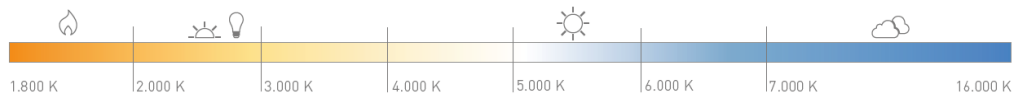


## EDGE LIGHT SYSTEM



**Tunable white**  
1,800K - 16,000K



**Brightness dimmable**  
1% - 100%



**RGB/CIE-xy adjustable**  
Colour points and sequences



**Biorhythmic lighting**  
Vitalisation and recreation



**2 Control modes**  
DALI DT8, ZigBee 3.0



**Excellent CRI**  
CRI > 90



### TECHNICAL DATA

	1 LED module	2 LED modules	3 LED modules
Luminous source	SMD LED modules		
Supply voltage	48V DC		
Typ. power	19W	38W	57W
Luminous flux	2,500lm	5,000lm	7,500lm
Efficiency	typ. 132lm/W	typ. 132lm/W	typ. 132lm/W
Control mode	ZigBee 3.0, DALI DT8		
Dimmable	1% - 100% Modular Dimming: no effects caused by Flicker*		
CCT and colour control	1,800 - 16,000K / adjustable CIE-xy-colours and RGB colours		
Ambient / storage temperature	+10°C ... +45°C / -20°C ... +80°C		
t <sub>c,max</sub> LED module / t <sub>c,max</sub> LMU	+75°C / +65°C		
Lifetime	50,000h L80B10		
Additional features	Low tolerance for colour temperature MacAdam 1 (typical/initial) Integrated overtemperature protection		

min. 1 LED module  
max. 3 LED modules

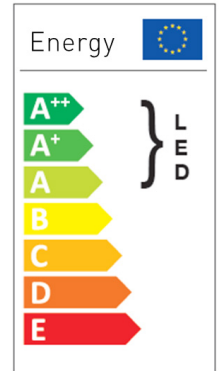


\*According to IEEE 1789-2015 (valid for all dimming levels, CCT and colour settings)

**EDGE LIGHT SYSTEM**

**ORDERING DATA AND TECHNICAL DATA - PI-LED EDGE LIGHT SYSTEM**

Type	Description*	Control mode	Cable [mm]	Lum. flux [lm]	Voltage [V DC]	Power [W]
LTS-02520-15-EL	PI-LED Edge 2500LM / 1x560mm / 19W / DALI DT8 / 700mm	DALI DT8	700	2,500	48	19
LTS-02520-16-EL	PI-LED Edge 2500LM / 1x560mm / 19W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,500	48	19
LTS-05020-15-EL	PI-LED Edge 5000LM / 2x560mm / 38W / DALI DT8 / 700mm	DALI DT8	700	5,000	48	38
LTS-05020-16-EL	PI-LED Edge 5000LM / 2x560mm / 38W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	5,000	48	38
LTS-07520-15-EL	PI-LED Edge 7500LM / 3x560mm / 57W / DALI DT8 / 700mm	DALI DT8	700	7,500	48	57
LTS-07520-16-EL	PI-LED Edge 7500LM / 3x560mm / 57W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	7,500	48	57
LTS-02521-15-EL	PI-LED Edge TP 2500LM / 1x560mm / 19W / DALI DT8 / 700mm	DALI DT8	700	2,500	48	19
LTS-02521-16-EL	PI-LED Edge TP 2500LM / 1x560mm / 19W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,500	48	19
LTS-05021-15-EL	PI-LED Edge TP 5000LM / 2x560mm / 38W / DALI DT8 / 700mm	DALI DT8	700	5,000	48	38
LTS-05021-16-EL	PI-LED Edge TP 5000LM / 2x560mm / 38W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	5,000	48	38
LTS-07521-15-EL	PI-LED Edge TP 7500LM / 3x560mm / 57W / DALI DT8 / 700mm	DALI DT8	700	7,500	48	57
LTS-07521-16-EL	PI-LED Edge TP 7500LM / 3x560mm / 57W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	7,500	48	57



\*TP means „Thermal Pad“: The LED modules belonging to the corresponding article are covered with a thermally conductive foil.

