modes, comprehensive parameter configuration and fault-feedback features, SPWM-KN delivers high design flexibility for LED lighting systems.

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1.Overview

1.1 Device Overview

This manual covers the following devices:

- SPWM-75-KN: INPUT: 100 ~ 305VAC 47 ~ 63Hz, OUTPUT: 6.3A,12V/ 3.2A,24V · 75W
- SPWM-150-KN: INPUT: 100 ~ 305VAC 47 ~ 63Hz, OUTPUT: 12.5A,12V/ 6.3A,24V · 150W
- SPWM-240-KN: INPUT: 180 ~ 305VAC 47 ~ 63Hz, OUTPUT: 10A,24V/ 5A,48V · 240W

Model Encoding

SPWM - 75 - 24 □

- Function options(KN)
- Rated output voltage(75W&150W:12V/24V; 240W:24V/48V)
- Rated wattage
- Series name

Type	Function	Note
KN	Built-in KNX interface	In stock

1.2 Specification

※ SPWM-75 series

SPECIFICATION	SPWM-75-12□	SPWM-75-24□
OUTPUT		
DC VOLTAGE	12V	24V
RATED CURRENT(Max.)	6.3A	3.2A
RATED POWER(Max.)	75.6W	76.8W
VOLTAGE ADJ. RANGE	11~14V	23~26V
PWM FREQUENCY (Typ.)	200Hz-20kHz(default:3.2kHz),Set by Database	
SETUP, RISE TIME Note.3	500ms,80ms/ 230VAC ,1200ms,80ms/115VAC	
HOLD UP TIME (Typ.)	10ms/230VAC or 115VAC	
INPUT		
VOLTAGE RANGE Note.2	100 ~ 305VAC 156 ~ 410VDC(Please refer to "STATIC CHARACTERISTIC" section)	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.95/230VAC, PF>0.92/277VAC @ full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)	
TOTAL HARMONIC DISTORTION	THD<10%@load≥50%/115VAC, 230VAC; @load≥75%/277VAC (Please refer to "TOTAL HARMONIC DISTORTION " section)	
EFFICIENCY (Typ.)	89%	90%
AC CURRENT (Typ.)	0.9A / 115VAC 0.45A / 230VAC 0.38A / 277VAC	
INRUSH CURRENT (Typ.)	COLD START 50A(twidth=500μs measured at 50% Ipeak) at 230VAC; Per NEMA 410	
MAX. NO. of PSUs on 16A CIRCUIT BREAKER	5 units (circuit breaker of type B) / 8 units (circuit breaker of type C) at 230VAC	
LEAKAGE CURRENT	<0.25mA / 277VAC	
STANDBY POWER CONSUMPTION	standby power consumption<0.5W (Dimming off)	
PROTECTION		
OVERLOAD	105~135%, hiccup mode, recovers automatically after fault condition is removed	
SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed	
OVER VOLTAGE	15 ~ 20V	27~ 36V
	Shut down O/P voltage, re-power on to recover after fault condition is removed	
OVER TEMPERATURE	Shut down O/P voltage, re-power on to recover after fault condition is removed	
ENVIRONMENT		
WORKING TEMP.	Tcase=-20~+90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)	
MAX. CASE TEMP.	Tcase=90℃	
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)	
VIBRATION	5 ~ 100Hz, 2G 12min./1cycle, each along X,Y,Z axes according to EN50090-2-2	
SAFETY & EMC		
SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations(DC input 176-280VDC), BS EN/EN62384; GB/T19510.1,GB/T19510.213; EAC TP TC 004 approved; Design refer to AS/NZS 61347-1, AS/NZS 61347-2-13	
WITHSTAND VOLTAGE	I/P-O/P:3.75kVAC	
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH	
EMC EMISSION Note.4	**Parameter**	**Standard** / **Test Level/Note**
	Conducted	BS EN/EN55015(CISPR15) ,GB/T17743 / -----
	Radiated	BS EN/EN55015(CISPR15) ,GB/T17743 / -----
	Harmonic Current	BS EN/EN61000-3-2 ,GB 17625.1 / Class C @load≥50%
	Voltage Flicker	BS EN/EN61000-3-3 / -----
EMC IMMUNITY	BS EN/EN61547	
	Parameter	**Standard** / **Test Level/Note**
	ESD	BS EN/EN61000-4-2 / Level 3, 8kV air ; Level 2, 4kV contact
	Radiated	BS EN/EN61000-4-3 / Level 2
	EFT/Burst	BS EN/EN61000-4-4 / Level 2
	Surge	BS EN/EN61000-4-5 / Level 4, 2kV/Line-Line
	Conducted	BS EN/EN61000-4-6 / Level 2
	Magnetic Field	BS EN/EN61000-4-8 / Level 2
	Voltage Dips and Interruptions	BS EN/EN61000-4-11:2020 / 30% dip 10 periods 100% interruption 0.5 periods
OTHERS		
KNX	Certified protocol	
FLICKER Note.9	PstLM ≤ 1, SVM ≤ 0.4	
MTBF	2396.9 k hrs min. Telcordia SR-332 (Bellcore) ; 205.7 k hrs min. MIL-HDBK-217F (25℃)	
DIMENSION	290*38*28.5mm (L*W*H)	
PACKING	0.28kg; 42 pcs/ 13.5 kg/ 0.67 CUFT	
NOTE		

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
3. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
4. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
5. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 75℃ or less.
6. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com
7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
8. It is not recommended to connect to capacitive loads.
9. Flicker is measured at full load with the light source provided by MEAN WELL.
10. RCM is on a voluntary basis. Non IC classification Independent LED control gear is not suitable for resisdential installations.

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※ SPWM-150 series

SPECIFICATION	SPWM-150-12□	SPWM-150-24□
OUTPUT		
DC VOLTAGE	12V	24V
RATED CURRENT(Max.)	12.5A	6.3A
RATED POWER(Max.)	150W	151.2W
VOLTAGE ADJ. RANGE	11~14V	23~26V
PWM FREQUENCY (Typ.)	200Hz~20kHz(default:3.2KHz), Set by Database	
SETUP, RISE TIME Note.3	500ms,80ms/230VAC ,1200ms,80ms/115VAC	
HOLD UP TIME (Typ.)	10ms/230VAC or 115VAC	
INPUT		
VOLTAGE RANGE Note.2	100 ~ 305VAC 156 ~ 410VDC (Please refer to "STATIC CHARACTERISTIC" section)	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.95/230VAC, PF>0.92/277VAC @ full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)	
TOTAL HARMONIC DISTORTION	THD<10%@load≥50%/115VAC, 230VAC; @load≥75%/277VAC (Please refer to "TOTAL HARMONIC DISTORTION" section)	
EFFICIENCY (Typ.)	92%	93%
AC CURRENT (Typ.)	1.5A / 115VAC 1A / 230VAC 0.8A / 277VAC	
INRUSH CURRENT (Typ.)	COLD START 55A(twidth=500μs measured at 50% Ipeak) at 230VAC; Per NEMA 410	
MAX. NO. of PSUs on 16A CIRCUIT BREAKER	5 units (circuit breaker of type B) / 8 units (circuit breaker of type C) at 230VAC	
LEAKAGE CURRENT	<0.25mA / 277VAC	
STANDBY POWER CONSUMPTION	Standby power consumption<0.5W (Dimming off)	
PROTECTION		
OVERLOAD	105~150%, hiccup mode, recovers automatically after fault condition is removed	
SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed	
OVER VOLTAGE	15 ~ 20V	27~ 36V
	Shut down O/P voltage, re-power on to recover after fault condition is removed	
OVER TEMPERATURE	Shut down O/P voltage, re-power on to recover after fault condition is removed	
ENVIRONMENT		
WORKING TEMP.	Tcase=-20~+80℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)	
MAX. CASE TEMP.	Tcase=80℃	
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)	
VIBRATION	5 ~ 100Hz, 2G 12min./1cycle, each along X,Y,Z axes according to EN50090-2-2	
SAFETY & EMC		
SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations(DC input 176-280VDC), BS EN/EN62384; GB/T19510.1,GB/T19510.213; EAC TP TC 004 approved; Design refer to AS/NZS 61347-1, AS/NZS 61347-2-13	
WITHSTAND VOLTAGE	I/P-O/P:3.75kVAC	
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH	
EMC EMISSION Note.4	**Parameter**	**Standard**	**Test Level/Note**
	Conducted	BS EN/EN55015(CISPR15) ,GB/T17743	-----
	Radiated	BS EN/EN55015(CISPR15) ,GB/T17743	-----
	Harmonic Current	BS EN/EN61000-3-2 ,GB 17625.1	Class C @load ≥ 50%
	Voltage Flicker	BS EN/EN61000-3-3	-----
EMC IMMUNITY	BS EN/EN61547		
	Parameter	**Standard**	**Test Level/Note**
	ESD	BS EN/EN61000-4-2	Level 3, 8kV air ; Level 2, 4kV contact
	Radiated	BS EN/EN61000-4-3	Level 2
	EFT/Burst	BS EN/EN61000-4-4	Level 2
	Surge	BS EN/EN61000-4-5	Level 4, 2kV/Line-Line
	Conducted	BS EN/EN61000-4-6	Level 2
	Magnetic Field	BS EN/EN61000-4-8	Level 2
	Voltage Dips and Interruptions	BS EN/EN61000-4-11:2020	30% dip 10 periods 100% interrruption 0.5 periods
OTHERS			
KNX	Certified protocol		
FLICKER Note.9	PstLM ≤ 1, SVM ≤ 0.4		
MTBF	1926.4k hrs min. Telcordia SR-332 (Bellcore) ; 158.1k hrs min. MIL-HDBK-217F (25℃)		
DIMENSION	340*38*28.5mm (L*W*H)		
PACKING	0.38kg; 30 pcs/ 13.0 kg/ 0.66 CUFT		

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
3. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
4. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
5. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 75℃ or less.
6. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com
7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
8. It is not recommended to connect to capacitive loads.
9. Flicker is measured at full load with the light source provided by MEAN WELL.
10. RCM is on a voluntary basis. Non IC classification Independent LED control gear is not suitable for resisdential installations.

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※ SPWM-240 series

SPECIFICATION	SPWM-240-24□	SPWM-240-48□
OUTPUT		
DC VOLTAGE	24V	48V
RATED CURRENT(Max.)	10A	5A
RATED POWER(Max.)	240W	240W
VOLTAGE ADJ. RANGE	23~26V	47~50V
PWM FREQUENCY (Typ.)	200Hz~20kHz(default:3.2KHz), Set by Database	
SETUP, RISE TIME Note.3	500ms, 80ms/230VAC	
HOLD UP TIME (Typ.)	10ms/230VAC	
INPUT		
VOLTAGE RANGE Note.2	180 ~ 305VAC 255 ~ 410VDC (Please refer to "STATIC CHARACTERISTIC" section)	
FREQUENCY RANGE	47 ~ 63Hz	
POWER FACTOR (Typ.)	PF>0.95/230VAC, PF>0.92/277VAC @ full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)	
TOTAL HARMONIC DISTORTION	THD<10%@load≥50%, 230VAC; @load≥75%/277VAC (Please refer to "TOTAL HARMONIC DISTORTION" section)	
EFFICIENCY (Typ.)	93%	94%
AC CURRENT (Typ.)	1.3A / 230VAC 1.1A / 277VAC	
INRUSH CURRENT (Typ.)	COLD START 60A(twidth=700μs measured at 50% Ipeak) at 230VAC; Per NEMA 410	
MAX. NO. of PSUs on 16A CIRCUIT BREAKER	3 units (circuit breaker of type B) / 5 units (circuit breaker of type C) at 230VAC	
LEAKAGE CURRENT	<0.25mA / 277VAC	
STANDBY POWER CONSUMPTION	standby power consumption<0.5W (Dimming off)	
PROTECTION		
OVERLOAD	105~150%, hiccup mode, recovers automatically after fault condition is removed	
SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed	
OVER VOLTAGE	27 ~ 36V	52~ 63V
	Shut down O/P voltage, re-power on to recover after fault condition is removed	
OVER TEMPERATURE	Shut down O/P voltage, re-power on to recover after fault condition is removed	
ENVIRONMENT		
WORKING TEMP.	Tcase=-20~+90℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)	
MAX. CASE TEMP.	Tcase=90℃	
WORKING HUMIDITY	20 ~ 95% RH non-condensing	
STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH	
TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)	
VIBRATION	5 ~ 100Hz, 2G 12min./1cycle, each along X,Y,Z axes according to EN50090-2-2	
SAFETY & EMC		
SAFETY STANDARDS	ENEC BS EN/EN61347-1, BS EN/EN61347-2-13(EL) appendix J suitable for emergency installations(DC input 176-280VDC), BS EN/EN62384; GB/T19510.1,GB/T19510.213; EAC TP TC 004 approved; Design refer to AS/NZS 61347-1, AS/NZS 61347-2-13	
WITHSTAND VOLTAGE	I/P-O/P:3.75kVAC	
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH	
EMC EMISSION Note.4	**Parameter**	**Standard**	**Test Level/Note**
	Conducted	BS EN/EN55015(CISPR15) ,GB/T17743	-----
	Radiated	BS EN/EN55015(CISPR15) ,GB/T17743	-----
	Harmonic Current	BS EN/EN61000-3-2, GB 17625.1	Class C @load ≥ 50%
	Voltage Flicker	BS EN/EN61000-3-3	-----
EMC IMMUNITY	BS EN/EN61547		
	Parameter	**Standard**	**Test Level/Note**
	ESD	BS EN/EN61000-4-2	Level 3, 8kV air ; Level 2, 4kV contact
	Radiated	BS EN/EN61000-4-3	Level 2
	EFT/Burst	BS EN/EN61000-4-4	Level 2
	Surge	BS EN/EN61000-4-5	Level 4, 2kV/Line-Line
	Conducted	BS EN/EN61000-4-6	Level 2
	Magnetic Field	BS EN/EN61000-4-8	Level 2
	Voltage Dips and Interruptions	BS EN/EN61000-4-11:2020	30% dip 10 periods 100% interrruption 0.5 periods
OTHERS			
KNX	Certified protocol		
FLICKER Note.9	PstLM ≤ 1, SVM ≤ 0.4		
MTBF	1801.3k hrs min. Telcordia SR-332 (Bellcore) ; 155.5k hrs min. MIL-HDBK-217F (25℃)		
DIMENSION	380*38*28.5mm (L*W*H)		
PACKING	0.54kg; 24 pcs/ 13.26 kg/ 0.61 CUFT		

NOTE

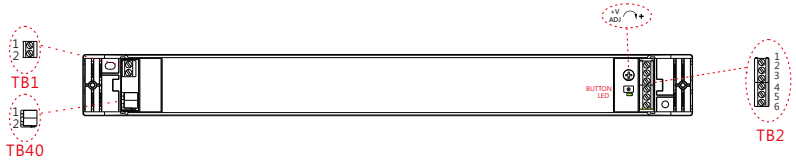
1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
3. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
4. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.
5. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 75℃ or less.
6. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com
7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
8. It is not recommended to connect to capacitive loads
9. Flicker is measured at full load with the light source provided by MEAN WELL.
10. RCM is on a voluntary basis. Non IC classification Independent LED control gear is not suitable for resisdential installations.

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1.3 Usage & possible applications

The SPWM-75-KN series are 75W AC/DC constant current LED drivers, supporting constant voltage mode and PWM dimming output. They maintain consistent color temperature and brightness uniformity when driving various LED light strips. Multiple adjustable parameters are available for dimming configuration, including dimming speed, transition time, on/off behavior, etc. The integrated KNX interface also provides scene control and multiple automatic functions, delivering flexible design solutions for LED lighting systems.

1.4 Display and Operating Elements



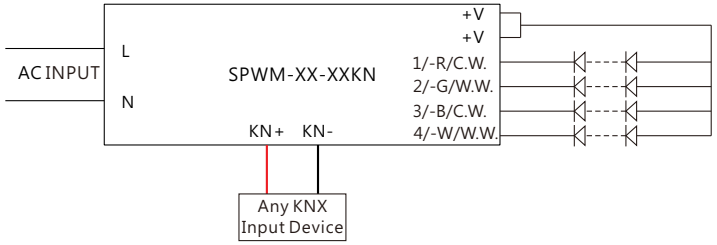
Terminal Definition:
KNX Bus Port: TB40
AC Input Port: TB1
Programming LED Indicator: LED
Programming Button: Button
DC Output Port: TB2

1.5 Wiring Diagram

The SPWM-KN driver supports 4 output operating modes configurable via the ETS software. The hardware TB2 output terminals are fixed; their functions are determined by the ETS [Operating mode] selection. Hardware wiring must match the operating mode set in ETS, otherwise abnormal lighting control will occur.

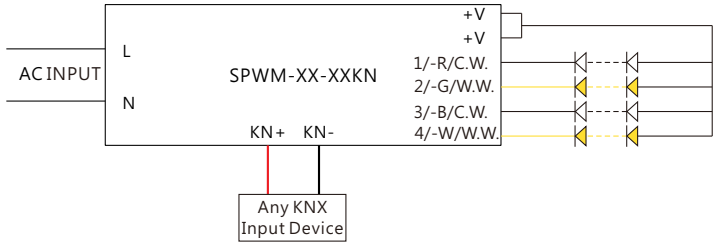
Note: Before downloading parameters in ETS, the corresponding channels must be enabled. If the database is downloaded without enabling any channels, the configuration will not take effect.

1.5.1 Four Independent Single Channel Mode (Factory Default)



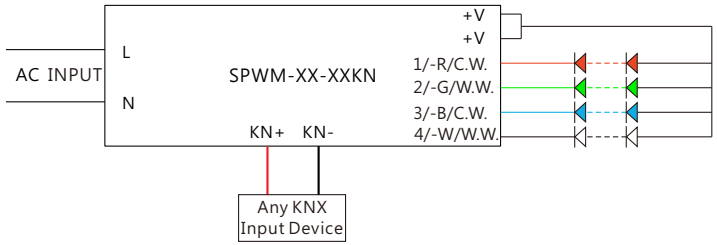
- Operating mode：4× dimming channels
- ETS Channels：Enable CH1~CH4 four dimming channels
- For detailed channel settings, refer to Section 4.9.1 Four Independent Single Channel Mode

1.5.2 Dual Color Temperature Mode



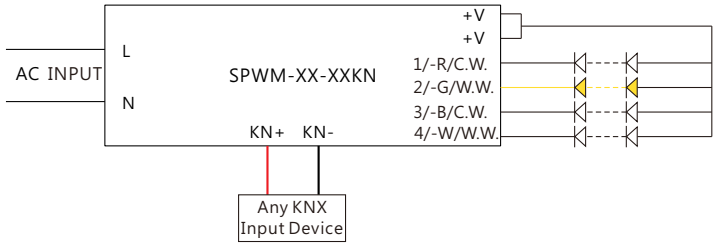
- Operating mode：2× colour temperature
- ETS Channels：Enable 2 sets of colour temperature channels
- For detailed channel settings, refer to Section 4.9.2 Dual Color Temperature Mode

1.5.3 RGBW



- Operating mode：1× RGBW
- ETS Channels：Enable RGBW channel
- For detailed channel settings, refer to Section 4.9.3 RGBW Mode

1.5.4 1 Color Temperature Channel + 2 Dimming Channels



- Operating mode：1× colour temperature +2× dimming channels
- ETS Channels：Enable the TW colour temperature channel, CH3 and CH4 dimming channels
- For detailed channel settings, refer to Section 4.9.4 1 Color Temperature Channel + 2 Dimming Channels

1.6 Wiring Connection

- Use electric wires with sufficient cross-sectional area.
- Deploy wiring and complete installation with proper mounting tools.
- The maximum number of total bus-connected devices is 256.
- The maximum length of a single segment is 350 meters, measured along the wire path between the power supply and the farthest bus device.
- The maximum distance between any two bus devices shall not exceed 700 meters.
- The total maximum length of the bus (aggregating a segments) is 1000 meters.