**TECHNICAL DRAWINGS AND DATA - LED MODULES AND LMU**

Dimension/Features of the LED modules			
L/W [mm]	Design type	Light spots P / B / R	Assembly of light spots
560 x 12	for Edge Light applications	26 / 26 / 26	vertically shifted

**!** The PI-LED Edge Light System must be operated only after complete configuration and cabling.

The PI-LED Edge Light System must not be operated with less or more LED modules than provided for the system. Operation with a wrong number of LED modules can lead to destruction of the LED modules.

System type	Number of LED modules	
	Master	Slave
LTS-0252y-1x-EL	1	-
LTS-0502y-1x-EL	1	1
LTS-0752y-1x-EL	1	2

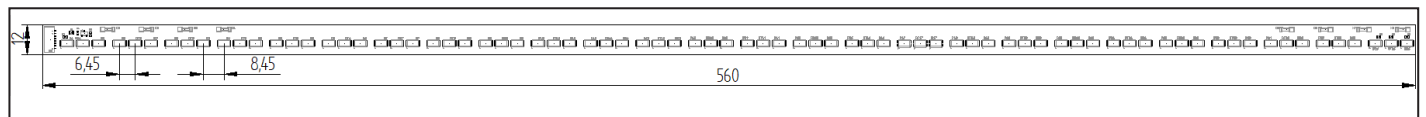
The connection of the LED modules within the PI-LED Edge Light System has to be always in the order "1 x Master - 0-2 x Slave".

**Other combinations are not possible.**

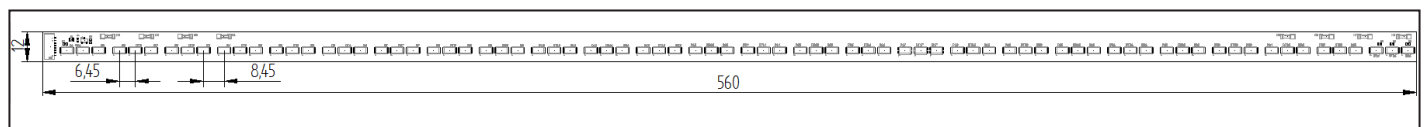
For a system with 2 LED Slave modules, the Slave modules can be arranged arbitrarily. The PI-LED Edge Light System is delivered in a not prewired state.

**LED module Master:** direct connection to the LMU / connection to the first Slave module

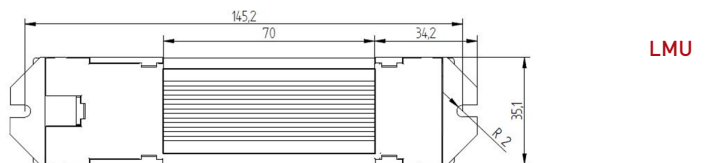
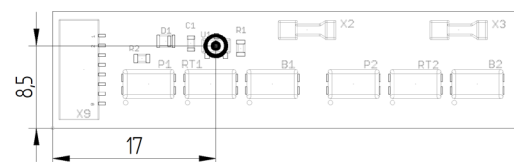
Size in mm



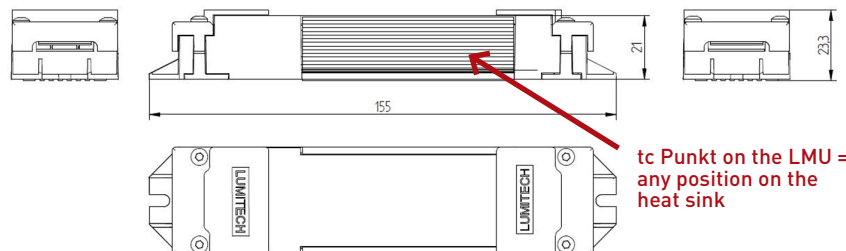
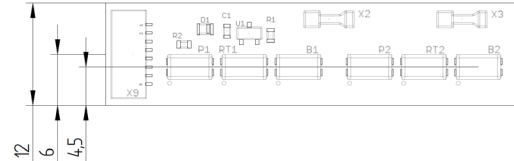
**LED module Slave:** connection to the Master module / connection to one further Slave module or end of module chain



**tc point - LED module Master/Slave**



**LED position- LED Module master/Slave**



- Notes:**
- All values apply at ta=25°C, tc=50°C and 3000K
  - Tolerance ranges: Illumination data +/- 15% | electrical data +/- 15% | supply voltage 48V DC +/- 5%
  - Illumination specifications in accordance with CIE1931
  - If the supply voltage exceeds the max. permitted operating voltage, the PI-LED system will be overstressed. This will result in a highly reduced service life.
  - If the maximum temperature limits are exceeded, the lifetime of the PI-LED system will be greatly reduced or the system may be damaged. Temperature measurements of the LED modules or PI-LED system have to be taken in the thermally stable state by means of a temperature sensor as per EN60598-1.
  - The maximum system power of the PI-LED Edge Light System is limited to 24W (1 LED module) / 48W (2 LED modules) / 72W (3 LED modules) due to its software.
  - According to colour temperature and temperature of the PI-LED system, the Mac Adam tolerance takes on values < 4.
  - All diagrams inside this document show typical curves and not the exact behaviour of single LED modules.

## EDGE LIGHT SYSTEM

### III ASSEMBLY OF THE PI-LED EDGE LIGHT SYSTEM

#### Configuration example

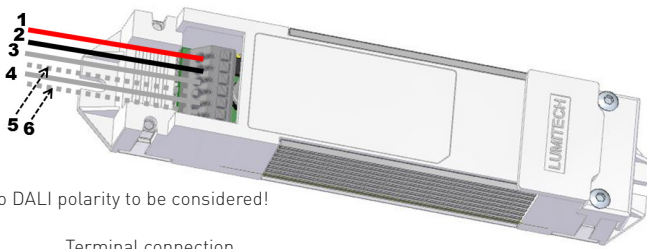
LMU, 700mm connection cable, 1 x Master module, 1 x Slave module

Recommended cable length between the LED modules	
Terminal marking	Length [mm]
-B	60.5
-R	100
-P	135
+	170

The connection cables between 2 LED modules connect two associated terminals.

**NOTE: Before operating the PI-LED EDGE LIGHT SYSTEM, all connection cables must be mounted correctly! Wrong or missing cabling of the LED modules can lead to damage or destruction of the LED modules!**

### III CONNECTION - DALI DT8



No DALI polarity to be considered!

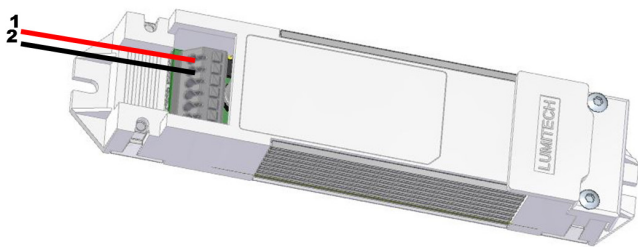
Terminal connection

Terminal No.	Function
1	+ 48V DC
2	- 0V DC
3	DALI IN
4	DALI IN
5	DALI OUT
6	DALI OUT

\*PI-LED systems with DALI interface are DALI1 / DALI Device Type 8 registered where colour control with regard to DALI Device Type 8 is fully implemented according to the underlying DALI standard. Since there is currently no possibility for testing products for compliance with the DALI Device Type 8 standard (no official DALI tester existing or available), a formal verification can not be provided.

*"The DALI colour control functionality (part 209/Device Type 8) of this product has not been verified."*

### III CONNECTION - ZIGBEE 3.0



Terminal connection

Terminal No.	Function
1	+ 48V DC
2	- 0V DC

### III FUNCTIONAL DESCRIPTION - DALI DT8\*

Mode	CCT	RGB	CIE
Colour	1,800K-16,000K	Channels separately controllable	PI-LED colour space
Brightness	1% - 100%		

**Information:**  
Colour accuracy in the colour mode is given only for CIE-xy points.

Possible assignment to a maximum of 16 groups and 16 light scenes

Recommended control units:

- LTP-1028 (DALI Touchpanel DT8)
- LTP-1029 (DALI Display 7" DT8)
- K-WDALI-USB (DALI USB Stick), together with the PC-App myPI-LED
- K-DALI-CDC (DALI control for daylight curves)
- K-DALI-SEQ (DALI control for colour sequences)
- LTP-DARA0x (DARA L Device in various versions, x = 1-6)

A complete list of compatible DALI DT8 control devices is available on the Lumitech Website.