Category	Crimp Terminals (AC/L, AC/N, +V, -R/C.W., -G/C.W., -B/C.W., -W/C.W.)	KNX Bus Terminals (KN+, KN-)
Solid Core Wire	-----	0.6 ~ 0.8Φ
Stranded Wire	0.823 ~ 2.08mm²	------
AWG Wire Gauge	14 ~ 18AWG	20 ~ 22AWG
Stripping Length	10mm (0.39")	5mm (0.196")
Screwdriver Spec	3mm Phillips	-----
Recommended Crimping Force	3 ~ 4kg (6.61 ~ 8.81 lbF)	-----

1.7 ETS Software Information

Product Database Selection Parameters
Manufacturer: MEAN WELL Enterprises Co., Ltd.
Product Series: Lighting
Product Type: LED Driver
Product Name: Example: SPWM-75-KN, LED Driver with Built-in KNX Interface
Order Code: Example: SPWM-75-KN

1.8 Starting up

After wiring, the procedures for physical address assignment and parameter configuration of each channel are as follows:

(1)Connect the interface to the KNX bus, e.g., MEAN WELL USB Interface KSI-01U.

(2)Power on the SPWM driver.

(3)Power on the KNX bus supply.

(4)Press the programming button on the device (the red programming LED will light up).

(5)Load the physical address via the interface in ETS software (the red LED illuminates during loading and turns off upon completion).

(6)Download application parameters to the device.

(7)Once the device is activated, you may test all required functions (testing can also be operated within ETS software).

2.Information on KNX Secure

ETS5 Version 5.5 and above support secure communication within KNX systems. A distinction is made between secure communication via IP media using KNX IP Secure and secure communication via TP & RF media using KNX Data Secure. The following information applies to KNX Data Secure.

KNX products supporting "KNX-Secure" are clearly marked with an icon in the ETS catalog, as shown below:

PWM-75-KN 75W LED Driver with KNX Interface

Once a project contains any "KNX-Secure" devices, ETS will prompt for a project password. If no password is entered, the devices will not be protected by KNX Data Secure. However, the password can be entered or modified later in the project overview.

2.1 Activation of "KNX Data Secure"

To ensure communication security, each device is preconfigured with an FDSK (Factory Device Setup Key) at the factory.For KNX products supporting KNX Data Secure to utilize this security function, the FDSK must first be entered in ETS.This key information is printed on the device label, which can be input manually via keyboard, or scanned using a code scanner or the camera of a laptop.

The format of the FDSK label is shown as follows:

MEAN WELL

AFROO4-HWZ3JO
K4YDZN-WTILLR
4OBU7Y-3IVXYR

0162E770F6CE

After entering the FDSK, ETS generates a device-specific Tool Key. ETS transmits this Tool Key to the target device via the bus. The transmission is encrypted and authenticated with the original FDSK entered earlier.

Once the above operation is completed, the device will only accept the Tool Key for subsequent communication with ETS. The FDSK can no longer be used for further communication unless the device is restored to factory settings-all security-related configuration data will be erased upon factory reset.

ETS generates as many Runtime Keys as required to secure your group communications, then sends these Runtime Keys to the target device over the bus. All transmissions are encrypted and verified using the Tool Key.

The FDSK is stored within the project and can be viewed in the project overview. Additionally, all keys belonging to this project can be exported for backup purposes.

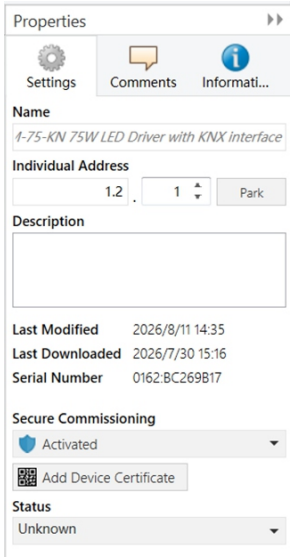
During project planning, you may define which functions or communication objects require secure transmission. All objects with encrypted communication will be marked with a "Secure" icon in ETS, as shown below:

2.2 Operation without "KNX Data Secure"

Devices equipped with KNX Data Secure can also operate with KNX Data Secure disabled. In this state, the device operates in an unsecured mode, behaving identically to standard KNX devices without the KNX Data Secure function.

To start the device without KNX Data Secure:

1. Select the target device under the Topology or Devices tab;
2. Navigate to the Properties section on the Settings tab;
3. Set the option Secure Startup to Disabled.
4. Configuration reference is shown below:



3.Communication Objects

3.1 Common Communication Objects (Applicable to All Modes)

Applicable to four control modes: Single Channel, RGB, RGBW and Color Temperature Mode:

Object Name	Flag & Type	Function Area	Description
Operation	1bit,CRT,state (DPT 1.011)	Global	This Communication is shown permanently and can be used to send status of the device to the system at regular intervals when active.
Day/Night input	1bit, CW, Switch (DPT 1.024)	Global	Receives day/night status input to distinguish operation logic for daytime and nighttime. (This object appears when "Day/Night switching via" is set to "Object".)
Time Input	3bytes, CW, Data (DPT 10.001)	Global	Writes the device internal clock, providing time reference for timed dimming.
Date & Time Input	8bytes, CW, Date-Time (DPT 19.001)	Global	Writes both time and date to the device simultaneously.
Operating hours (Counter,in seconds)	4Bytes,CRT,Time lag(s) (DPT 13.100)	Global	This Communication Object is only shown when Counting of operating hours & CLO is active and can be used to send out the operating time of the device.
Operating hours (Counter,in hours)	4Bytes,CRT,counter timehrs(h) (DPT 12.102)	Global	This Communication Object is only shown when Counting of operating hours & CLO is active and can be used to send out the operating time of the device.
Operating hours (Set value, in seconds)	4Bytes,CRT,Time lag(s) (DPT 13.100)	Global	This Communication Object is only shown when Counting of operating hours & CLO is active and can be used to overwrite the operating time the device counted.
Operating hours (Set value, in hours)	4Bytes,CRT,counter timehrs(h) (DPT 12.102)	Global	This Communication Object is only shown when Counting of operating hours & CLO is active and can be used to overwrite the operating time the device counted.
Dim absolutely	1byte,CW,percentage (0~100%) (DPT 5.001)	Global	This object is always available and allows the controlling of the main function Dim Absolutely for the device.
Dim relatively	4bit,CW, dimming control (DPT 3.007)	Global	Relative dimming, controls all channels.
Scene	1byte,CW,Scene number (DPT 17.001)	Global	Scene control. This object can trigger scene functions for all channels.
Switch-On/Off	1bit,CW, switch (DPT 1.001)	Global	On / Off control for all channels.
Temperature report	2 bytes,CRT,temperature°C, (DTP 9.001)	Global	Reports current internal device temperature. (apears when Active temperature measurement is set to active)
Temperature alarm status	1 bit,CRT,alarm, (DTP 1.005)	Global	Reports current temperature alarm status. (Appears when Temperature Alarm protection is set to an option other than "Not Active".)
Temperature cancel alarm	1 bit,CW,Reset, (DTP 1.015)	Global	Manually clear temperature-alarm status via this object. (Appears when Eliminate Temperature Alarm protection is set to object.)

Object Name	Flag & Type	Function Area	Description
Power supply failure 1	1bit,CRT,alarm (DPT 1.005)	Global	Power-supply-failure status 1. Status is determined by parameter Send power supply failure state 1. (Appears when Send power supply failure state 1 is set to an option other than "Not Active".)
Power supply failure 2	1bit,CRT,alarm (DPT 1.005)	Global	Power-supply-failure status 2. Status is determined by parameter Send power supply failure state 2 (Appears when Send power supply failure state 2 is set to an option other than "Not Active".)
Emergency mode status	1bit,CRT, DTP_alarm (DPT 1.005)	Global	Emergency-lighting mode status of power supply.

3.2 Single Channel Mode

Applicable to single-color lighting fixtures.

Object Name	Flag & Type	Function Area	Description
Switch-on/Off	1bit, CW, Switch (DPT 1.001)	Channel	Value = 1: Power ON; Value = 0: Power OFF.
State On/Off	1bit, CRT, Status (DPT 1.011)	Channel	Output > 0%: ON; Output = 0%: OFF.
Dim absolutely	1byte, CW, Percentage (0~100%) (DPT 5.001)	Channel	Directly set target brightness level.
Dim relatively	4bit, CW, Dimming Control (DPT 3.007)	Channel	Gradually increase or decrease brightness.
State dim value	1byte, CRT, Percentage (0~100%) (DPT 5.001)	Channel	Feed back current real time brightness value.
Quick scene 1	1bit, CW, Trigger (DPT 1.017)	Channel	Trigger Quick scene 1.
Quick scene 2	1bit, CW, Trigger (DPT 1.017)	Channel	Trigger Quick scene 2.
Quick scene 3	1bit, CW, Trigger (DPT 1.017)	Channel	Trigger Quick scene 3.
Quick scene 4	1bit, CW, Trigger (DPT 1.017)	Channel	Trigger Quick scene 4.
Quick scene 5	1bit, CW, Trigger (DPT 1.017)	Channel	Trigger Quick scene 5.
Scene	1-byte, CW, scene number (DPT 17.001)	Channel	Scene control without learn function. Only recall pre-stored scene parameters by scene number. Saving current brightness is not supported.
Scene	1-byte, CW, scene control (DPT 18.001)	Channel	Scene control with learn function for single channel. Bit7=0: Recall target scene; Bit7=1: Store current output dimming value of Channel 1 into selected scene index. Affects Channel1 only.
Lock I	1bit, CW, Enable (DPT 1.003)	Channel	Value = 1: Enable high-priority lock.
lock II	1bit, CW, Enable (DPT 1.003)	Channel	Value = 1: Enable low-priority lock.

Object Name	Flag & Type	Function Area	Description
Status lock	1bit, CRT, Status (DPT 1.011)	Channel	Value = 1: Locked; Value = 0: Unlocked.
Staircase light	1bit, CW, Switch (DPT 1.001)	Staircase Light	Value = 1: Activate staircase light function.
Staircase light with time	2byte, CW, Time (0~65535 s) (DPT 7.005)	Staircase Light	Set the operating duration of staircase light.
Pre-warning	1bit, CRT, Alarm (DPT 1.005)	Staircase Light	Trigger pre-warning before timer expires.
Permanent On	1bit, CW, Switch (DPT 1.001)	Staircase Light	Value = 1: Enable permanent always-on mode.
Auto-dimming over time start/stop	1bit, CW, Start/Stop (DPT 1.010)	Channel	Start or stop timed automatic dimming function.
Auto-dimming over time status	1bit, CRT, Switch (DPT 1.001)	Channel	Feedback the running state of timed dimming.

3.3 RGB Mode

Applicable to RGB color lighting fixtures.

Object Name	Flag & Type	Function Area	Description
Switch-on/off R	1bit, CW, Switch (DPT 1.001)	RGB	Switch control for R channel.
Dim absolutely R	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Direct brightness setting for R channel.
Dim relatively R	4bit, CW, Dimming Control (DPT 3.007)	RGB	Step up/down brightness of R channel.
State dim value R	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGB	Real-time brightness feedback of R channel.
Switch-on/off G	1bit, CW, Switch (DPT 1.001)	RGB	Switch control for G channel.
Dim absolutely G	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Direct brightness setting for G channel.
Dim relatively G	4bit, CW, Dimming Control (DPT 3.007)	RGB	Step up/down brightness of G channel.
State dim value G	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGB	Real-time brightness feedback of G channel.
Switch-on/off B	1bit, CW, Switch (DPT 1.001)	RGB	Switch control for B channel.
Dim absolutely B	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Direct brightness setting for B channel.
Dim relatively B	4bit, CW, Dimming Control (DPT 3.007)	RGB	Step up/down brightness of B channel.
State dim value B	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGB	Real-time brightness feedback of B channel.

Object Name	Flag & Type	Function Area	Description
RGB Group Control (RGB Model)			
Switch-on/Off RGB	1bit, CW, Switch (DPT 1.001)	RGB	This object controls R, G, B channels simultaneously. Value = 1: Execute power-on action defined by parameter *Switch-on behavior*. Value = 0: Set brightness of all channels to 0%.
State On/Off RGB	1bit, CRT, State (DPT 1.011)	RGB	Reports combined on/off status of R,G,B channels. Active when any channel brightness >0%;Inactive when all channels brightness =0%.
Dim absolutely RGB	3bytes, CW, RGB Value 3 x (0~255) (DPT 232.600)	RGB	Set RGB color output by absolute dimming. Transition time is defined by parameter *Dimming speed absolute.
Dim relatively RGB	3bytes, CW, RGB Relative Control (DPT 254.600)	RGB	Step-based relative adjustment for R, G, B channels. Adjustment speed follows parameter "Dimming speed relative" .Byte2 for R, Byte1 for G, Byte0 for B. Bit3 = 0 for dim-down, Bit3 =1 for dim-up. Bit0-2 defines relative step size · refer to the table below: Bit0~2 | 0x00 | 0x01 | 0x02 | 0x03 | 0x04 | 0x05 | 0x06 | 0x07 Dimming Step | Stop Relative Dimming | 100% | 50% | 25% | 12.5% | 6.25% | 3.1% | 1.5% Example: R channel dim-down by 50%, G channel dim-down by 25%, B channel dim-up by 100%. ETS object input: $02 $03 $09 (values after $ are hexadecimal), mapped to R-G-B respectively. • $02: Bit3=0 → dim-down; Bit0-2=0x02 → 50% step for R channel. • $03: Bit3=0 → dim-down; Bit0-2=0x03 → 25% step for G channel. • $09: Bit3=1 → dim-up; Bit0-2=0x01 → 100% step for B channel.
State dim value RGB	3bytes, CRT, RGB Value (0~255) (DPT 232.600)	RGB	Reports current RGB color value of each channel.

<table>
<tr><th>Object Name</th><th>Flag & Type</th><th>Function Area</th><th>Description</th></tr>
<tr><td colspan="4">RGB Group Control (HSV Model)</td></tr>
<tr><td>Dim absolutely HSV</td><td>3bytes, CW, Colour HSV
(DPT 232.601)</td><td>RGB</td><td>Set Hue / Saturation / Value in one telegram.</td></tr>
<tr><td>Dim relatively HSV</td><td>3bytes, CW, Relative Control HSV
(DPT 254.601)</td><td>RGB</td><td>Color adjustment is implemented based on the HSV color model by means of relative-step dimming. Where H = Hue, S = Saturation,
V = Value (Brightness).Saturation S and Value V support relative-step dimming, consistent with Dim relatively for RGB.
Bit3 of the bytes for S and V defines dimming direction:Bit3=0 for dim down; Bit3=1 for dim up.
Bit0-2 define relative dimming step, refer to the table below:
<table>
<tr><td>Bit0~2</td><td>0x00</td><td>0x01</td><td>0x02</td><td>0x03</td><td>0x04</td><td>0x05</td><td>0x06</td><td>0x07</td></tr>
<tr><td>Dimming Step</td><td>Stop Relative Dimming</td><td>100%</td><td>50%</td><td>25%</td><td>12.5%</td><td>6.25%</td><td>3.1%</td><td>1.5%</td></tr>
</table>
Since Hue (H) forms a circular color wheel, its relative-dimming behaviour differs from S and V.For Hue channel:Bit3 sets dimming direction; Bit0-2 sets the relative dimming step (angle increment).When Hue increment/decrement is triggered, the device keeps rotating along the direction defined by Bit3.The rotation stops upon reception of any other dimming telegram.
<table>
<tr><td>Bit0~2</td><td>0x00</td><td>0x01</td><td>0x02</td><td>0x03</td><td>0x04</td><td>0x05</td><td>0x06</td><td>0x07</td></tr>
<tr><td>Dimming Step</td><td>Stop Relative Dimming</td><td>360</td><td>180</td><td>90</td><td>45</td><td>23</td><td>12</td><td>6</td></tr>
</table>
Upon receiving another dimming telegram, relative-Hue-adjustment stops.
The Hue-transition duration follows the parameter Dimming speed relative.
Example: Dimming speed relative =10s. Rotate Hue from 0°to 180° .
Transition time = ((180°-0°)/360°) *10s =5s.
Example: Rotate Hue clockwise by 180°, increase Saturation by 25%, decrease Brightness by 50%. ETS object input: $0A $03 $02 corresponding to H-S-V.
• $0A: Bit3=1 → dim-up direction;
Bit0-2=0x02 → 180° step for Hue.
• $03: Bit3=1 → dim-up direction;
Bit0-2=0x03 → 25% step for Saturation.
• $02: Bit3=0 → dim-down direction;
Bit0-2=0x02 → 50% step for Value(Brightness).</td></tr>
<tr><td>State dim value HSV</td><td>3bytes, Control HSV
(DPT 232.601)</td><td>RGB</td><td>Real-time HSV value feedback.</td></tr>
<tr><td colspan="4">Independent H/S/V</td></tr>
<tr><td>Dim absolutely H</td><td>1byte, CW, Percentage (0~100%)
(DPT 5.001)</td><td>RGB</td><td>Direct hue angle adjustment.</td></tr>
<tr><td>Dim relatively H</td><td>4bit, CW, Dimming Control
(DPT 3.007)</td><td>RGB</td><td>Step up/down hue angle.</td></tr>
</table>

Object Name	Flag & Type	Function Area	Description
Dim absolutely S	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Direct saturation setting.
Dim relatively S	4bit, CW, Dimming Control (DPT 3.007)	RGB	Step up/down saturation.
Dim absolutely V	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Direct brightness (Value) setting.
Dim relatively V	4bit, CW, Dimming Control (DPT 3.007)	RGB	Step up/down brightness (Value).
State dim value H	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGB	Real-time hue angle feedback.
State dim value S	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGB	Real-time saturation feedback.
State dim value V	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGB	Real-time brightness (Value) feedback.

Position Control Scenes / Standard Scenes / Lock Function / Staircase Light / Timed Dimming: Identical to Single Channel Mode.

3.4 RGBW Mode

Applicable to RGBW 4-channel luminaires.

Object Name	Flag & Type	Function Area	Description
Switch-on/off W	1bit, CW, Switch (DPT 1.001)	RGBW	Switch control for W channel.
State on/off W	1bit, CRT, Status (DPT 1.011)	RGBW	Feedback status of W channel.
Dim absolutely W	1byte, CW, Percentage (0~100%) (DPT 5.001)	RGBW	Direct brightness setting for W channel.
Dim relatively W	4bit, CW, Dimming Control (DPT 3.007)	RGBW	Step up/down brightness of W channel.
State dim value W	1byte, CRT, Percentage (0~100%) (DPT 5.001)	RGBW	Direct brightness (Value) setting.
Dim absolutely RGBW	6bytes, CW, RGBW Value 4x (0~100%) (DPT 251.600)	RGBW	Set brightness values of all 4 channels in one telegram
Dim relatively RGBW	5bytes, CW, RGBW Relative Control (DPT 252.600)	RGBW	Synchronously adjust brightness of four channels stepwise.
State dim value RGBW	6bytes, CRT, RGBW Value 4x (0~100%) (DPT 251.600)	RGBW	Real-time value feedback of all four RGBW channels.

Supplementary Note：
All remaining functions are identical to RGB Mode.

3.5 Color Temperature Mode

Applicable to dual-color temperature luminaires.