### III FUNCTIONAL DESCRIPTION - ZIGBEE 3.0

Mode	CCT	RGB	CIE
Colour	1,800K-16,000K	Channels separately controllable	PI-LED colour space
Brightness	1% - 100%		

Possible assignment to groups and light scenes depending on control unit

Possible control units:

- LTP-1026 (NeoLink Box) together with the myPI-LED App for Android/iOS
- K-ZWALLY-1.x/2.x/3.x/4.x
- K-Z1001014 (ZigBee USB Stick), together with the PC-App myPI-LED

A complete list of compatible ZigBee 3.0 control devices is available on the Lumitech Website.

**Information:**

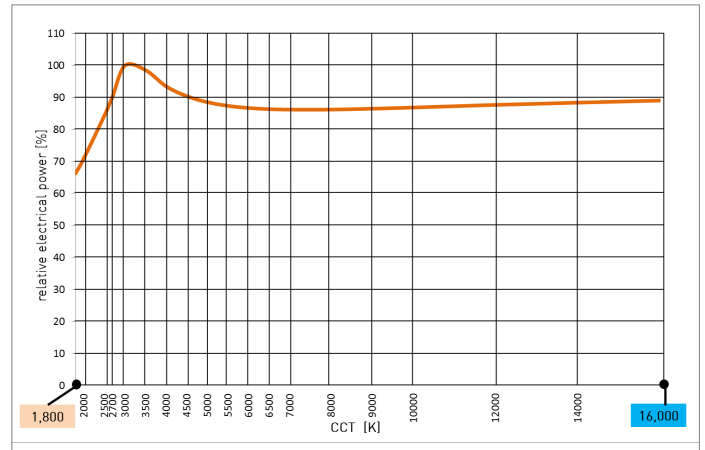
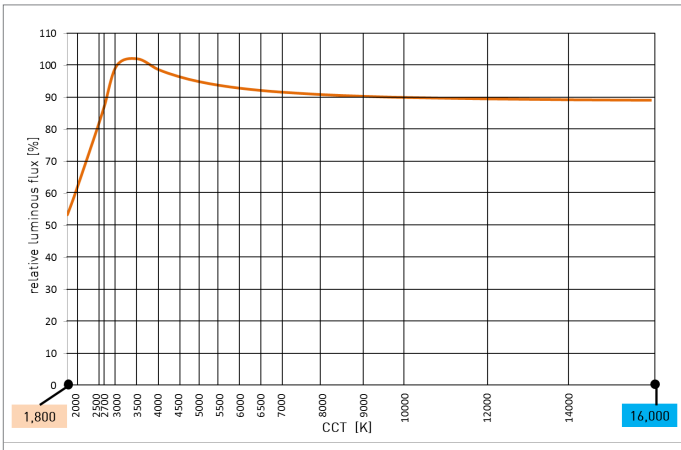
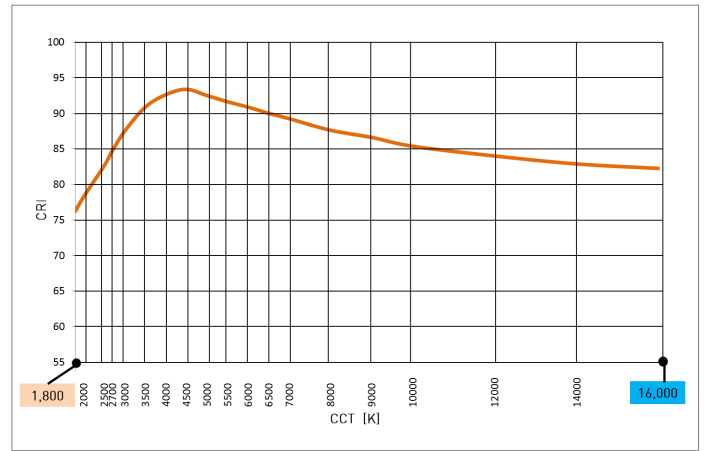
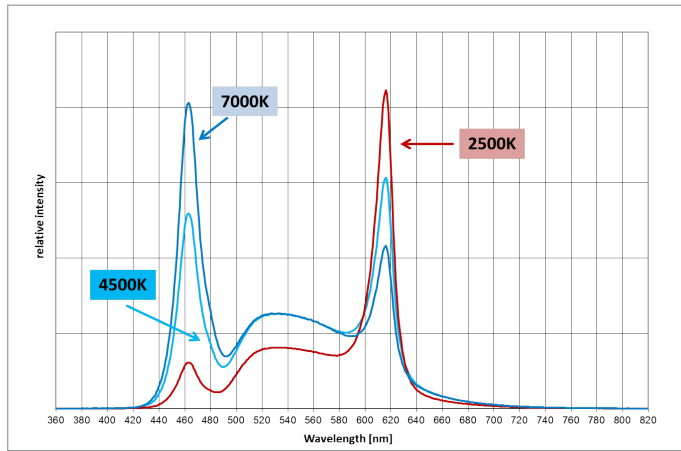
Depending on the assembly situation of the LMU, the range of the ZigBee module can vary. Mounting the LMU inside of a sealed metal case can dramatically reduce the ZigBee range!

### III NOTES ON STANDARDS AND SECURITY POLICIES

EOS/ESD security police	The PI-LED EDGE LIGHT SYSTEM contains components that are sensitive to electrostatic discharge. It may only be installed if appropriate EOS/ESD protection in manufacturing and in application is applied.
CE - marking of the luminaire	The PI-LED EDGE LIGHT SYSTEM is tested according to the applicable standards (see Standards). Corresponding standard tests of the final product must be carried out separately.
Fulfilled standards	EN62031: 2013-09 EN62471: 2009-03 EN61347-2-13
Underlying standards	ETSI EN 300 328 V2.1.1 EN 301 489-3 IEEE 1789-2015
	LED modules for general lighting - Safety specifications Photobiological safety of lamps and lamp systems Particular requirements for d.c. or a.c. supplied electronic control gear for LED modules Wideband transmission systems - Data transmission equipment operating in the 2,4 GHz ISM band Electromagnetic compatibility and Radio spectrum Matters (ERM) IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers

**EDGE LIGHT SYSTEM**

**PHOTOMETRICAL PROPERTIES**



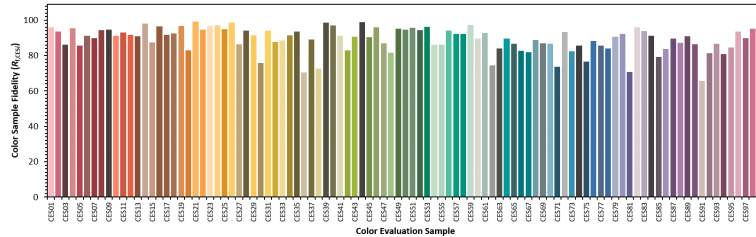
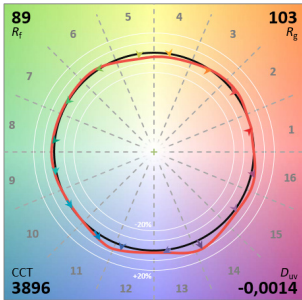
CCT [K]	general data			visual data by number of LED modules		melanopic values (relevant for melanopic light design)				
	CRI	CIE-x	CIE-y	Luminous flux [lm]		Efficiency [lm/W]	alpha (smel)	alpha (smel) x correction factor 1.103	Luminous flux (smel, d65) in %	Efficiency (smel, d65) in lm/W
				1 module / 2 modules / 3 modules						
1,800	76.3	0.5492	0.4082	1,335 / 2,670 / 4,005	53%	107	0.266	0.293	16	31
2,000	78.3	0.5268	0.4133	1,510 / 3,020 / 4,530	60%	112	0.302	0.333	20	37
2,500	82.6	0.4770	0.4137	1,985 / 3,970 / 5,955	79%	124	0.384	0.424	34	53
2,700	84.8	0.4599	0.4106	2,185 / 4,370 / 6,555	87%	127	0.414	0.457	40	58
3,000	87.5	0.4369	0.4041	2,500 / 5,000 / 7,500	100%	132	0.457	0.504	50	67
3,500	90.9	0.4053	0.3907	2,550 / 5,100 / 7,650	102%	137	0.523	0.577	59	79
4,000	92.6	0.3804	0.3767	2,470 / 4,940 / 7,410	99%	139	0.582	0.642	63	89
4,500	93.4	0.3608	0.3635	2,415 / 4,830 / 7,245	97%	140	0.635	0.700	68	98
5,000	92.5	0.3451	0.3516	2,375 / 4,750 / 7,125	95%	141	0.681	0.751	71	106
5,500	91.6	0.3324	0.3410	2,345 / 4,690 / 7,035	94%	141	0.723	0.797	75	112
6,000	90.9	0.3221	0.3318	2,325 / 4,650 / 6,975	93%	141	0.760	0.838	78	128
6,500	90.0	0.3135	0.3236	2,305 / 4,610 / 6,915	92%	140	0.794	0.876	81	123
7,000	89.3	0.3064	0.3165	2,295 / 4,590 / 6,885	92%	140	0.824	0.909	83	127
8,000	87.6	0.2952	0.3048	2,275 / 4,550 / 6,825	91%	139	0.874	0.964	88	134
9,000	86.6	0.2869	0.2956	2,260 / 4,520 / 6,780	90%	138	0.916	1.010	91	139
10,000	85.4	0.2806	0.2883	2,250 / 4,500 / 6,750	90%	137	0.950	1.045	94	144
12,000	84.0	0.2718	0.2776	2,240 / 4,480 / 6,720	90%	134	1.003	1.106	99	148
14,000	82.9	0.2659	0.2702	2,235 / 4,470 / 6,705	89%	133	1.041	1.148	103	153
16,000	82.3	0.2618	0.2648	2,230 / 4,460 / 6,690	89%	132	1.070	1.180	106	156