Object Name	Flag & Type	Function Area	Description
Brightness Control			
Switch-On/Off	1bit, CW, Switch (DPT 1.001)	TW	Global master switch.
Dim absolutely	1byte, CW, Percentage (0~100%) (DPT 5.001)	TW	Direct setting of total brightness.
Dim relatively	4bit, CW, Dimming Control (DPT 3.007)	TW	Stepwise adjustment of total brightness.
Shown when parameter selects "Cool-white ratio (%)"			
Dimming absolute colour temperature (CW ratio in %)	1byte, CW, Percentage (0~100%) (DPT 5.001)	TW	Set cool-white light percentage by absolute dimming value. Dimming transition time follows parameter Dimming speed absolute. Note: This object is hidden when Dim-to-Warm function is enabled.
Dimming relative colour temperature (CW ratio in %)	4bit, CW, Dimming Control (DPT 3.007)	TW	Adjust cool-white light percentage via relative dimming. Dimming time follows parameter Dimming speed relative. Note: This object is hidden when Dim-to-Warm function is enabled.
Dimming relative transition (brightness and CW ratio)	3bytes, CW, Brightness colour temperature control (DPT 250.600)	TW	Synchronously adjust brightness and cool white ratio. Adjust brightness and cool-white ratio by relative dimming steps. Dimming time follows parameter "Dimming speed relative". Byte0: Enable mask. Bit0 = Brightness adjustment enable; Bit1 = Cool-white-ratio adjustment enable. Byte1: Relative dimming for brightness. Byte2: Relative dimming for cool-white ratio. Bit3 of each byte defines dimming direction: Bit3=0 for dim down; Bit3=1 for dim up. Bit0-2 define relative dimming step amplitude: Bit0~2 | 0x00 | 0x01 | 0x02 | 0x03 | 0x04 | 0x05 | 0x06 | 0x07 Dimming Step | Stop Relative Dimming | 100% | 50% | 25% | 12.5% | 6.25% | 3.1% | 1.5% Example: Brightness dim up by 50%, cool-white ratio dim down by 25%. ETS telegram example: $03 $0A $03 • $03: Bit3=0 (dim down), Bit0-2=0x03 → 25% for cool-white ratio. • $0A: Bit3=1 (dim up), Bit0-2=0x02 → 50% for brightness. • $03 (binary 11): Enables both brightness and cool-white-ratio relative adjustment. Note: This object is hidden when Dim-to-Warm function is enabled.
Status colour temperature (CW ratio in %)	1byte, CRT, Percentage (0~100%) (DPT 5.001)	TW	Feedback of current cool-white percentage.

Object Name	Flag & Type	Function Area	Description
Shown when parameter selects "Light temperature (Kelvin)"			
Dimming absolute colour temperature(Kelvin)	1byte, CW, Absolute colour temperature (Kelvin) (DPT 7.600)	TW	Set output colour-temperature by absolute Kelvin value. Dimming transition time follows parameter Dimming speed absolute. Note: This object is hidden when Dim-to-Warm function is enabled.
Dimming relatively colour temperature(Kelvin)	4bit, CW, Dimming Control (DPT 3.007)	TW	Adjust output colour-temperature with relative step. Adjustment speed follows parameter Dimming speed relative. The actual Kelvin change range depends on configured min/max colour-temperature limits. Note: This object is hidden when Dim-to-Warm function is enabled.
Dimming absolute transition(brightness and kelvin)	6bytes, CW, Brightness colour temperature transition (DPT 249.600)	TW	Simultaneously set brightness, colour-temperature and transition time. Byte0: Enable mask; bit0=Brightness enable, bit1=Colour-Temp enable, bit2=Transition-time enable. Byte1: Target brightness; Byte2-3: Target colour-temperature; Byte4-5: Transition-time (unit:100ms). Example: Brightness 50%, colour-temperature 3815K, transition time 2s. Time Period =0x14 (Unit =100ms, 20 ×100ms =2s). Absolute Colour Temperature =0x0EE7. Absolute Brightness =0x80. Mask =0x07 (Bit0 Brightness enable; Bit1 Colour enable; Bit2 Time Period enable). ETS telegram example: $14 $00 $EE $07 $80 $07
Status colour temperature(Kelvin)	1byte, CW, Absolute colour temperature (Kelvin) (DPT 7.600)	TW	Feedback current actual output colour-temperature value of device.
Status colour temperature out of range	1bit, CRT, Alarm (DPT 1.005)	TW	Report whether current Kelvin value is within database-configured limits. alarm(1) = out-of-range; no alarm(0) = within range. Once an out-of-range event occurs, the alarm bit stays at 1 until Kelvin value is modified back within valid limits.

Supplementary Note：
Position Control Scenes / Standard Scenes / Lock Function / Staircase Light / Timed Dimming: Identical to Single Channel Mode.

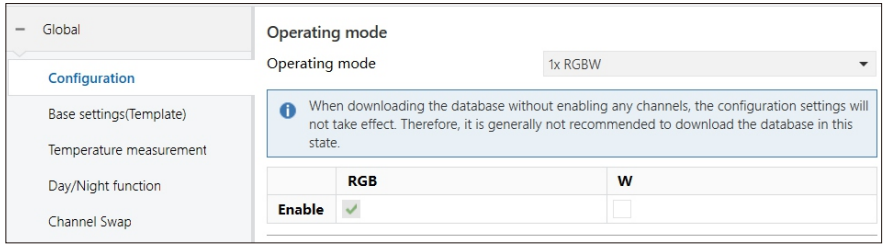
4.Reference ETS Parameters

4.1 General Parameters

This chapter covers device-level global configurations. All parameters take effect uniformly for all output channels and all operating modes (Single Color / Dual CCT / RGBW) of the device; individual modification for a single channel is not supported.

4.1.1 Operating Mode

This subsection configures underlying hardware channel allocation. Its core function is to select the overall operating mode of the driver, redefine the functional combination of the four hardware output channels, and match different types of lighting loads including single-color dimming, dual color temperature, and RGBW color fixtures. Any configuration change applies globally to the whole device.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Operating mode	• **4× dimming channels** • 2× colour temperature • 1× RGBW • 1× colour temperature + 2× dimming channels	Select operating mode according to the type of lighting load.
Valid only when Operating mode is set to [4× dimming channels]		
Channel 1~4 enable	• not active • active	Controls hardware output enable of channels 1 to 4. • not active: Channel disabled, no output • active: Channel enabled, dimming output supported
Valid only when Operating mode is set to [1 colour temperature channel + 2×dimming channels]		
TW 1	• not active • active	Colour temperature TW channel hardware output enable. • not active: Channel disabled, no output • active: Channel enabled, colour temperature adjustment supported
Channel 3 enable	• not active • active	Channel 3 dimming hardware output enable. • not active: Channel disabled, no output • active: Channel enabled, dimming output supported
Channel 4 enable	• not active • active	Channel 4 dimming hardware output enable. • not active: Channel disabled, no output • active: Channel enabled, dimming output supported
Valid only when Operating mode is set to [2× colour temperature]		
TW 1 enable	• not active • active	Channel 1 colour temperature hardware output enable. • not active: Channel disabled, no output • active: Channel enabled, colour temperature adjustment supported
TW 2 enable	• not active • active	Channel 2 colour temperature hardware output enable. • not active: Channel disabled, no output • active: Channel enabled, colour temperature adjustment supported
Displayed only when Operating mode selects 1× RGBW		
RGB enable	• not active • active	RGB three-colour channel hardware output enable. • not active: RGB channels disabled, no colour light output • active: RGB channels enabled, colour mixing & colour shifting supported
W enable	• not active • active	White W channel hardware output enable. • not active: White channel disabled, no white light output • active: White channel enabled, white light dimming supported

Sub-section references corresponding to Operating mode options：

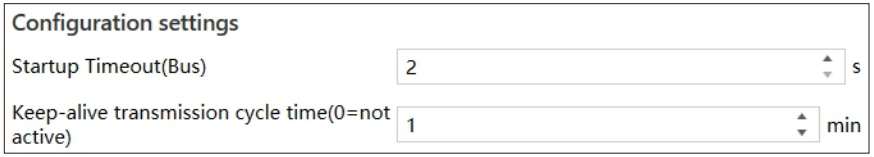
- 4×dimming channels ：4.9.1 Four Independent Single-Channel Mode
- 2×colour temperature：4.9.2 Dual-Channel Colour Temperature Mode
- 1×RGBW：4.9.3 RGBW Mode
- 1×colour temperature +2×dimming channels：
  4.9.4 1× Colour Temperature Channel + 2× Dimming Channels Mode

Note: Refer to Section 1.5 Wiring Diagram for hardware wiring. The wiring must match the selected operating mode; otherwise, abnormal lighting control will occur.

4

4.1.2 Bus Startup Timeout Period

This parameter defines the maximum waiting duration for device initialization after bus power recovery or power-up.After power-on, the device will wait within this time window for bus synchronization and receive initialization telegrams. Once the timeout period expires, the device will automatically exit the waiting state and enter normal operating mode regardless of whether the bus communication has finished initialization.



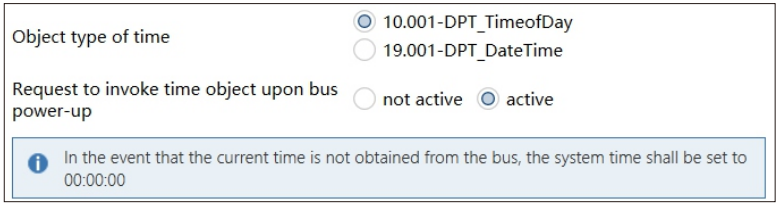
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Startup Timeout(Bus)	2-60 s [**2S**]	Bus startup timeout period, the maximum waiting time for the device to stabilize the KNX bus after power-up. The device will enter normal operating state once the timeout expires.
Keep-alive transmission cycle time(0=notactive)	0-30000 min [**1 min**]	Period for automatic device status transmission; set to 0 to disable cyclic automatic reporting function.

- For small & medium-scale KNX systems with few addresses: 2~5s is sufficient by default.
- For large building projects with heavy bus load and clock/timer modules: 10~30s is recommended to avoid abnormal communication during power-up initialization.

4.1.3 Time Object Configuration

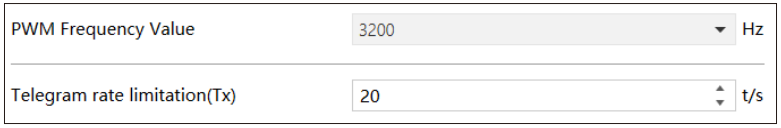
This section configures the communication object type for synchronizing system time from the KNX bus, and defines whether the device requests time automatically after bus power-up. The acquired time data is used for the Day/Night function.
Note:
If valid time cannot be retrieved from the bus, the internal system time of the device will be initialized to 00:00:00.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Object type of time	• **10.001-DPT_TimeOfDay** • 19.001-DPT_DateTime	Select the datapoint type for receiving time from KNX bus: • 10.001-DPT_TimeOfDay: Transmits weekday, hour, minute and second, recommended for standard lighting projects. • 19.001-DPT_DateTime: Full date & time frame including year, month, day, DST flag and validity bits. Only weekday and time values are processed by this driver.
Request to invoke time object upon bus power-up	• not active • **active**	Defines behaviour after KNX bus power recovery: • not active: No active time request; wait for periodic telegram from time master. • active: The device actively sends a request to synchronize time after bus startup

4.1.4 Other Configurations



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
PWM Frequency Value	200–20000 Hz **[3200]**	Carrier frequency for LED dimming PWM signal. 3200Hz is recommended to effectively suppress low-frequency flicker.
Telegram rate limitation(Tx)	5-50 t/s **[20]**	Limit the maximum number of KNX telegrams transmitted per second by the device to avoid bus congestion and improve communication stability.

4.2 Basic Settings

This section covers global base configuration for the driver, used to uniformly set the dimming response curve of the whole unit. Parameters take effect globally for all output channels including single channel, dual CCT and RGBW. Two built-in dimming algorithms are available: linear and DALI logarithmic. Users can select according to project scenarios and human visual characteristics to achieve optimized dimming experience for different applications.

4.2.1 Dimming Curve

The actuator provides linear and logarithmic dimming curves.
For linear dimming curve: The signal sent to the driver changes linearly and increases at a constant rate.
For logarithmic dimming curve: The signal to the driver changes slowly at low brightness levels and changes faster at high brightness levels.

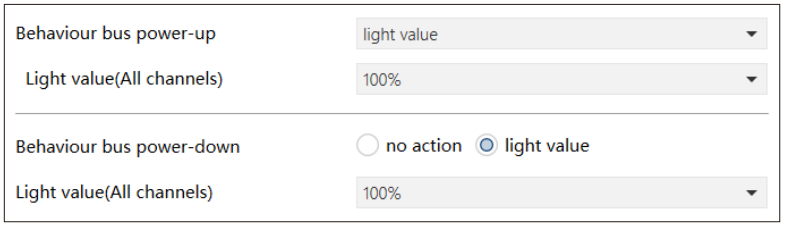


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Dimming curve	• **log(DALI)** • linear	• linear：Linear dimming, brightness output has linear relationship with input signal • log (DALI)：Logarithmic dimming, brightness output follows standard DALI logarithmic curve, formula： Y = 10^((((x-1)/254)/3)-1) Where Y = actual brightness value, x = input signal value ranging from 0~255.

4.2.2 Bus Power Behaviour

This section configures the output status of LED channels when KNX bus power is restored or bus communication is lost.

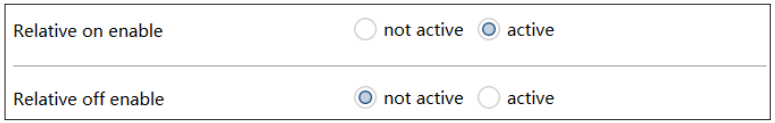


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Behaviour bus power up	• off • on • last value • **light value**	Defines the channel action executed after KNX bus power-up. If Switch, Dimm or other telegrams are received during the startup waiting period, this setting will be ignored and the received telegram will take priority after waiting expires. Note: last value refers to the brightness level before bus power loss; its definition differs from the subsequent Switch-on value/last value.
Light value (All channels)	0% - 100% **[100%]**	Fixed output brightness value applied to all channels.
Behaviour bus power-down	• no action • **light value**	Action triggered upon KNX bus failure: • no action: Maintain current light output; • light value: Switch all channels to defined brightness.
Light value (All channels)	0% - 100% **[100%]**	Target brightness for all channels, active when power-down behaviour = light value.

4.2.3 Relative Dimming Control

This section defines the rules for relative dimming commands. It configures whether relative dimming telegrams can switch the output ON from OFF state and whether relative dimming can bring brightness down to OFF.

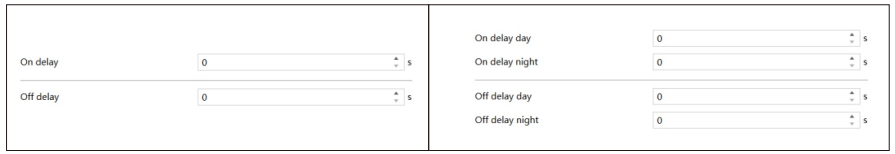


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Relative on enable	• not active • **active**	Controls whether relative dimming can activate output when the device is OFF. • not active: Activation prohibited. • active: Activation allowed (default)
Relative off enable	• **not active** • active	Controls whether relative dimming can set output to OFF state. • not active: Cannot reach OFF; brightness can only be reduced to minimum level. • active: Can adjust output to OFF

4.2.4 Parameter Configuration for Switch Action Delay

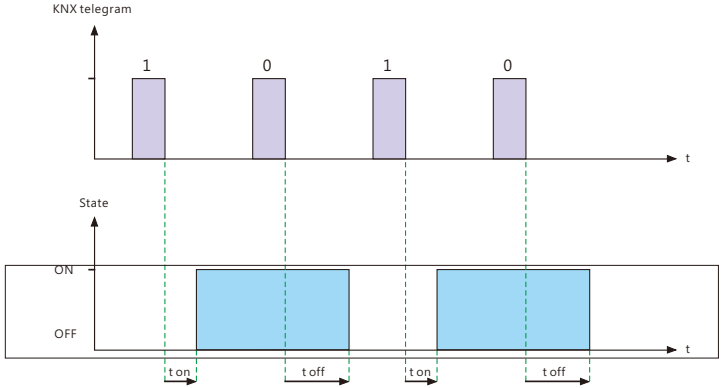
The dimmer actuator supports delayed execution for switch-on and switch-off commands. Two configuration modes are available: global unified setting, and separate day/night settings. The interface switches automatically when the day/night function is enabled.
Delay only postpones the start of dimming action and does not change the dimming transition speed; the two delay parameters can be used in combination.



The table below lists the available values and descriptions for these parameters.

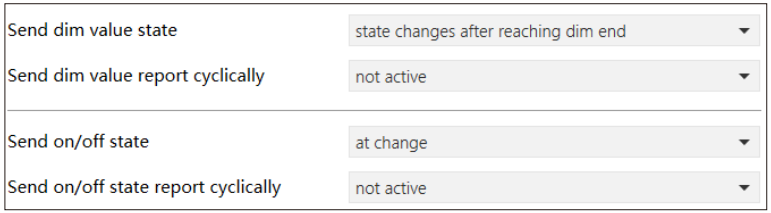
Parameter	Valid Values	Description
On delay	0-60s **[0s]**	When output is OFF and a Switch-On/OFF telegram with value ON is received, the dim-on action will start after the specified delay time.
Off delay	0-60s **[0s]**	When output is ON and a Switch-On/OFF telegram with value OFF is received, the dim-off action will start after the specified delay time.

The diagram below illustrates the functional principle of these two features; both functions are activated in this example.



4.2.5 Bus Feedback Settings for Status & Brightness

This section configures the rules for reporting light brightness and switch status to the bus. Users can separately set trigger conditions for on-demand reporting and the interval for periodic cyclic reporting.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Send dim value state	• not active • **state changes after reaching dim end** • always at input of telegram	• not active: Do not send current brightness value feedback to the bus. • state changes after reaching dim end: Send current brightness value to bus only when dimming sequence is completed and state has changed. • always at input of telegram: Upon receiving dimming telegram, report relevant brightness status to bus after dimming completes.
Send dim value report cyclically	• **not active** • 3s-60min	Cyclic reporting interval for brightness value. (Only valid when Send dim value state is set to state changes after reaching dim end or always at input of telegram)
Send on/off state	• not active • **at change** • always at input of telegram	• not active: Do not feed current switch status to the bus • at change: Report current switch status to the bus whenever status changes • always at input of telegram: Upon receiving dimming telegram, report relevant ON/OFF status to bus after dimming completes.
Send on/off state report cyclically	• **not active** • 3s-60min	Set cyclic reporting interval of on/off status to the bus. (Only valid when Send on/off state is set to at change or always at input of telegram)

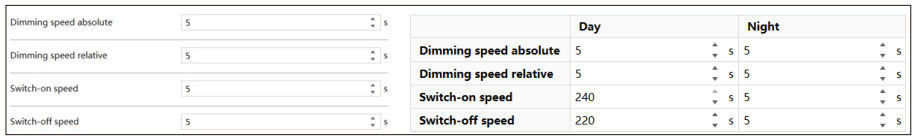
4.2.6 Dimming Speed Parameter Settings

Note: This hardware supports two configuration interfaces, switched by the Day/Night function.

①When Day/Night function is disabled: Left interface, single set of global parameters applies universally.

② When Day/Night function is enabled: Right interface, independent parameter sets for Day and Night will switch automatically.

All dimming logic and duration calculation formulas are identical for both modes; only parameter storage capacity and value upper limits Differ.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Dim speed for absolute dimming	0-120s **[5s]**	Defines the dimming rate for absolute dimming objects. Definition: The time required for a 100% brightness variation. Formula: Actual dimming time = Set value ×Brightness change ratio ・0% →100% (100% change): If set to 10s, duration = 10s ×100% = 10s ・100% →50% (50% change): If set to 10s, duration = 10s ×50% = 5s
Dim speed for relative dimming	1-120s **[5s]**	Defines the dimming rate for relative (step) dimming objects. Core definition: Reference dimming time for a 100% brightness variation. Formula: Actual dimming time = Set value ×Step change ratio ・Example: Set to 5s, single 50% step change: Duration = 5s ×50% = 2.5s
Switch-on speed	0-240s **[5s]**	Defines the dimming rate when the channel transitions from OFF to target brightness. Core definition: Reference turn-on time for brightness rising from 0% to 100%. Formula: Total duration = On delay + (Set value ×Target brightness percentage) ・Example: Set to 10s, target brightness 50%, On delay = 2s: Total duration = 2s + (10s ×50%) = 7s
Switch-off speed	0-240s **[5s]**	Defines the dimming rate when the channel transitions from current brightness to OFF. Core definition: Reference turn-off time for brightness falling from 100% to 0%. Formula: Total duration = Off delay + (Set value ×Current brightness percentage) ・Example: Set to 10s, current brightness 50%, Off delay = 2s: Total duration = 2s + (10s ×50%) = 7s

4.3 Temperature Measurement

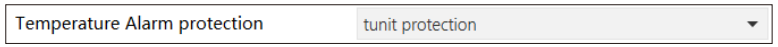
This function can be used to report ambient temperature or monitor the internal temperature of the device, upload measured values, and trigger an alarm when readings exceed the threshold.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Active temperature measurement	・not active ・**active**	Enable/disable temperature measurement function ・not active: Temperature sampling, periodic reporting and software over-temperature protection are disabled; only hardware over-temperature protection remains effective. ・active: Real-time temperature collection of the whole device is enabled, and all configuration items in this chapter are unlocked.
Send temperature report cyclically	・**not active** ・1-60min	Periodically transmit temperature data to the supervisory system. ・not active: Data is uploaded only when an over-temperature alarm is triggered, no scheduled cyclic upload. Specified duration: Real-time temperature data is pushed cyclically at the set interval. Note: Tunit refers to the internal temperature of the power supply unit; Tamb denotes ambient temperature converted via correction coefficients.

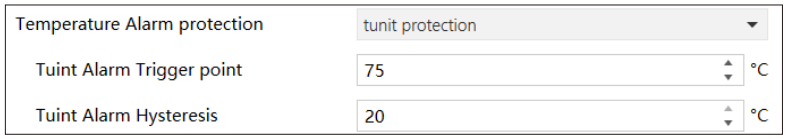
4.3.1 Selection of Over-Temperature Protection Mode



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Temperature Alarm protection	・not active ・**tunit protection** ・tamb protection	Software over-temperature protection working mode. ・not active: Software over-temperature protection is disabled; only hardware fail-safe over-temperature protection is retained. ・tunit protection: Trigger over-temperature protection based on the measured internal temperature of the power supply unit. ・ tamb protection: Trigger protection according to equivalent ambient temperature converted via compensation coefficients.

4.3.1.1 Valid parameters when tunit protection is selected

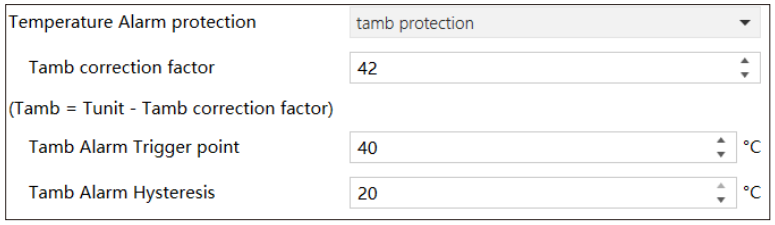


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Tunit Alarm Trigger point	25~85℃ **[75℃]**	The threshold for triggering the overheating alarm of the main body must be set below the hardware protection point of 90 ℃.
Tunit Alarm Hysteresis	5~20℃ **[20℃]**	Temperature alarm return difference; The over temperature alarm is only lifted when the temperature drops below the 「alarm threshold - return temperature」.

4.3.1.2 Valid parameters when tamb protection is selected

Conversion formula：Tamb = Tunit – Tamb correction factor



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Tamb correction factor	0~50℃ **[42℃]**	Compensation coefficient for the temperature difference between internal unit temperature and actual ambient temperature, used to calculate equivalent ambient temperature.
Tamb Alarm Trigger point	25~85℃ **[40℃]**	Threshold to trigger over-temperature alarm for converted ambient temperature.
Tamb Alarm Hysteresis	5~20℃ **[40℃]**	Hysteresis value for clearing ambient temperature alarm.

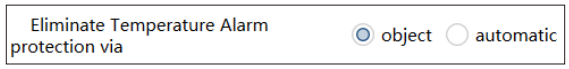
4.3.2 Channel Output Behavior Upon Over-Temperature Protection Trigger



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Behaviour of each channel after protection activation	• off • Limit maximum brightness	Execution action of each channel after over-temperature protection is triggered • off: Directly shut down all channel outputs; dimming, timing, scene and other operations are locked during protection. The system will automatically restore the original working state after temperature recovers. • Limit maximum brightness: Output will not be cut off; the maximum brightness of channels is restricted. Functions including locking, automatic fade dimming and light sequences can run normally.
Limit maximum brightness value of each channel	1%~100% **[80%]**	Maximum allowable output brightness of all channels during over-temperature protection. The actual effective upper limit takes the smaller value between this setting and the inherent maximum brightness of the single channel.

4.3.3 Temperature Alarm Clearing Mode

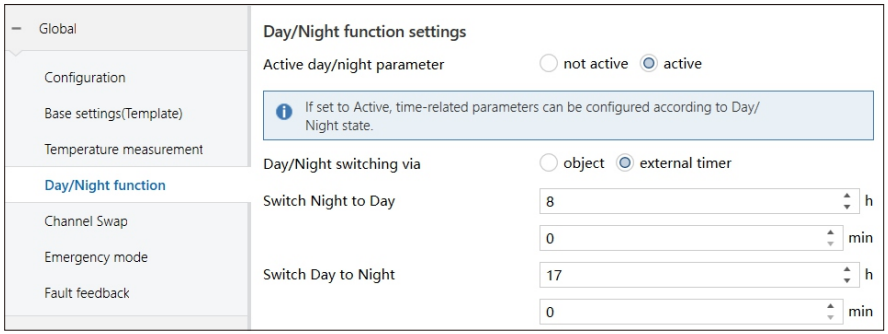


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Eliminate Temperature Alarm protection via	• **object** • automatic	Clearing method for temperature alarm protection. • automatic: The system automatically clears the alarm and exits the protection state once the temperature drops below the release threshold. • object: Automatic recovery will not be triggered even after the temperature returns to normal. The alarm must be manually cleared by issuing commands via KNX communication objects.

4.4 Day/Night Zoning Function

This is a global device function, used to divide operation into Day and Night time segments. Parameters such as switch-on brightness, dimming speed and action delay can be automatically switched according to schedule, to achieve differentiated lighting logic for day and night.



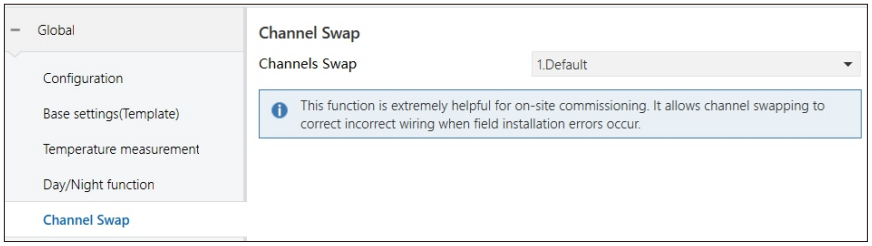
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Active day/night parameter	• **not active** • active	Enable independent parameter sets for day and night mode. • not active: Day/night differentiation disabled; device uses one unified set of dimming and delay parameters. • active: Day/night mode enabled; device loads corresponding day / night parameters (dimming speed, delay settings) based on current time segment.
Day/night switching via	• object • **internal timer**	Defines the signal source for day/night status detection. • object: Switching controlled via KNX bus [Day/Night] object telegram. • internal timer: Automatic switching according to configured sunrise / sunset time.
Switch Night to Day	0-23(h) **[8]** 0-59(min) **[0]**	Sets hour value for start of daytime mode. (Only valid when Day/night switching via = internal timer)
Switch Day to Night	0-23(h) **[17]** 0-59(min) **[0]**	Sets hour value for start of nighttime mode. (Only valid when Day/night switching via = internal timer)

Note for internal timer mode:
As shown in the configuration example, when internal timer is selected, the period from 08:00 sunrise to 17:00 sunset is defined as daytime; 17:00 until next 08:00 is nighttime.
The internal timer will reset to 00:00 after device power loss. Time settings must be reconfigured to ensure normal day/night switching.

4.5 Channel Swap

This function is used to rectify incorrect wiring during on-site commissioning. There is no need to rewire the external cables of the luminaire; the control logic of two output channels can be swapped via internal software mapping to adapt to scenarios with field wiring errors.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Channels Swap	• **1.Default** • Multiple channel swap modes	1. Default: Original default channel mapping, one-to-one correspondence without channel swapping; 2. Other options implement internal logic swapping between two designated output channels;Application example: If the red signal wire is mistakenly connected to the G output terminal on site, rewiring is unnecessary. Select the corresponding swap scheme to exchange the control signals of the R and G channels at software level for normal operation.

4.6 Emergency Mode

Priority sequence of emergency mode: Emergency Lighting Mode > Over-temperature Protection(OFF)> Block Lock > Permanent ON (Staircase Light Mode)> other conventional functions

After the device enables global emergency function, outputs will be locked to preset parameters once emergency is triggered; configured closing actions will be executed after exiting emergency mode.

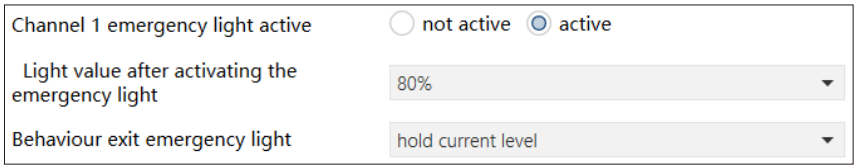


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Global emergency light active	• not active • active	• active: Enable the device-wide emergency capability; each channel can activate emergency mode independently. When over-temperature protection is triggered, emergency operation logic is also restricted by the channel exit behavior parameters.
Send emergency light state cyclically	• not active • 1-60min	Periodically transmit temperature data to the supervisory system; not active means periodic report is disabled.

4.6.1 Single Channel Emergency Configuration

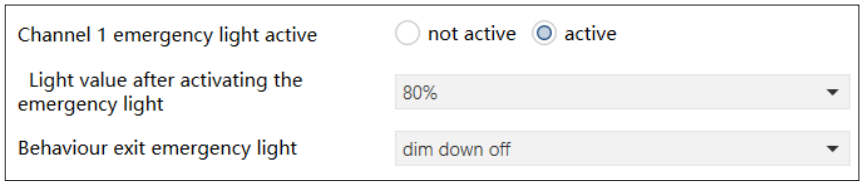
Normal Dimming Mode



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Channel X emergency light active	• not active • **active**	Independent enable switch for emergency function of the corresponding channel.
Send emergency light state cyclically	0% - 100% **[80%]**	Fixed brightness percentage locked for channel output when emergency mode is triggered.
Behaviour exit emergency light	• **hold current level** • last value • light value	Behaviour after exiting emergency-light mode: 1. hold current level: Maintain the brightness/colour used under emergency-light mode, wait for new user commands. Sequences, auto-dimming over-time and block status active during emergency trigger will not be retained. 2. last value: Restore brightness / status prior to emergency-light activation. - If a sequence was running upon trigger, the sequence will restart from beginning after emergency exit. - If auto-dimming over-time was running upon trigger, auto-dimming will be resumed after emergency exit; output brightness is calculated based on elapsed time. - If block status was active upon trigger, previous block status and output will be kept after emergency exit. 3. light value: Output predefined fixed brightness. Sequences, auto-dimming over-time and block status active during emergency trigger will not be retained.
Light value	0%~100% **[100%]**	Takes effect only when the exit mode is set to light value; fixed brightness forcibly output after exiting emergency mode.

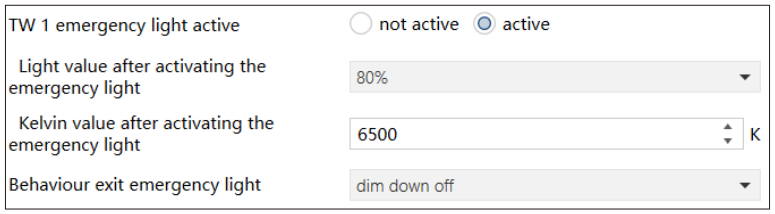
Staircase Light Mode



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Channel X emergency light active	• not active • **active**	Independent switch to enable the emergency function of the corresponding channel.
Send emergency light state cyclically	0% - 100% **[80%]**	Fixed brightness percentage locked for output of this channel when emergency mode is triggered.
Behaviour exit emergency light	• **dim down off** • start time of staircase light • Permanent ON	Execution logic after exiting emergency mode: 1. dim down off: Perform gradual dimming to turn off after exiting emergency; 2. start time of staircase light: Restart a full timing cycle of the staircase light; 3. Permanent ON: Switch to steady-on locked output.

4.6.2 Two-Color Temperature (TW) Channel Emergency Configuration



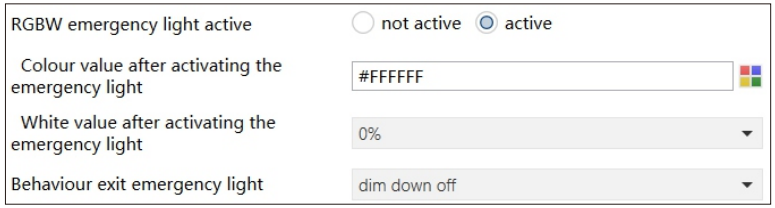
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
TW X emergency light active	• not active • **active**	Main emergency enable switch for the corresponding two-color temperature channel.
Send emergency light state cyclically	0% - 100% **[80%]**	Fixed brightness percentage locked for channel output when emergency mode is triggered.
Kelvin value after activating the emergency light	1500K~10000K **[6500]**	Fixed color temperature locked under emergency status. The interface supports display switching between Kelvin value and cool white ratio percentage.

Exit Emergency Behavior Logic

It uses the same "Behaviour exit emergency light" rules from the conventional dimming mode and staircase light mode mentioned above. When the option light value is selected, users can customize the brightness, cool-white ratio and color temperature after exiting emergency mode.

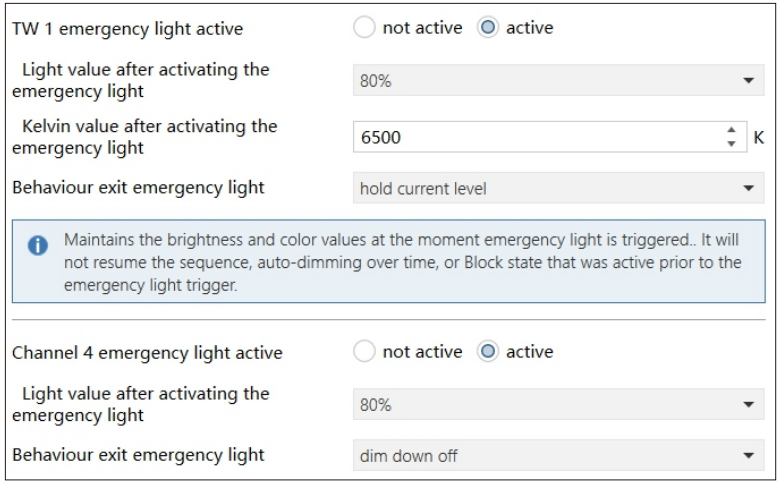
4.6.3 RGBW Channel Emergency Configuration



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
RGBW emergency light active	• not active • **active**	Main emergency enable switch for RGBW channel.
Colour value after activating the emergency light	#000000-#FFFFFF **[#FFFFFF]**	Fixed colour output which is locked when emergency mode is triggered.
White value after activating the emergency light	**0%~100%**	Fixed brightness of white(W) channel under emergency condition.

4.6.4 1×Colour-Temperature+2×Dimming Channels Emergency Configuration



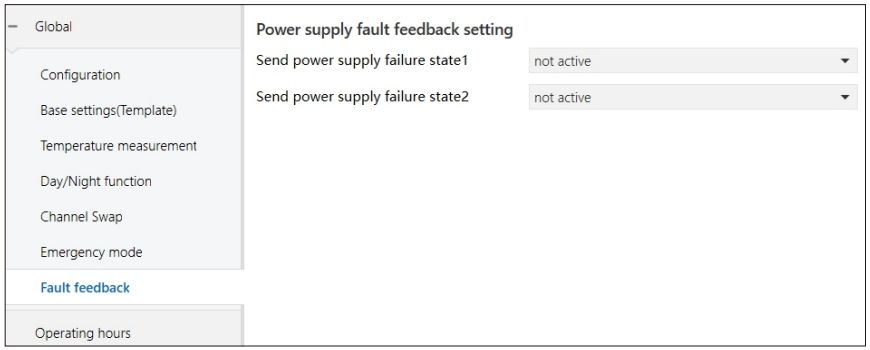
After setting the device Operating mode to 1×colour temperature + 2×dimming channels, all general-purpose parameters and emergency-configuration UI specific to this mode will be loaded automatically. The reuse rules for interface configuration are defined below:

TW1 Colour-Temperature Channel
The displayed UI fields and parameter configuration logic fully adopt the complete definition of the TW1 channel under the 2×colour temperature (dual colour-temperature) mode. The colour-temperature adjustment and emergency-parameter configuration behave identically.

Channel3, Channel4 Independent Dimming Channels
The parameter UI and dimming configuration logic for these two channels reuse the configuration specification of Channel1 in the 4 ×dimming channels (four-channel independent dimming) mode.

4.7 Fault Feedback

The device provides two independent KNX communication fault reporting objects (failure object 1 / failure object 2). Different fault types can be assigned to each object respectively.

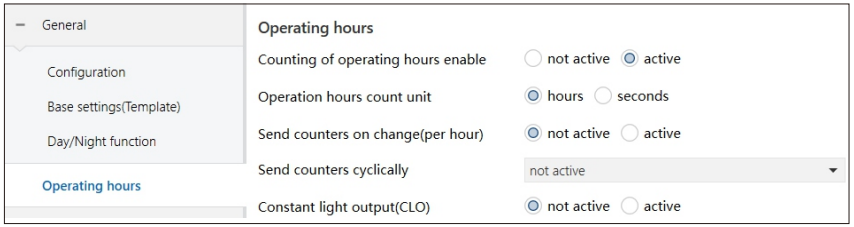


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Send power supply failure state1	• **not active** • any of them • short circuit • power supply off	Configuration of trigger condition for KNX power-supply fault object 1: 1. not active: Alarm disabled, no fault will be reported via this KNX object. 2. any of them: Report when power-supply loss or output short-circuit is detected. 3. short circuit: Send fault telegram only upon LED output short-circuit protection. 4. power supply off: Report only for input power loss or device power-off.
Send power supply failure state2	• **not active** • any of them • short circuit • power supply off	Trigger-condition setting for KNX power-supply fault object 2, fully independent from state1. Different fault types can be bound separately. Faults are reported to distinct KNX group addresses for backend alarm level classification.

4.8 Operating Hour Statistics

This page contains configuration for total operating hour metering. It enables cumulative timing for lamp ON duration, supports customizable time units and data reporting rules. The Constant Light Output (CLO) function is also configured here, facilitating maintenance tasks: tracking cumulative lighting hours, evaluating fixture service life and implementing LED lumen depreciation management.

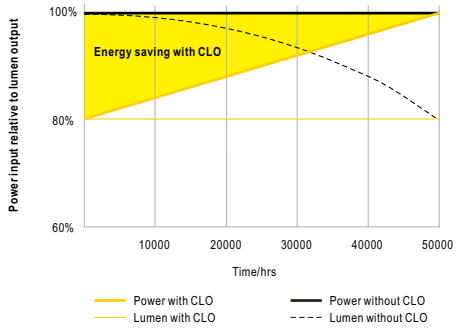


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Counting of operating hours enable	• **not active** • active	Enable / disable cumulative operating hour counter for LED driver. Counting rule: Time accumulates only when output brightness > 0%; no counting when output is OFF. Note: If set to not active, all recorded operating hours inside the device will be cleared and reset to 0 upon parameter download.
Operating hours count unit	• **hours** • seconds	Defines time unit for runtime counter. Note: If seconds is selected, divide reading value by 3600 to convert to hours.
Send counters on change (per hour)	• **not active** • active	Controls whether the KNX object transmits updated runtime value upon counter change. • active: Send current counter to bus immediately when value changes.
Send counters cyclically	**not active** / 10min / 20min / 30min / 40min / 50min / 60min	Sets periodic transmission interval for operating hour counter; transmits current value via KNX object at fixedintervals.
Constant light output (CLO)	• **not active** • active	Enable / disable constant light output function. Function definition: To compensate LED lumen depreciation, the driver automatically adjusts output power according to accumulated operating hours to maintain target brightness. Working logic: Up to 4 time thresholds can be defined, dividing the service life into 5 stages, each assigned a power percentage (CLO factor). Example: Stage1 threshold = 10, CLO=80%; Stage2 threshold = 50, CLO=85% • Operating hours ≤1000h (10 ×100): Output = Target value ×80% • 1000h < Operating hours ≤5000h: Output = Target value ×85% Note: Output adjusted by CLO is still restricted by maximum / minimum brightness limits.
Select the lifetime of connected LED load	• **L70** • L80 • L90 • customize	Select preset lumen maintenance curve matching connected LED load: • L70/L80/L90: Standard default curves following industry lumen maintenance standards, ready for direct use. • customize: Manually define the mapping between operating hours and output power.