**Remark:** The coefficient alpha(smel) describes the melanopic effectiveness of the light source on humans and their circadian rhythm. To give the natural human biorhythm the best possible support, the melatonin production can be minimized by higher values of alpha(smel) throughout the day and stimulated by lower values in the evening.

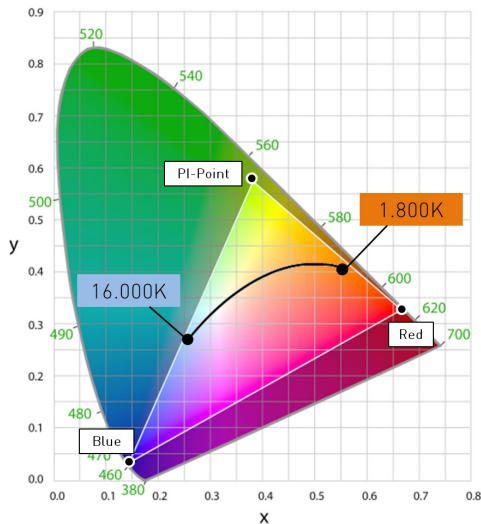
PI-LED enables the implementation of an illumination that is not only visual but also biological/melanopic effective. For a standard-conforming lighting design, Lumitech recommends the document DIN SPEC 5031-100 to be taken as a basis.

EDGE LIGHT SYSTEM

IES TM-30



COORDINATES AND TOLERANCES ACCORDING TO CIE 1931



Representable PI-LED colour space in the CIE 1931 system  
If a colour point outside of the triangle (PI-LED colour space) is set, the closest colour point within the triangle is referenced.

LIFETIME

tp [°C]	L80B10 [h]
75°C	50,000

Notes:

- Value L is a statistical value, the actual drop in the luminous flux can vary across the delivered LED modules.
- tp-position = tc-position LED Module

THERMAL CHARACTERISTICS

Ambient temperature	+10°C ... +45°C
Storage temperature	-20°C.. +80°C
$t_{c,max}$ LED Module	+75°C
$t_{c,max}$ LMU	+65°C

Lumitech PI-LED systems are equipped with integrated overtemperature protection that protects the LED module against thermal overloads.

If the temperature  $t_c$  at the LED module reaches 75°C, power is reduced by lowering the brightness. If the temperature remains at that level or reaches 80°C, the LED is totally switched off. The LED module is switched on again when the temperature  $t_c$  drops to below 65°C again.