Constant light output (CLO)

Lumen depreciation is the luminous flux lost over time and it is irreversible. Generally, luminous flux of lamps without CLO decreases to 80% from 100% after 50,000 hours. In contrast to lamps with CLO, Although luminous flux starts at 80%, it can still be maintained at around 80% even the lamps have been servicing for the same period of 50,000 hours. The method of CLO is that the lumiaire starts its service life at a lower operational current and the current gradually increases over itsservice life to compensate for the LED's light depreciation.



Scheduled division	LED module work time before(x100 hours)	CLO factor
1	100	80%
2	200	83%
3	400	87%
4	500	95%
5		100%

The table below lists the available values and descriptions for these parameters.

ETS-text	Dynamic range [default value]		Comment
Scheduled division 1	1(x100hours) - 500(x100hours) **[100(x100hours)]**	10% - 100% **[80%]**	Parameterizes the first stage of CLO
Scheduled division 2	1(x100hours) - 500(x100hours) **[200(x100hours)]**	10% - 100% **[83%]**	Parameterizes the 2nd stage of CLO
Scheduled division 3	1(x100hours) - 500(x100hours) **[400(x100hours)]**	10% - 100% **[87%]**	Parameterizes the 3nd stage of CLO
Scheduled division 4	1(x100hours) - 500(x100hours) **[500(x100hours)]**	10% - 100% **[95%]**	Parameterizes the 4nd stage of CLO
Scheduled division 5		10% - 100% **[100%]**	Parameterizes the 5nd stage of CLO

The international standard IEC TM-21-11 defines the lumen depreciation of LED as follow:

- L70：The illumination is reduced to 70% after 50,000 hours of use
- L80：The illumination is reduced to 80% after 50,000 hours of use
- L90：The illumination is reduced to 90% after 50,000 hours of use

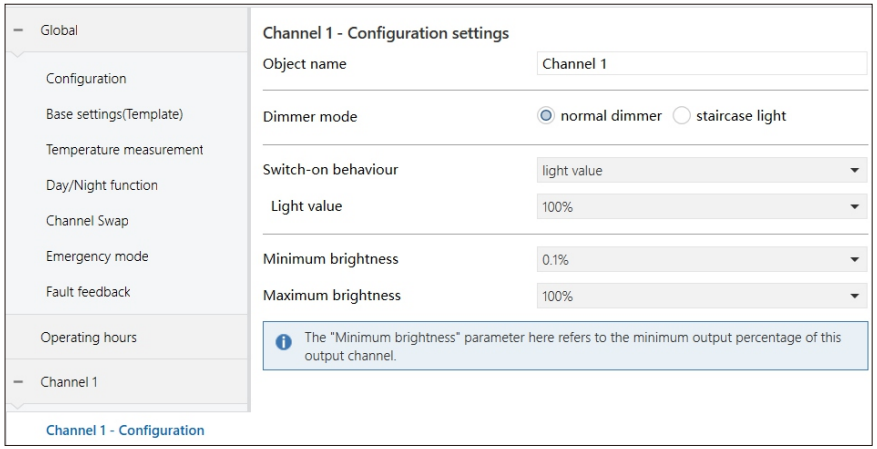
4.9 Submenu

4.9.1 Four Independent Single Channel Mode

This mode divides the driver into four independent single-color dimming channels, suitable for downlights, spotlights, low-voltage LED strips and other single-color lighting zoning control. Widely applied in residential, retail and office multi-circuit lighting.Configuration rules are identical for all four channels. Channel 1 is fully explained below; Channel 2~Channel 4 configuration shall follow this template.

4.9.1.1 Channel 1 Parameter Configuration

This page contains base channel configuration, used to define object name, dimming operating mode, power-up action rules and brightness upper/lower limits; these are fundamental settings for single-channel lighting control.



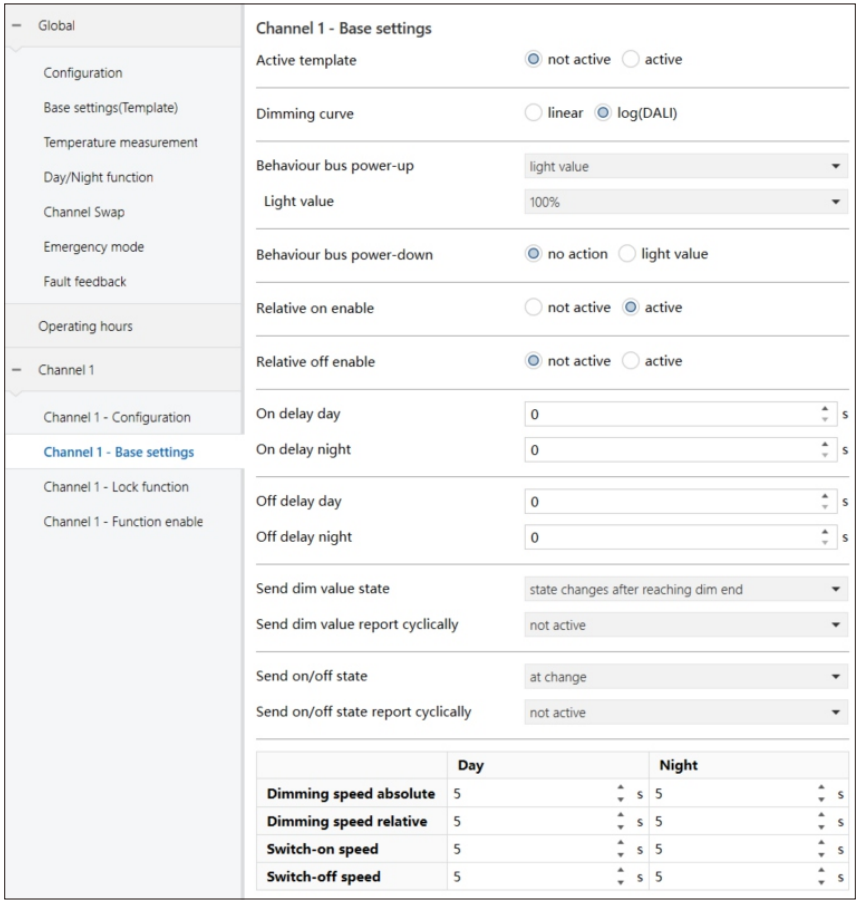
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Object name	Channel 1	custom channel name.
Dimmer Mode	• **normal dimmer** • staircase light	Select dimming operating mode: normal dimming / staircase lighting.
Switch-on behavior	• light value • **light value with day/night** • last value • last value with day/night	Defines output action upon receiving switch-on telegram. • light value: Turn on with preset fixed brightness. • light value with day/night: Apply different brightness according to day/night status. • last value: Restore brightness level before switch-off. • last value with day/night: When day/night function is active, restore corresponding brightness for current time segment.
Minimum brightness	0.1%-99% **[0.1%]**	Defines lower brightness limit of the channel.
Maximum brightness	1%-100% **[100%]**	Defines upper brightness limit of the channel.

Parameter	Valid Values	Description
Value of switch-on	0-100% **[100%]**	Fixed brightness value for switch-on. (Only visible when Switch-on behaviour = light value)
Value of switch-on day	0-100% **[100%]**	Switch-on brightness for daytime period. (Only visible when Switch-on behaviour = light value with day/night)
Value of switch-on night	0-100% **[100%]**	Switch-on brightness for nighttime period. (Only visible when Switch-on behaviour = light value with day/night)

4.9.1.2 Basic Settings

Channel 1 Base Settings. This section defines the fixture dimming curve, bus power-up recovery behaviour, switch response logic and status feedback rules, to achieve stable, comfortable KNX dimming performance.



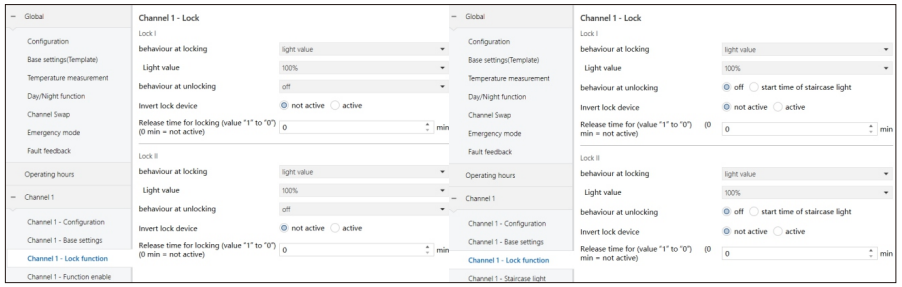
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Active template	• **not active** • active	Enable global template. When active, parameters below will be hidden and the preset configuration from [Base setting (Template)] will be applied uniformly.
Dimming curve	• linear • **log(DALI)**	Select dimming curve mode: • linear: Linear dimming • log(DALI): Logarithmic dimming, optimized for human visual perception with softer performance at low brightness.
Behaviour bus power up	• off • on • last value • **light value**	Fixture action upon restoration of KNX bus supply: • off: Remain switched off • on: Switch on at maximum brightness • last value: Restore brightness state before bus power loss • light value: Switch on with custom fixed brightness ⚠ Only off / on options are available under staircase light mode.
Light value	0-100% **[100%]**	Fixed switch-on brightness value applied after bus power restoration. (Only visible when Behaviour bus power up is set to light value)
Behaviour bus power-down	• no action • **light value**	Action triggered upon KNX bus failure: • no action: Maintain current light output; • light value: Switch channels to defined brightness.
Light value	0-100% **[100%]**	Target brightness for channels, active when power-down behaviour = light value.
Relative on enable	• not active • **active**	Define whether relative dimming commands can switch on the light. • not active: Prohibit activation; independent Switch-On telegram is required. • active: Allow relative dimming to turn on the fixture.
Relative off enable	• not active • **active**	Define whether relative dimming commands can switch off the light. • not active: Prohibit direct OFF; independent Switch-Off telegram is required. • active: Allow relative dimming to turn off the fixture.
On delay day	0-60s **[0]**	Delay time before light switches ON when an ON command is received during daytime.
On delay night	0-60s **[0]**	Delay time before light switches ON when an ON command is received during nighttime.
Off delay day	0-60s **[0]**	Delay time before light switches OFF when an OFF command is received during daytime.
Off delay night	0-60s **[0]**	Delay time before light switches OFF when an OFF command is received during nighttime.

Parameter	Valid Values	Description
Send dim value state	• not active • **state changes after reaching dim end** • always at input of telegram	Defines reporting method for brightness status: • not active: Brightness feedback disabled. • state changes after reaching dim end: Feed back current brightness value to the bus after dimming completes and state changes. • always at input of telegram: Upon receiving dimming telegram, report relevant brightness status to the bus after dimming finishes.
Send dim value report cyclically	• **not active** • 3s-60min	Cyclic reporting interval for brightness value. (Only valid when Send dim value state is set to state changes after reaching dim end or always at input of telegram)
Send on/off state	• not active • **at change** • always at input of telegram	Mode for switch status feedback: • not active: Disable switch status feedback. • at change: Transmit switch status immediately upon any status change. • always at input of telegram:Upon receiving switch telegram, report relevant switch status to the bus after the switch action finishes.
Send on/off state report cyclically	• **not active** • 3s-60 min	Interval for cyclic automatic switch status transmission, used for periodic system status verification. (Only valid when Send on/off state = at change)
Dim speed for absolute dimming	day: 0-120s **[1]** night: 0-120s **[5]**	Transition duration for absolute dimming commands: total time for brightness transition linearly from current value to target value. Larger brightness variation results in longer actual transition time. Independent day/night configuration supported.
Dim speed for relative dimming	day: 1-120s **[1]** night: 1-120s **[5]**	Response speed for relative (step) dimming commands. Larger step change leads to longer actual transition time. Independent day/night configuration supported.
Switch-on speed	day: 0-240s **[5]** night: 0-240s **[5]**	Transition duration for switch-on action: transition time from OFF state to target brightness. Independent day/night configuration to avoid uncomfortable glare from instant switch-on.
Switch-off speed	day: 0-240s **[5]** night: 0-240s **[5]**	Transition duration for switch-off action: transition time from current brightness to OFF state. Independent day/night configuration to avoid uncomfortable abrupt blackout.

4.9.1.3 Lock Function

Channel lock function is used to configure two-level access control rules for lighting loads. When locked, incoming control telegrams will be suppressed, forcing the fixture to operate under a fixed state. Normal control is restored after unlocking. This function is widely used in public areas, hotel guest rooms and other scenarios requiring permission management.

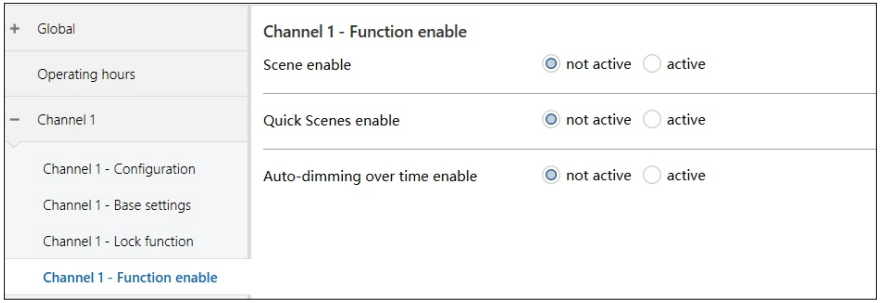


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Lock I / Lock II	–	Two independent lock configurations supporting hierarchical control for different access levels. Lock I has higher priority.
behaviour at locking	• off • no change • **light value**	Fixture action upon receiving lock command: • off: Force output OFF • no change: Keep current state and block subsequent control telegrams • light value: Switch on with preset fixed brightness
Light value	0.1% -100% **[100%]**	Target brightness value activated upon locking. (Only valid when behaviour at locking is set to light value)
behaviour at unlocking	Normal mode : • **off** • no change • light value Staircase light mode : • **off** • start time of staircase light	Fixture action upon receiving unlock command: Normal mode: • off: Turn off after unlock • no change: Maintain state before locking • light value: Turn on with preset brightness Staircase light mode extra option: start time of staircase light: Restart the staircase light sequence after unlock (staircase mode only)
Invert lock device	• **not active** • active	Invert lock logic: • not active: 1 = Lock, 0 = Unlock • active: 0 = Lock, 1 = Unlock
Release time for locking	0-600min **[0]**	Auto-unlock timer. If value ⩾0: After receiving lock command, device will automatically unlock upon timeout and execute the behaviour at unlocking action (when Lock II is idle). 0 min: Auto-unlock disabled; manual unlock telegram is required.

4.9.1.4 Function Enable Settings

Channel function enable controls activation of advanced features including scenes, quick scenes and scheduled auto-dimming. This section contains master switches for auxiliary functions. The following description is based on normal dimmer mode.

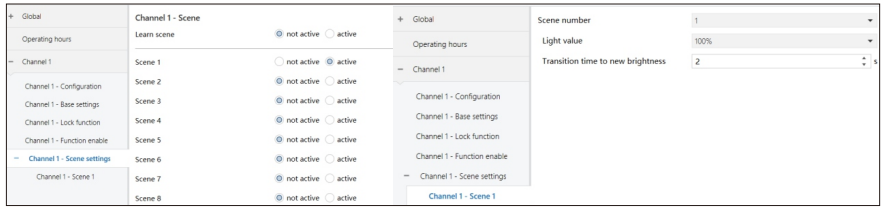


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Scene enable	• **not active** • active	Master switch for standard scene function. When active, the channel accepts KNX scene telegrams to recall preset lighting states (e.g. reception mode, cinema mode brightness settings).
Quick Scenes enable	• **not active** • active	Master switch for quick-scene function. When active, multi-bit values within one KNX object can trigger multiple scenes simultaneously, suitable for applications requiring fast switching between numerous scenes.
Auto-dimming over time enable	• **not active** • active	Master switch for scheduled automatic dimming. When active, fixtures can be configured to gradually adjust brightness over time (e.g. brightening at sunrise, gradual fade before bedtime). Corresponding time and brightness configuration items will appear after enabling.

4.9.1.4.1 Scene Settings

This subsection configures KNX standard scenes 1~8. Scene parameters can be entered manually or learned on the bus on-site. When a command with the corresponding scene number is received, the fixture automatically switches to the preset brightness state. This function is widely used for one-touch whole-house scene linkage.

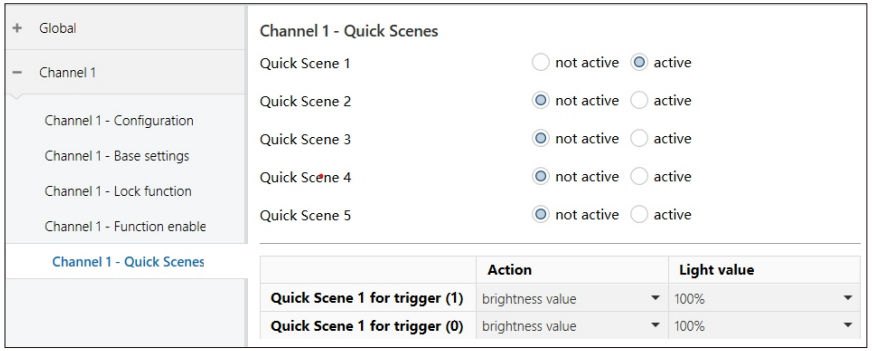


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Learn scene	• **not active** • active	Master switch for scene learning function. • not active: Scene learning disabled; brightness values must be manually configured inside ETS software. • active: Scene learning enabled; the current fixture brightness can be saved as the target value of the corresponding scene via bus telegrams.
Overwrite values stored in the deviceduring ETS programming operation	• **not active** • active	When enabled, stored scene parameters inside device will be overwritten upon ETS download.When disabled, no overwriting will be performed.
Scene 1~Scene 8	• **not active** • active	Enable switch for each scene. Only scenes set to active can receive and execute scene telegrams.
The following parameters are only available after the corresponding scene is enabled.		
Scene X number	1-64 **[1]**	Scene number, used to match scene commands transmitted over the KNX bus.
Light value	0-100% **[0%]**	Target brightness value executed when the scene is triggered.
Transition time to new brightness	1-240s **[2]**	Brightness transition duration during scene switching, to avoid visual discomfort caused by instantaneous brightness changes.

4.9.1.4.2 Quick Scenes

This function supports 1-bit dual-state scene control. Each quick scene is linked to one KNX switch object (telegram 0/1), where two lighting actions can be defined separately. A single button can cycle between two lighting states. The device supports up to 5 independent quick scenes for separate zone lighting control, suitable for residences, hotels, retail and office applications.

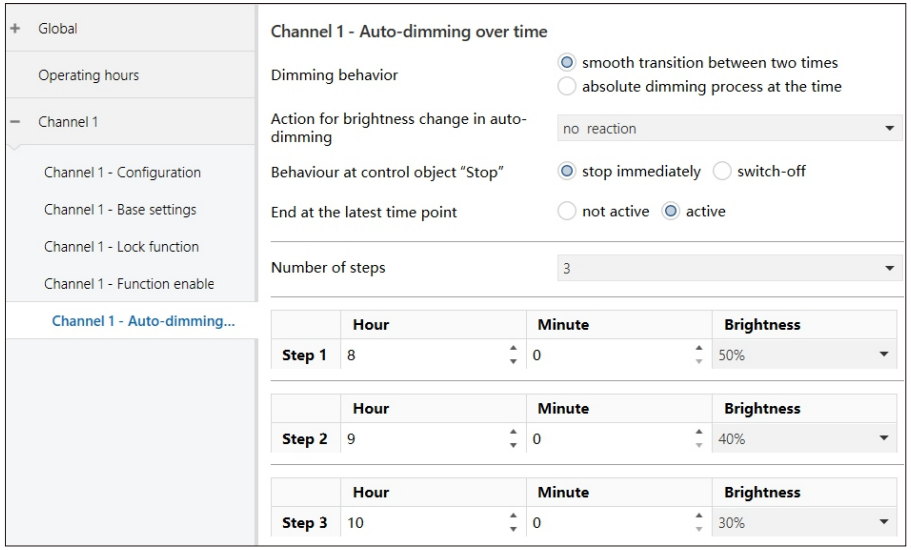


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Quick scene 1~5	• **not active** • active	Quick scene enable switch. Only scenes set to active will receive and execute corresponding bit commands.
Quick scene X for trigger "1" action	• **brightness value** • switch-on value • no change	Fixture behaviour upon receiving bit object value = "1": • brightness value: Switch to preset brightness • switch-on value: Execute switch-on action (turn on with preset switch-on brightness) • no change: Maintain current status
Quick scene X for trigger "0" action	• **brightness value** • switch-on value • no change	Fixture behaviour upon receiving bit object value = "0": • brightness value: Switch to preset brightness • switch-on value: Execute switch-on action (turn on with preset switch-on brightness) • no change: Maintain current status
The following parameters are only displayed when brightness value is selected for the two above actions.		
Brightness value	0-100% **[0%]**	Target brightness value when the Quick scene is triggered.

4.9.1.4.3 Auto-dimming over time

Channel timed automatic dimming. This function configures scheduled programs where fixtures gradually adjust brightness at predefined time points. It enables natural light simulation and time-segmented lighting control without manual intervention.



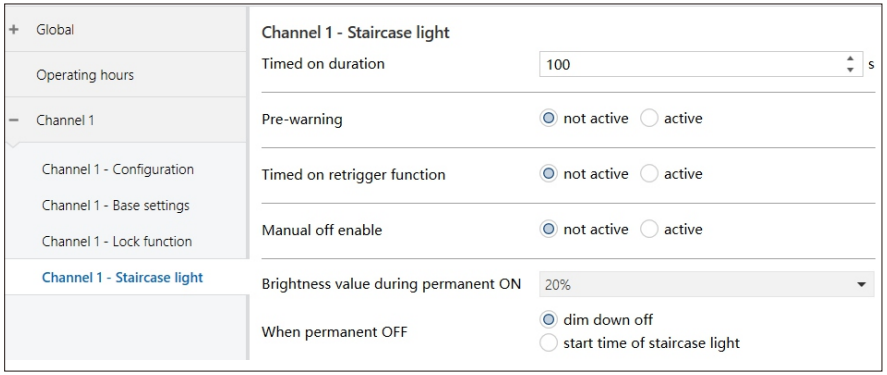
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Dimming behavior	• **Smooth transition between two times** • Absolute dimming process at the time	Defines dimming mode between adjacent time points. • Smooth transition: Brightness fades gradually between two time points, adjusting brightness once per minute for seamless transition. • Absolute dimming process at the time: Jump directly to target brightness at the scheduled time without fade transition.
Action for brightness change in auto-dimming	• **No reaction** • Execute action then back to auto-dimming process after delay time • Execute action without back to auto-dimming process	Defines response to external dimming telegrams during auto-dimming operation. • No reaction: Ignore all external dimming commands and continue scheduled execution. • Execute action then back to auto-dimming process after delay time: Adjust brightness temporarily in response to external commands; auto-dimming resumes after the set delay expires. • Execute action without back to auto-dimming process: Respond to external commands and suspend auto-dimming; manual operation is required to resume.

Parameter	Valid Values	Description
Delay time	1min/2min/5min/ 10min/20min/30min/ 1h/2h/5h/at 00:00 **[1 min]**	Waiting duration before auto-dimming resumes after external brightness adjustment. (Only visible when Action for brightness change in auto-dimming is set to Execute action then back to auto-dimming process after delay time)
Behavior at control object "Stop"	• **Stop immediately** • Switch-off	Fixture action upon receiving "Stop" telegram. • Stop immediately: Only suspend auto-dimming; maintain current brightness level. • Switch-off: Suspend auto-dimming and turn off light output.
End at the latest time point	• Not active • **Active**	Logic executed after daily schedule completes. • Not active: Cross-day continuous execution; brightness transitions smoothly from the last time point of current day to the first time point of next day. • Active: Operation stops upon reaching the final time point of the day, holding current brightness; the schedule restarts from the first node on the next day.
Number of steps	2-10 **[10]**	Total number of time-brightness nodes configurable within one day; maximum 10 nodes supported.
Step 1~Step N	Hour(0-23) Minute(0-59) Brightness(0%-100%)	Each node consists of time point and target brightness, used to build a complete auto-dimming daily schedule. Up to 10 nodes are supported.

4.9.1.5 Staircase Presence Lighting Function

Staircase light mode is only available when the channel dimming mode is set to staircase light. It configures automatic delay control logic for temporary lighting applications, supporting trigger-on operation, countdown timing and automatic switch-off for unattended management. Functions including retrigger, pre-warning before switch-off, and behaviour definition for permanent ON/OFF states are available.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Timed on duration	1-30000s **[100]**	Base lighting duration after staircase light trigger. Upon receiving `staircase light = 1` telegram, the fixture switches on at the brightness defined by switch-on behaviour and remains active for this duration.
Pre-warning	• **not active** • active	Master switch for pre-warning mode before switch-off. • not active: No pre-warning; fixture switches off directly upon countdown expiry. • active: Pre-warning enabled; fixture runs at preset brightness for defined duration before timeout.
Pre-warning duration in	1-30000s **[10]**	Duration of pre-warning phase. (Only visible when Pre-warning = active)
Value of pre-warning brightness	0.1%-100% **[20%]**	Target brightness during pre-warning phase. (Only visible when Pre-warning = active)
Timed on retrigger function	• **not active** • active	Retrigger function setting. • not active: Additional ON telegrams received during the countdown do not reset the timer. • active: New trigger received during countdown restarts the timed on duration.
Manual off enable	• **not active** • active	Enables or disables manual switch-off during the staircase-light cycle. • not active: Manual switch-off prohibited during sequence; fixture must wait until countdown completes. • active: The sequence can be terminated early and light switched off via 'staircase light = 0' telegram.
Brightness value during permanent ON	0-100% **[20%]**	Fixed brightness value under permanent ON mode ('permanent ON = 1'). This mode has higher priority than standard trigger commands, lower priority than Lock Ⅰ / Lock Ⅱ commands.
When permanent OFF	• **dim down off** • start time of staircase light	Fixture behaviour when exiting permanent ON mode ('permanent ON = 0'): • dim down off: Fade out and switch off using configured transition speed. • start time of staircase light: Restart the full staircase light countdown sequence.

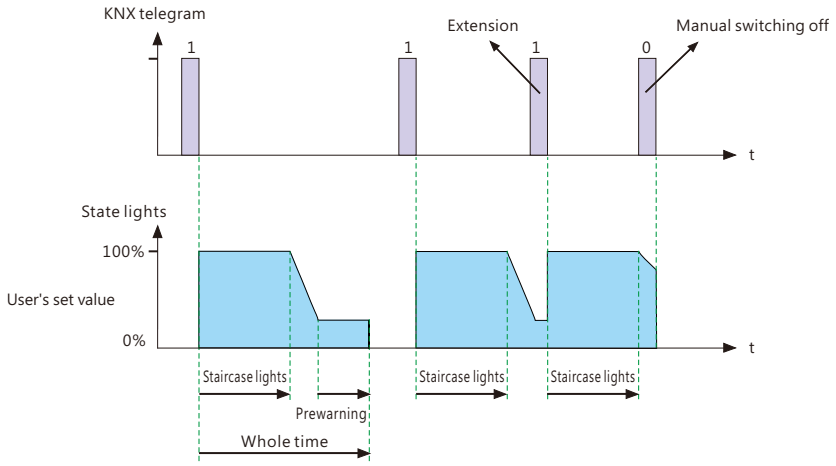
Timed on duration: Defines the base lighting duration after the channel receives an ON telegram. When the timer expires, the light switches off automatically.

The operating behavior can be modified using the retrigger and manual-off settings. When manual off is enabled, the light can be switched off before the timer expires by sending an OFF telegram. When retrigger is enabled, receiving another ON telegram during operation resets the timer and restarts the timed-on period.

The pre-warning function activates near the end of total timing: the fixture dims from nominal brightness to the pre-warning brightness level and holds this level, then fully switches off after the pre-warning period.

When staircase light mode is enabled, the original switch communication objects are replaced with dedicated staircase light objects. Absolute and relative dimming functions remain unaffected.

The timing diagram below demonstrates four typical operation scenarios: standard full-duration countdown, 20% brightness pre-warning dimming at late countdown stage, mid-sequence retrigger via ON telegram to extend timing, and manual early shutdown via OFF telegram.
Factory default pre-warning brightness: 20%



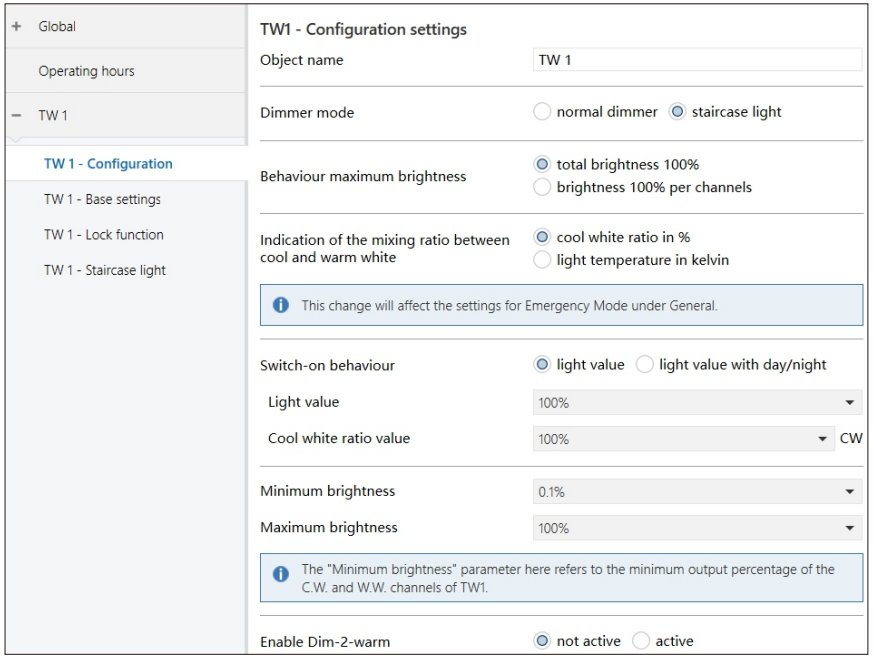
- Whole time：Full cycle of one staircase light sequence (full brightness duration + pre-warning dimmed duration)
- Prewarning：Pre-warning dimmed phase
- Extension：Trigger point for at which an additional ON telegram retriggers the timer.
- Manual switching off：Trigger point for manual early switch-off telegram

4.9.2 Dual Color Temperature Mode

This chapter introduces the configuration of dual white (TW) fixtures. It simultaneously controls cool white (CW) and warm white (WW) channels to achieve independent or linked adjustment of brightness and color temperature. It supports normal dimming, staircase light, Dim-to-Warm and other modes to meet light color demands for diverse scenarios.

4.9.2.1 Dual CCT Channel Parameter Configuration

TW channel configuration defines basic operating mode, color temperature control method and power-up behaviour for dual CCT fixtures, establishing baseline rules for subsequent brightness and color temperature commands.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Object name	Text string	Custom channel name for system identification and management.
Dimmer Mode	• **normal dimmer** • staircase light	Select dimming operating mode: • normal dimmer: Standard dimming mode • staircase light: Staircase light mode
Behaviour maximum brightness	• **Total brightness 100%** • Brightness 100% per channels	Define brightness superposition rule for CW and WW channels: • Total brightness 100%: Sum of brightness share of two channels is limited to maximum 100% • Brightness 100% per channels: Sum of brightness share of two channels can reach up to 200%
Indication of the mixing ratio between cool and warm white	• **cool white ratio in %** • light temperature in kelvin	Color temperature control mode selection: • cool white ratio in %: Adjust color temperature via cool white percentage (e.g. 50% corresponds to neutral white) • light temperature in kelvin: Adjust color temperature by specifying Kelvin value
Colour temperature warmest white	1500-7000K **[2700]**	Warmest color temperature supported by the fixture. (Only visible when light temperature in kelvin is selected)
Colour temperature coldest white	3500-10000K **[6500]**	Coldest color temperature supported by the fixture. (Only visible when light temperature in kelvin is selected)
Switch-on behavior	• **light value** • light value with day/night • last value • last value with day/night	Define fixture action upon receiving switch-on object command: • light value: Switch on with user-defined brightness / color temperature • light value with day/night: Activate different preset parameters for day / night periods • last value: Restore brightness / color temperature before switch-off • last value with day/night: Execute restore rules corresponding to day / night status
Light value	0-100% **[100%]**	Defines target brightness value for switch-on. (Visible only when Switch-on behavior is set to light value)
Kelvin value	1500–10000K **[6500]**	Defines colour-temperature value for switch-on. (Visible only when Switch-on behavior is set to light value)
Cool white ratio of switch-on / Kelvin of switch-on	0-100% CW **[100%]** 1500-10000K **[6500]**	Color temperature value upon switch-on. Unit is determined by the parameter Indication of the mixing ratio. (Only visible when Switch-on behavior = light value)
Davtime light value	0-100% **[100%]**	Switch-on target brightness for daytime period. (Only visible when Switch-on behavior = light value with day/night)
Daytime cool white ratio value/Daytime kelvin value	0-100% CW **[100%]** 1500-10000K **[6500]**	Daytime switch-on color temperature; unit determined by Indication of the mixing ratio. (Only visible when Switch-on behavior = light value with day/night)

Parameter	Valid Values	Description
Nighttime light value	0-100% **[100%]**	Switch-on target brightness for nighttime period. (Only visible when Switch-on behavior = light value with day/night)
Nighttime cool white ratio value/Nighttim Daytime kelvin value	0-100% CW **[100%]** 1500-10000K **[6500]**	Nighttime switch-on color temperature; unit determined by Indication of the mixing ratio. (Only visible when Switch-on behavior = light value with day/night)
Minimum brightness	0.1%-99% **[0.1%]**	Defines lower adjustable brightness limit for all channels.
Maximum brightness	1%-100% **[100%]**	Defines upper adjustable brightness limit for all channels.
Enable Dim-2-warm	• **not active** • active	Master switch for brightness-linked color temperature function: • not active: Disabled; brightness and color temperature are controlled independently • active: Enabled; color temperature automatically shifts with brightness change, relevant color temperature configuration items will be hidden
Brightness&Colour threshold Min	brightness: 0-40% **[0%]** colour temp: 0-100% **[40%]** Kelvin:1500–10000K **[2700]**	Minimum brightness threshold and matched color temperature. The fixture automatically adjusts to this color temperature at low brightness. (Only visible when Enable Dim-2-warm = active)
Brightness&Colour threshold Max	brightness: 50-100% **[100%]** colour temp: 0-100% **[100%]** Kelvin:1500–10000K **[6500]**	Maximum brightness threshold and matched color temperature. The fixture automatically adjusts to this color temperature at high brightness. ⚠ If the configured color temperatures violate the rule "lower brightness = warmer color", the system will automatically swap the two threshold color temperature values. (Only visible when Enable Dim-2-warm = active)

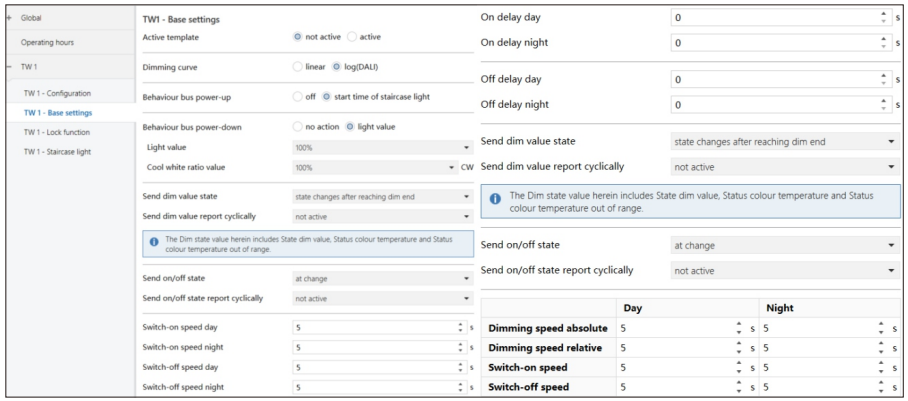
Note:
The Switch-on behavior supports light value with day/night and last value with day/night. Day/Night Mode shall be enabled in advance, refer to Section 4.3.

Supplementary Description for Dim-to-Warm

When enabled, the luminaire follows the natural light characteristic: cooler colour temperature at high brightness and warmer colour temperature at low brightness. The colour temperature will change smoothly with brightness adjustment. Once active, the device ignores independent colour temperature commands; light output and colour temperature are adjusted synchronously only via brightness commands.

4.9.2.2 Dual CCT Channel Basic Settings

TW channel basic settings. This section configures power-up behaviour, dimming curve, switch control permissions, delay rules, status feedback and dimming speed for dual CCT luminaires, providing underlying parameter support for stable fixture operation and KNX system linkage.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Active template	• **not active** • active	Master switch for template activation. • not active: Template disabled; parameters on this page take effect. • active: Template enabled; local page parameters are hidden, unified preset configuration from General-Base setting (Template) will be applied.
Dimming curve	• linear • **log(DALI)**	Select dimming curve mode: • linear: Linear dimming, brightness varies proportionally with command value • log(DALI): Logarithmic dimming, optimized for human visual perception ⚠ Only linear mode is available when 'Behaviour maximum brightness' is set to `Brightness 100% per channels`.
Behaviour bus power up	• off • on • last value • **light value**	Fixture behaviour upon KNX bus power recovery: • off: Remain switched off • on: Output at maximum brightness, coldest colour temperature (100% cool white) • last value: Restore brightness and colour temperature before power loss • light value: Switch on with user-defined brightness and colour temperature
Kelvin value / Cool white ratio value	0-100% CW **[100%]** 1500-10000K **[6500]**	Target colour temperature after bus power-up. Unit is determined by the parameter Indication of the mixing ratio. (Only visible when Behaviour bus power up = light value)

Parameter	Valid Values	Description
Light value	0-100% **[100%]**	Target brightness value after bus power-up. (Only visible when Behaviour bus power up = light value)
Behaviour bus power down	• not active • **light value**	Action executed upon KNX bus communication loss / bus power failure: • no action: Maintain current light output; • light value: The channel switches to the fixed brightness set below.
Kelvin value / Cool white ratio value	0-100% CW **[100%]** 1500-10000K **[6500]**	Target colour temperature value after bus power failure. The unit is determined by the parameter "Indication of the mixing ratio". (Visible only when Behaviour bus power-down is set to light value)
Light value	0-100% **[100%]**	Target brightness value after bus power failure. (Visible only when Behaviour bus power-down is set to light value)
Relative on enable	• not active • **active**	Allow relative dimming objects to switch on the light. • not active: Disabled; independent switch-on telegram required • active: Enabled; relative dimming commands can activate the fixture
Relative off enable	• **not active** • active	Allow relative dimming objects to switch off the light. • not active: Disabled; independent switch-off telegram required • active: Enabled; relative dimming commands can turn off the fixture
Switch-on delay day	0-60s **[0]**	Delay duration before switch-on when an ON command is received during daytime via Switch Object.
Switch-on delay night	0-60s **[0]**	Delay duration before switch-on when an ON command is received during nighttime via Switch Object.
Switch-off delay day	0-60s **[0]**	Delay duration before switch-off when an OFF command is received during daytime via Switch Object.
Switch-off delay night	0-60s **[0]**	Delay duration before switch-off when an OFF command is received during nighttime via Switch Object.
Send dim value state	• not active • **state changes after reaching dim end** • always at input of telegram	Defines reporting method for brightness status: • not active: Brightness feedback disabled. • state changes after reaching dim end: Feed back current brightness value to the bus after dimming completes and state changes. • always at input of telegram: Upon receiving dimming telegram, report relevant brightness status to the bus after dimming finishes.
Send dim value report cyclically	• **not active** • 3s-60min	Defines cyclic reporting of the dimming status object. (Only valid when Send dim value state is set to state changes after reaching dim end or always at input of telegram)

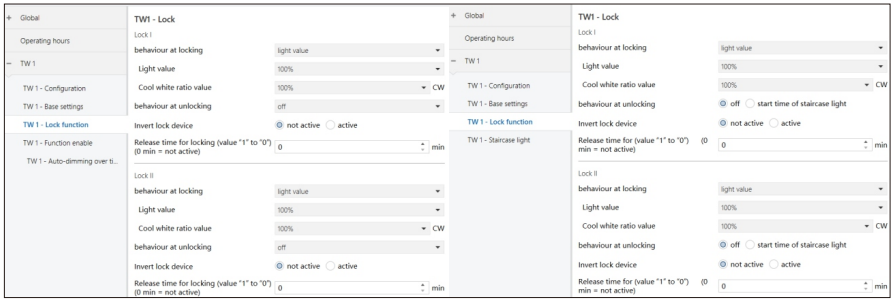
Parameter	Valid Values	Description
Send on/off state	• not active • **at change** • always at input of telegram	On/off status feedback mode: • not active: Disable on/off status feedback • at change: Feedback immediately when the on/off status changes • always at input of telegram: Feedback immediately upon receiving the telegram
Send on/off state report cyclically	• **not active** • 3s-60min	Cycle period for cyclic on/off status reporting; automatically report on/off status at the set interval (This parameter takes effect only when Send on/off state is enabled)
Dimming speed absolute	day: 0-120s **[5]** night: 0-120s **[5]**	Absolute dimming speed: Total transition time for brightness changing linearly from 0% to 100%. Actual transition time = set time × brightness variation ratio.
Dimming speed relative	day: 1-120s **[5]** night: 1-120s **[5]**	Relative (step) dimming speed: Duration for one full brightness step from 0% to 100%. Larger step change yields longer actual transition time.
Switch-On speed	day: 1-240s **[5]** night: 1-240s **[5]**	Fade duration for switch-on action: transition time from OFF to target brightness and colour temperature. Total runtime = switch-on delay + switch-on speed × target brightness percentage.
Switch-off speed	day: 0-240s **[5]** night: 0-240s **[5]**	Fade duration for switch-off action: transition time from current brightness and colour temperature to OFF state. Total runtime = switch-off delay + switch-off speed × current brightness percentage.

4.9.2.3 Dual CCT Channel Lock Function

TW channel lock function configures two-level access control rules for dual colour temperature luminaires (Lock I = higher priority, Lock II = lower priority). While locked, regular control telegrams are blocked, forcing the fixture to operate at preset brightness and colour temperature. Normal control is restored after unlocking; auto-unlock function is supported.

This function distinguishes between normal dimmer mode and staircase light mode. Most parameter logic remains consistent, only differing in unlock behaviour and auto-unlock activation conditions. Under staircase light mode, the dimming speed for lock action is fixed at 1s.

Priority rule: Lock I takes precedence over Lock II. If both lock levels are triggered simultaneously, the configuration of Lock I will be applied.

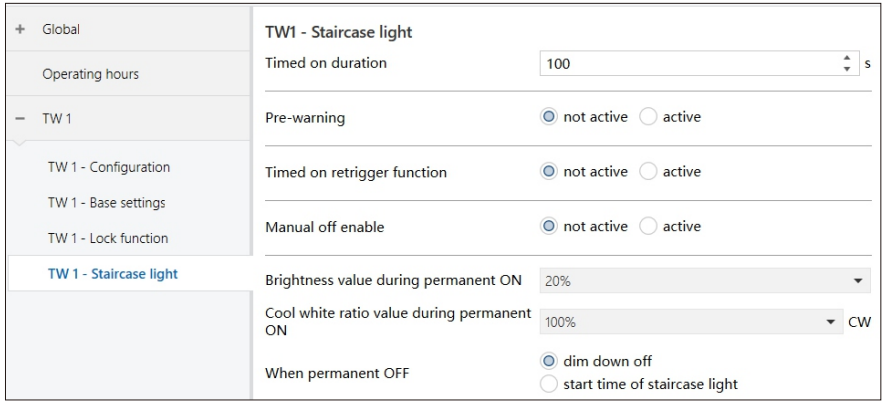


The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Behavior at locking	・off ・no change ・**light value**	Fixture behaviour upon receiving Lock I = 1 command: ・off：Force switch off ・no change：Maintain current brightness and colour temperature, only block subsequent control telegrams ・light value：Output with preset brightness and colour temperature
Light value	0-100% **[100%]**	Target brightness value when locked. (Only displayed when Behavior at locking = light value)
Cool white ratio value / Kelvin value	0-100% CW **[100%]** 1500-10000K **[6500]**	arget colour temperature value when locked. The unit is determined by the parameter Indication of the mixing ratio. (Only displayed when Behavior at locking = light value)
Behavior at locking	Normal mode: ・**off** ・no change ・light value Staircase light mode: ・**off** ・start time of staircase light	Fixture behaviour upon receiving Lock I = 0 unlock command:【Normal mode】 ・off: Stop auto-dimming and switch off ・no change: Continue running existing auto-dimming ・light value: Stop auto-dimming and switch to preset light colour【Staircase light mode】 ・off: Switch off the fixture directly ・start time of staircase light: Restart the staircase light delay sequence
Invert lock device	・**not active** ・active	Invert logic of lock command: ・not active: 1 = Lock, 0 = Unlock ・active: 0 = Lock, 1 = Unlock
Release time for locking (value "1" to "0")	0-600min **[0]**	Auto-unlock duration: 【Normal mode】Auto-unlock is executed automatically upon timeout when Lock II is in unlocked state. 【Staircase light mode】Auto-unlock takes effect upon timeout only if Lock II is unlocked and the fixture is in permanent ON state. 0 min = Auto-unlock disabled; manual unlock telegram is required.

4.9.2.4 Dual CCT Staircase Lighting Function

TW channel staircase light mode. This subsection configures automatic delay control logic for dual colour temperature luminaires in temporary lighting applications. It supports trigger-on activation, countdown operation and automatic switch-off for unattended management. Pre-warning before switch-off and light colour definition for permanent ON / OFF states are available.



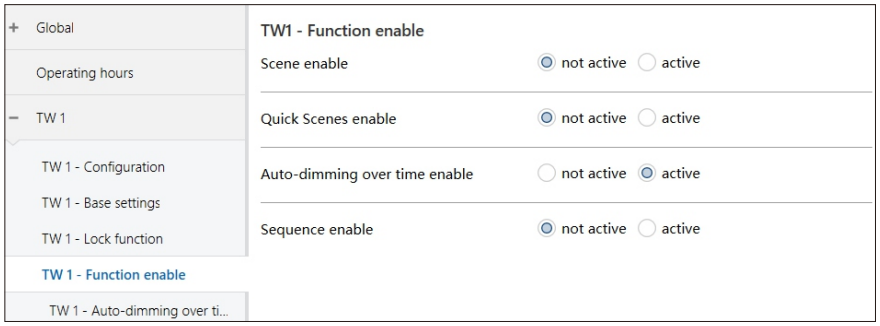
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Timed on duration	1-30000s **[90S]**	Base illumination duration after staircase light trigger. Upon receiving `staircase light = 1` telegram, the luminaire switches on with brightness and colour temperature defined by switch-on behaviour and remains active for this duration.
Pre-warning	・**not active** ・active	Master switch for pre-warning mode before switch-off. ・not active: No pre-warning; light switches off directly once timing expires. ・active: Pre-warning enabled; fixture runs at preset brightness and colour temperature before timeout.
Pre-warning duration in	1-30000s **[10S]**	Duration of pre-warning phase. (Only visible when Pre-warning = active)
Value of pre-warning brightness	0.1-100% **[20%]**	Target brightness value during pre-warning phase. (Only visible when Pre-warning = active)
Value of prewarning cool white ratio / Kelvin	0-100% CW **[100%]** 1500-10000K **[6500]**	Target colour temperature during pre-warning phase. Unit is determined by the parameter Indication of the mixing ratio. (Only visible when Pre-warning = active)

Parameter	Valid Values	Description
Timed on retrigger function	• **not active** • active	Retrigger function setting. • not active: Additional ON telegrams received during the countdown do not reset the timer. • active: New trigger received during countdown restarts the timed on duration.
Manual off enable	• **not active** • active	Enables or disables manual switch-off during the staircase-light cycle. • not active: Manual switch-off prohibited during sequence; fixture must wait until countdown completes. • active: The sequence can be terminated early and light switched off via `staircase light = 0` telegram.
Brightness value during permanent ON	0-100% **[20%]**	Fixed brightness value under permanent ON mode ('permanent ON = 1'). This mode has higher priority than standard trigger commands, lower priority than Lock I / Lock II commands.
Cool white ratio value/ Kelvin value during permanent ON	0-100% CW **[100%]** 1500-10000K **[6500]**	Fixed colour temperature under permanent ON mode. Unit is determined by the parameter Indication of the mixing ratio.
When permanent OFF	• **dim down off** • start time of staircase light	Fixture behaviour upon exiting permanent ON mode ('permanent OFF = 0'): • dim down off: Fade out and switch off light output with configured transition speed. • start time of staircase light: Restart the full staircase light countdown sequence.

4.9.2.5 Dual CCT Function Enable Settings

TW channel function enable switches. This panel is only visible under normal dimming mode, used to enable or disable extended functions including scenes, Quick scenes, timed automatic dimming and sequences. These functions cannot be configured under staircase light mode.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Scene enable	• **not active** • active	Master switch for scene function. • not active: Scene function disabled. • active: Scene function enabled.
Quick scenes enable	• **not active** • active	Master switch for Quick scene function. • not active: Quick scene function disabled. • active: Quick scene function enabled.
Auto-dimming over time enable	• not active • **active**	Master switch for timed automatic dimming function. • not active: Timed automatic dimming disabled. • active: Timed automatic dimming enabled.
Sequence enable	• **not active** • active	Master switch for sequence function. • not active: Sequence function disabled. • active: Sequence function enabled.

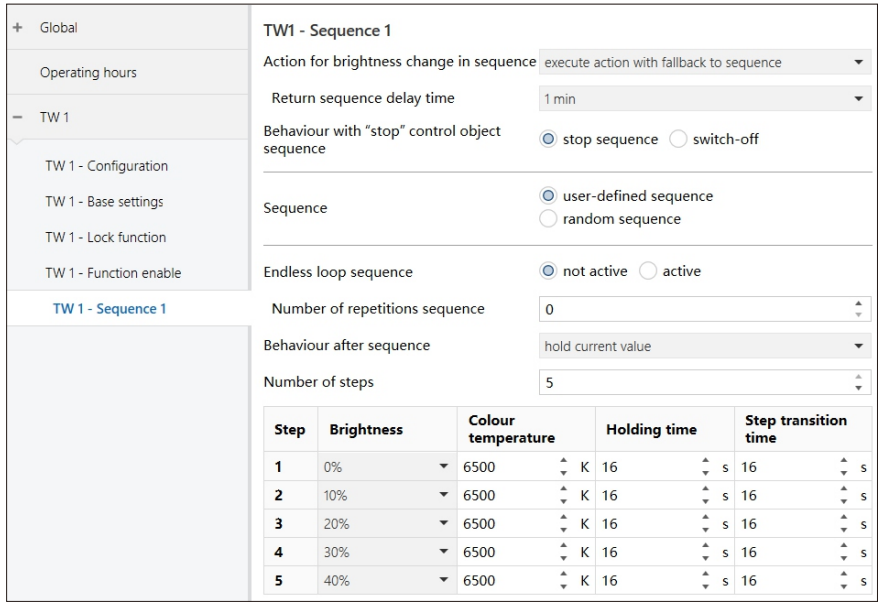
The following parameter is only displayed when Sequence enable is set to active.

Parameter	Valid Values	Description
Number of sequences	1-5 **[1]**	Total number of configurable independent sequences; maximum 5 sequences supported.

Explanations for Scene, Quick scenes and Auto-dimming over time can be referenced in previous sections.

4.9.2.6 Light Sequences

TW channel sequence function, only available under normal dimming mode. It configures dynamic light colour effects (breathing, fade transition, random variation, etc.) that run automatically following predefined steps. Auto-dimming function will be suspended while sequences are executing.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Action for brightness change in sequence	• **execute action with fallback to sequence** • execute action without fallback • no reaction	Defines response to external brightness / colour temperature telegrams during sequence execution. • execute action with fallback to sequence: Execute external command and pause the sequence; sequence resumes automatically after set delay. • execute action without fallback to auto-dimming process: Execute external command and terminate the sequence permanently. • no reaction: Ignore external lighting commands, keep sequence running.
Return sequence Delay Time	1min-24h **[1 min]**	Waiting duration before sequence resumes after external brightness adjustment. (Only visible when Action for brightness change in sequence = execute action with fallback to sequence)
Behaviour with "stop" control object sequence	• **stop sequence** • switch-off	Fixture behaviour upon receiving "Stop" telegram. • stop sequence: Only suspend sequence execution, maintain current brightness and colour temperature. • switch-off: Suspend sequence and switch off light output.
Sequence	• **user-defined sequence** • random sequence	Sequence type selection. • user-defined sequence: Custom sequence, brightness and colour temperature for each step can be configured manually. • random sequence: Random sequence; brightness and colour temperature are generated randomly by the device.

4.9.2.6.1 Custom sequence Parameter Configuration

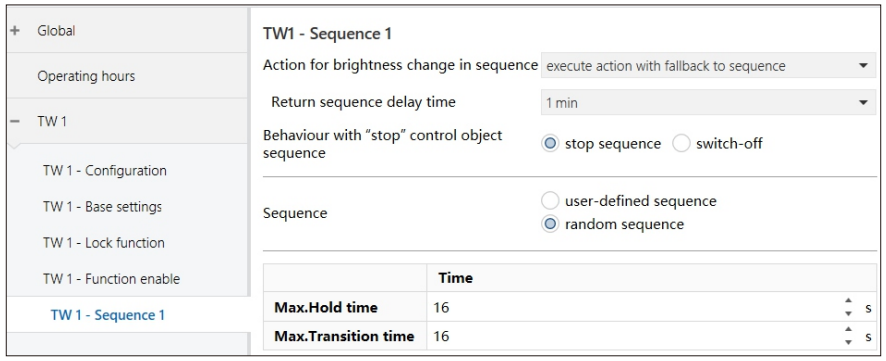
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Endless loop sequence	• not active • active	Sequence loop mode. • not active: Stop after completing configured repetition times. • active: Unlimited cyclic operation; manual command is required to stop.

Step 1 ~ Step N configuration

Parameter	Valid Values	Description
Number of repetitions sequence	0-255	Sequence repetition count. 0 = run once, 1 = run twice, and so on. (Only visible when Endless loop sequence = not active)
Behaviour after sequence	• hold current value • switch-off • start sequence 1-5	Logic executed after daily sequence completes. • hold current value: Maintain brightness and colour temperature of the final step. • switch-off: Switch off the luminaire. • start sequence 1–5: Automatically trigger the target sequence with specified number. (Only visible when Endless loop sequence = not active)
Number of steps	2-5	Total number of time-brightness-temperature steps contained in one sequence.
Step X colour temperature	0-100% CW / 1500-10000K	Colour temperature value for Step X. The unit is determined by the parameter Indication of the mixing ratio.
Step X brightness	0-100%	Target brightness value for Step X.
Step X holding time	1-65535s	Duration to hold the status of Step X.
Step X transition time to next	1-65535s	Fading transition time from current Step X to the next step.

4.9.2.6.2 Random Sequence Parameter Configuration



The table below lists the available values and descriptions for these parameters.

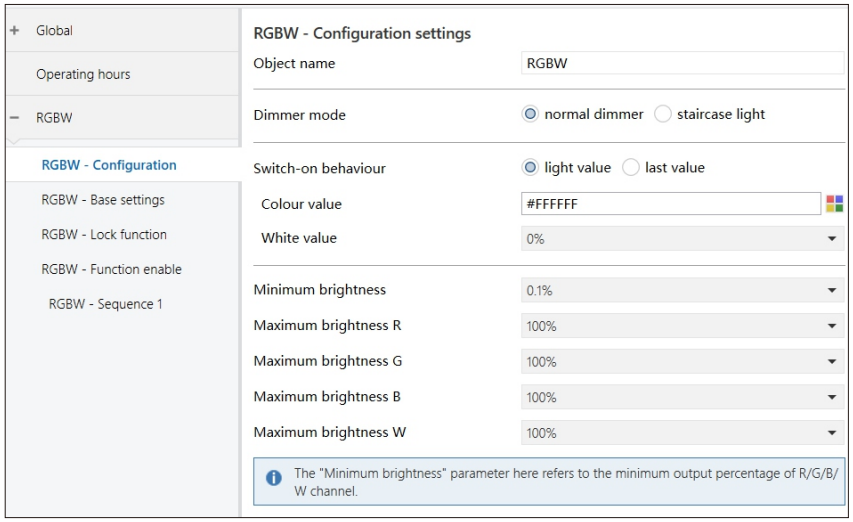
Parameter	Valid Values	Description
Max. holding time	1-65535s **[16]**	Maximum holding duration for each random step.
Max. transition time	1-65535s **[16]**	Maximum fade transition time between random steps.

4.9.3 RGBW

This chapter introduces the configuration of RGBW luminaires with four channels. It can independently control Red, Green, Blue and Warm White outputs to realize colour tuning, colour mixing and dynamic lighting effects.

4.9.3.1 RGBW Channel Parameter Configuration

RGBW channel configuration. This section sets basic operating parameters for 4-channel RGBW luminaires, defining dimming mode, power-up rules, colour parameters and brightness limits for each channel.



The table below lists the available values and descriptions for these parameters.

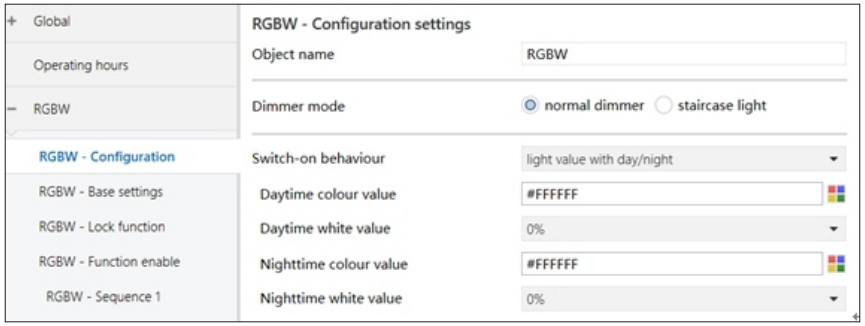
Parameter	Valid Values	Description
Object name	Text string	Custom channel name for KNX system identification and management.
Dimmer Mode	• **normal dimmer** • staircase light	Select dimming operating mode: • normal dimmer: Standard dimming mode • staircase light: Staircase light delay mode
Switch-on behavior	• **light value** • last value	Output logic upon receiving switch-on command via Switch Object: • light value: Switch on with user-defined colour and brightness • last value: Restore colour and brightness status before switch-off
Colour of switch-on	#000000-#FFFFFF **[#FFFFFF]**	RGB colour parameter when switching on.
white of switch-on	0-100% **[0%]**	Output ratio of W white channel upon switch-on.
Minimum brightness	0.1%-99% **[0.1%]**	Unified minimum adjustable brightness limit for all R/G/B/W channels.

Parameter	Valid Values	Description
Maximum brightness R	1%-100% **[100%]**	Maximum brightness limit for Red channel.
Maximum brightness G	1%-100% **[100%]**	Maximum brightness limit for Green channel.
Maximum brightness B	1%-100% **[100%]**	Maximum brightness limit for Blue channel.
Maximum brightness W	1%-100% **[100%]**	Maximum brightness limit for White channel.

Additional note:

When the Day/Night Function is enabled, the device supports two independent sets of RGBW lighting parameters for daytime and nighttime. The options of Switch-on behaviour will be extended, and additional configuration items for daytime and nighttime switch-on colours will be displayed. (Refer to Section 3.1.3 Switch On and Off)

When the Day/Night schedule configuration is activated, the system can automatically switch between two independent sets of lighting parameters. High brightness and high colour temperature settings can be configured for daytime working lighting; while low-brightness soft lighting is automatically applied at night. The two sets of parameters are stored independently without mutual interference. Manual parameter switching is not required. This function balances lighting comfort and energy saving, and is suitable for unattended lighting applications such as factories, stairwells and public areas.



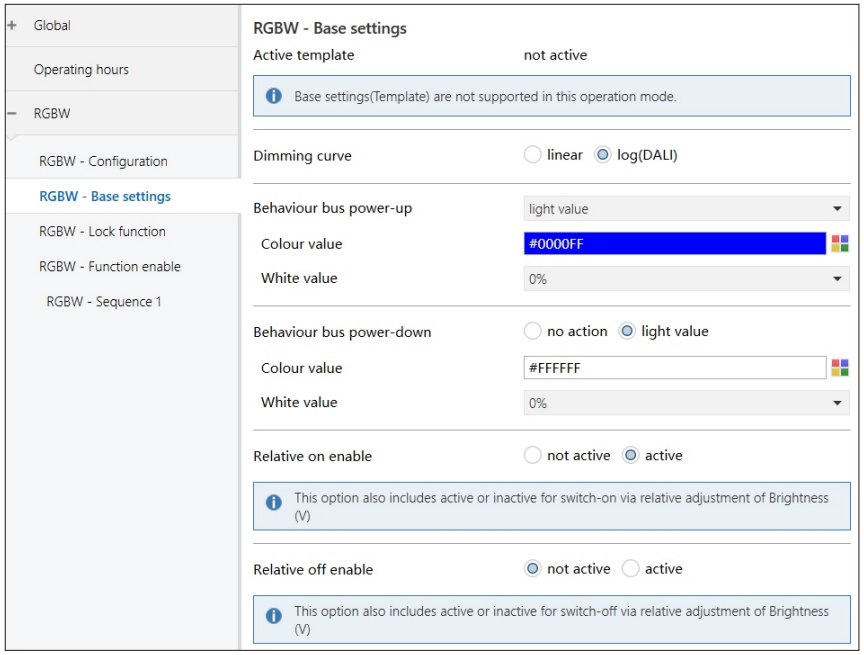
The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Switch-on behavior	• light value • **light value with day/night** • last value • last value with day/night	Define fixture action upon receiving switch-on object command: • light value: Switch on with user-defined brightness and colour • light value with day/night: Activate separate preset parameters for day and night periods • last value: Restore brightness and colour status before switch-off • last value with day/night: Execute restore rules corresponding to day / night status
Colour of switch-on day	#000000-#FFFFFF **[#FFFFFF]**	RGB colour value for switch-on during daytime. (Only visible when Switch-on behavior = light value with day/night)
white of switch-on day	0-100% **[0%]**	White channel ratio for daytime switch-on. (Only visible when Switch-on behavior = light value with day/night)
Colour of switch-on night	#000000-#FFFFFF **[#FFFFFF]**	RGB colour value for switch-on during nighttime. (Only visible when Switch-on behavior = light value with day/night)
white of switch-on night	0-100% **[0%]**	White channel ratio for nighttime switch-on. (Only visible when Switch-on behavior = light value with day/night)

When Day/Night mode is activated, the system automatically switches lighting parameters. Higher brightness and cooler colour are available during daytime to meet office lighting requirements; lower brightness and warmer colour are applied at night. This function follows natural human perception rules while saving energy by reducing power consumption during extended use. Daytime and nighttime parameters are stored independently without mutual interference, suitable for unattended lighting applications in offices, corridors and public areas.

4.9.3.2 RGBW Basic Parameter Settings

RGBW channel basic settings. This section configures template settings, dimming curve, switch control permissions, delay rules, status feedback and separate day/night dimming speed for four-colour luminaires, providing underlying parameter support for R/G/B/W channels.



The table below lists the available values and descriptions for these parameters.

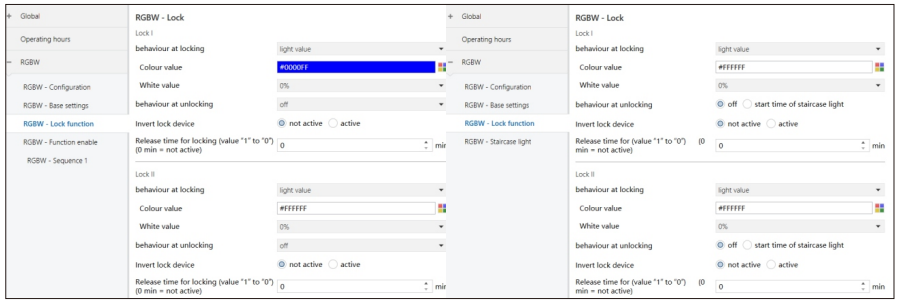
Parameter	Valid Values	Description
Active template	• **not active**	Template function is unavailable when the device operates in independent RGBW channel mode; this parameter is locked to not active and cannot be enabled. All base parameters must be configured separately within the current channel, and global templates cannot be called.
Dimming curve	• linear • **log(DALI)**	Select dimming curve mode: • linear: Linear dimming, brightness changes proportionally with command value • log (DALI): Logarithmic dimming, optimized to match human visual perception
Behaviour bus power up	• off • on • last value • **light value**	Luminaire behaviour upon KNX bus power recovery. • off: Remain switched off after power-up • on: All channels output at maximum brightness limit • last value: Restore brightness and colour state before power failure • light value: Switch on with fixed preset RGB colour and white channel ratio

Parameter	Valid Values	Description
Colour value	#000000-#FFFFFF **[#FFFFFF]**	Fixed RGB colour value after bus power-up. (Only visible when Behaviour bus power up = light value)
White value	0-100% **[0%]**	Fixed white channel output ratio after bus power-up. (Only visible when Behaviour bus power up = light value)
Behaviour bus power-down	• no action • **light value**	Action executed upon KNX bus communication loss / bus power failure: • no action: Maintain current light output • light value: The channel switches to the fixed brightness set below
Colour value	#000000-#FFFFFF **[#FFFFFF]**	Target colour temperature value after bus power failure. The unit is determined by the parameter "Indication of the mixing ratio". (Visible only when Behaviour bus power-down is set to light value)
White value	0-100% **[0%]**	Target brightness value after bus power failure. (Visible only when Behaviour bus power-down is set to light value)
Relative on enable	• not active • **active**	Allow relative dimming objects to switch on the luminaire. • not active: Disabled; relative dimming telegrams cannot activate output • active: Enabled; relative dimming commands can switch on the light
Relative off enable	• **not active** • active	Allow relative dimming objects to switch off the luminaire. • not active: Disabled; relative dimming telegrams cannot turn off output • active: Enabled; relative dimming commands can switch off the light
Switch-on Brightness(V) via Dim relatively H object	• not active • **active**	Configure whether the Dim relatively H object can switch on the light. • not active: Dimming commands will not activate the luminaire when it is off. • active: The luminaire will switch on to maximum brightness when receiving Dim relatively H command while off
Switch-on Brightness(V) via Dim relatively S object	• not active • **active**	Configure whether the Dim relatively S object can switch on the light. • not active: Dimming commands will not activate the luminaire when it is off • active: The luminaire will switch on to maximum brightness when receiving Dim relatively S command while off
Switch-on of Brightness(V) via Dim absolutely H or Dim absolutely S object	• not active • **active**	Configure whether Dim absolutely objects can switch on the light. • not active: Absolute dimming commands will not activate the luminaire when it is off • active: The luminaire will switch on to maximum brightness when receiving absolute dimming commands while off

Parameter	Valid Values	Description
On delay day/ On delay night	0-30000s **[0]**	Delay duration before switch-on when ON command is received via Switch Object during day / night period.
Off delay day/ Off delay night	0-30000s **[0]**	Delay duration before switch-off when OFF command is received via Switch Object during day / night period.
Send dim value state	• not active • **state changes after reaching dim end** • always at input of telegram	Brightness feedback mode. • not active: Brightness feedback disabled • at dim end: Transmit final brightness value after dimming action completes.
Send dim value report cyclically	• **not active** • 3s-60 min	Defines cyclic reporting for the dimming status Object. (Only valid when Send dim value state is set to state changes after reaching dim end or always at input of telegram)
Send on/off state	• not active • **at change** • always at input of telegram	Switch status feedback mode. • not active: Switch status feedback disabled • at change: Transmit switch status immediately upon any status change
Send on/off state report cyclically	• **not active** • 3s-60 min	Cycle interval for automatic periodic switch status transmission. (Only valid when Send on/off state = at change)
Dimming speed absolute	day: 0-120s **[5]** night: 0-120s **[5]**	Absolute dimming speed: Total transition time for brightness changing linearly from 0% to 100%. Actual fade time = set time × brightness variation ratio.
Dimming speed relative	day: 0-120s **[5]** night: 0-120s **[5]**	Relative (step) dimming speed: Duration for one full brightness step from 0% to 100%. Actual fade time = set time × step percentage.
Switch-on speed	day: 1-240s **[5]** night: 1-240s **[5]**	Fade duration for switch-on action (transition from OFF to target brightness and colour). Total runtime = switch-on delay + switch-on speed × target brightness percentage.
Switch-off speed	day: 1-240s **[5]** night: 1-240s **[5]**	Fade duration for switch-off action (transition from current brightness and colour to OFF). Total runtime = switch-off delay + switch-off speed × current brightness percentage.

4.9.3.3 RGBW Lock Function

RGBW channel lock function configures two-level access control (Lock I = higher priority, Lock II = lower priority). While locked, regular KNX dimming / switch telegrams are blocked, forcing the luminaire to operate at preset RGB colour and white ratio.
This function distinguishes normal dimming mode and staircase light mode, differing only in unlock behaviour and auto-unlock trigger conditions. The dimming speed for lock action is fixed at 1s under staircase light mode.



The table below lists the available values and descriptions for these parameters.

Parameter	Valid Values	Description
Behavior at locking	• off • no change • **light value**	Luminaire behaviour upon receiving Lock = 1 command: • off: Switch all channels off directly • no change: Maintain existing RGB + W state, only block subsequent control telegrams • light value: Output with preset RGB colour and white ratio
Colour value	#000000-#FFFFFF **[#FFFFFF]**	RGB colour setting under locked state. (Only visible when Behavior at locking = light value)
White value	0-100% **[0%]**	White channel output ratio under locked state. (Only visible when Behavior at locking = light value)
Behavior at unlocking	Normal mode: • **off** • no change • light value Staircase light mode: • **off** • start time of staircase light	Luminaire behaviour upon receiving Lock = 0 unlock command: 【Normal mode】 • off: Stop auto-dimming and switch off • no change: Continue running existing auto-dimming • light value: Stop auto-dimming and switch to preset light colour 【Staircase light mode】 • off: Switch off the luminaire directly • start time of staircase light: Restart the full staircase light delay sequence
Invert lock device	• not active • **active**	Invert logic of lock command: • not active: 1 = Lock, 0 = Unlock • active: 0 = Lock, 1 = Unlock
Release time for locking (value "1" to "0") (0 min = not active)	0-600min **[0]**	Auto-unlock duration: 【Normal mode】Automatic unlock executes once timeout expires when the other lock level is unlocked. 【Staircase light mode】Auto-unlock takes effect upon timeout only if the other lock level is unlocked and the luminaire is in permanent ON state. No automatic unlock will trigger if the luminaire is lit, even after timing expires.

For RGBW channel, the rules and configuration items of [Function enable-Staircase light] are the same as the TW dual-color-temperature channel. Only the color configuration is changed from "Cool white / Warm white ratio" to "RGB color value + W white channel ratio".

The Pre-warning parameter is an exception: RGBW uses color palette range `#000000~#FFFFFF` together with W-channel value from 0~100%; while TW and single-channel modes use brightness values ranging from 0.1% to 100%. Except for the Pre-warning parameter, please refer to the TW chapter for descriptions of other parameters; tables and explanations will not be repeated here.

4.9.4 1 Color Temperature Channel + 2 Dimming Channels

Under this operating mode, hardware outputs are divided into 1 group of warm/cold dual color temperature channel (TW1) plus two independent monochromatic dimming channels (Channel3, Channel4).

TW1 supports stepless continuous color temperature adjustment throughout the full range; the two dimming channels work independently and support individual on/off switching and separate dimming control.

In this solution, TW1 can serve as the main lighting for ambient color temperature adjustment, while Channel3/Channel4 act as zoned auxiliary fill lighting. It is applicable to various luminaire combination scenarios including residential decoration and commercial retail stores.

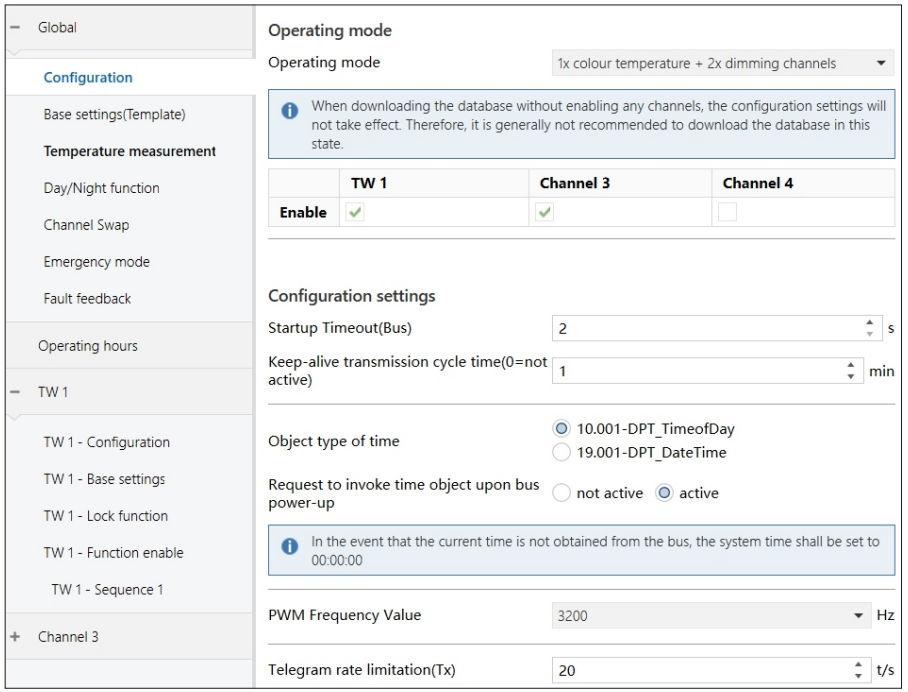
4.9.4.1 Channel Configuration Specification

1. TW1 Dual Color Temperature Channel

All configuration interfaces, parameter logics and functional rules fully inherit the content specified in Section 4.9.2 TW Dual Color Temperature Channel in the preceding chapters, which will not be repeated here.

2. Channel3 & Channel4 Monochromatic Dimming Channels

All setting items and control logics of the two channels adopt the specifications defined in Section 4.9.1 Single-channel Dimming in the preceding chapters, which will not be repeated here.



4.10 Working Mode Priority Control

This chapter defines the authority preemption rules when multiple control functions are triggered concurrently. It is intended for on-site commissioning and troubleshooting to prevent abnormal luminaire operation caused by simultaneous issuance of multiple commands.

4.10.1 Priority Hierarchy (Descending Order)

Emergency Lighting Mode > Over-temperature Protection (Output Shutdown) > Block Channel Lock > Permanent ON (Stair Light Always-on Mode) > Conventional KNX Control Commands

4.10.1.1 Control Details for Each Mode

1. Level 1: Emergency Lighting Mode

Upon receiving an emergency signal, this mode seizes exclusive channel control authority, blocks all other operations, and runs according to preset emergency parameters. The system automatically restores the previous channel lock status after the emergency condition ends.

2. Level 2: Over-temperature Protection (Output Shutdown)

Hardware cuts off channel outputs once over-temperature protection is activated, and all other commands become invalid. Normal control will be automatically resumed after the temperature drops back to a safe threshold.

3. Level 3: Block Channel Lock

Conventional dimming, scene switching, panel operations and sensor commands are invalid during channel locking. Only emergency lighting and over-temperature protection are allowed to temporarily take over the channels.

4. Level 4: Permanent ON (Stair Light Always-on Mode)

This mode only has higher priority than standard KNX control; it will terminate immediately once any higher-priority function is activated.

5. Level 5: Conventional KNX Control Commands

Basic daily lighting controls including switch on/off, dimming, scene recall, human presence sensing, timing scheduling, etc.

4.10.2 Special Operating Condition: Brightness-Limited Over-temperature Protection

When the selected over-temperature protection action is set to Limit maximum brightness, it does not participate in the above priority ranking. The output brightness will be forcibly capped below the configured upper limit, and the brightness restriction will be automatically lifted once the temperature returns to normal.

5.Restore Factory Defaults

Press and hold the programming button for more than 20 seconds to restore the SPWM-KN to factory default settings.

6.Troubleshooting

This chapter describes common faults, troubleshooting procedures and solutions that may occur during installation, commissioning and operation of the device. Always disconnect the bus power supply before inspecting wiring to prevent electric shock or equipment damage. If the fault persists after following these steps, contact Mean Well or its local authorized distributors. Do not disassemble the device.

Fault Type	Symptom	Troubleshooting Steps	Solution
KNX Secure Authentication Failure	Failed to load KNX Secure key; ETS cannot download parameters; device refuses to join the bus	1. Verify that the device serial number and security key match project data 2. Check Secure mode configuration in the ETS project 3. Confirm KNX bus power supply is normal	1. Re-import the correct device security key 2. Match Secure mode settings in ETS 3. Maintain stable bus voltage by repairing the bus power supply
Failure to join KNX Bus	ETS cannot discover the device; bus indicator does not light up; no communication	1. Check KNX bus polarity and whether terminals are loose or disconnected 2. Verify KNX bus power capacity and bus cable length 3. Confirm whether the device is in fault lock state	1. Rewire correctly and tighten terminals 2. Optimize bus topology and keep bus load within rated range 3. Reset device and rescan the bus
No Output	Device communicates normally on the bus, but no load output; luminaire does not turn on	1. Check load-side power supply and output circuit wiring 2. Verify ETS output objects and dimming parameter settings 3. Confirm whether output protection lock is triggered	1. Repair load power supply and tighten output wiring 2. Re-download parameters in ETS and verify communication objects 3. Power cycle the device to clear output protection lock
Over-temperature Alarm	Alarm indicator is on; output power is reduced or cut off; ETS reports over-temperature fault	1. Check ventilation at device mounting position 2. Verify ambient temperature and device load power 3. Check for obstructions and nearby heat sources	1. Improve ventilation and remove obstructions 2. Reduce load power to within rated range 3. Relocate device and enhance heat dissipation

7.Warranty

This product provides a five-year warranty under normal use. In order tokeep the warranty valid, do not replace any parts or modify the product inanyway.

※MEAN WELL possesses the right to adjust the content of this manual. Please refer to the latest version of our manual on our website. https://www.meanwell.com

MEAN WELL WEB



8.Environmental declaration information

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