PI²-LED®

LUMITECH
YOUR LIGHTING SOLUTION

DALI | ZIGBEE | my PI-LED | Digital Illumination Interface Alliance

- constant luminous flux over colour temperature
- high efficiencies and thermal stability
- flexible powering and length setup possible

PI-LED TAPE

Human Centric Lighting
makes the day light.

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	2 segments (min.)	16 segments (max.)
Luminous source	LED Flex Tape with SMD assembly	
Supply voltage	24V DC	
Typ. power	2.2 W	17.6 W
Typ. luminous flux	300 lm	2,400 lm
Typ. efficiency per PI-LED system	136 lm / W	136 lm / W
Control mode	ZigBee 3.0, DALI DT8	
Dimmable	1% - 100% **Modular Dimming* / Camera-Ready***	
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	
$t_{c, max}$ LED module / $t_{c, max}$ LMU	+75°C / +85°C	
Lifetime	50,000h L80B10	
Additional features	Low tolerance for colour temperature (max. MacAdam 2)	

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

Last change: 20.12.2021 PI-LED-Tape_en

Notes concerning cabling, configuration, installation and operation of the PI-LED TAPE SYSTEM can be found in the associated Application Note. The Application Note is enclosed with the product & can be downloaded from the Lumitech website.

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PI-LED TAPE

ORDERING DATA AND TECHNICAL DATA – PI-LED TAPE IP20

Type	Description	Control mode	Cable [mm]	[lm]	Voltage [V DC]	Power typ./max [W]	Number of segments	Energy Efficiency Class
LTS-00280-15-TA20	PI-LED Tape IP20 300LM / 2x140mm / 2,2W / DALI DT8 / 700mm	DALI DT8	700	300	24	2.2 / 2.6	2	E
LTS-00280-16-TA20	PI-LED Tape IP20 300LM / 2x140mm / 2,2W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	300	24	2.2 / 2.6	2	E
LTS-00420-15-TA20	PI-LED Tape IP20 450LM / 3x140mm / 3,3W / DALI DT8 / 700mm	DALI DT8	700	450	24	3.3 / 3.9	3	E
LTS-00420-16-TA20	PI-LED Tape IP20 450LM / 3x140mm / 3,3W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	450	24	3.3 / 3.9	3	E
LTS-00560-15-TA20	PI-LED Tape IP20 600LM / 4x140mm / 4,4W / DALI DT8 / 700mm	DALI DT8	700	600	24	4.4 / 5.2	4	E
LTS-00560-16-TA20	PI-LED Tape IP20 600LM / 4x140mm / 4,4W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	600	24	4.4 / 5.2	4	E
LTS-00700-15-TA20	PI-LED Tape IP20 750LM / 5x140mm / 5,5W / DALI DT8 / 700mm	DALI DT8	700	750	24	5.5 / 6.5	5	E
LTS-00700-16-TA20	PI-LED Tape IP20 750LM / 5x140mm / 5,5W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	750	24	5.5 / 6.5	5	E
LTS-00840-15-TA20	PI-LED Tape IP20 900LM / 6x140mm / 6,6W / DALI DT8 / 700mm	DALI DT8	700	900	24	6.6 / 7.8	6	E
LTS-00840-16-TA20	PI-LED Tape IP20 900LM / 6x140mm / 6,6W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	900	24	6.6 / 7.8	6	E
LTS-00980-15-TA20	PI-LED Tape IP20 1050LM / 7x140mm / 7,7W / DALI DT8 / 700mm	DALI DT8	700	1,050	24	7.7 / 9.1	7	E
LTS-00980-16-TA20	PI-LED Tape IP20 1050LM / 7x140mm / 7,7W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,050	24	7.7 / 9.1	7	E
LTS-01120-15-TA20	PI-LED Tape IP20 1200LM / 8x140mm / 8,8W / DALI DT8 / 700mm	DALI DT8	700	1,200	24	8.8 / 10.4	8	E
LTS-01120-16-TA20	PI-LED Tape IP20 1200LM / 8x140mm / 8,8W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,200	24	8.8 / 10.4	8	E
LTS-01260-15-TA20	PI-LED Tape IP20 1350LM / 9x140mm / 9,9W / DALI DT8 / 700mm	DALI DT8	700	1,350	24	9.9 / 11.7	9	E
LTS-01260-16-TA20	PI-LED Tape IP20 1350LM / 9x140mm / 9,9W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,350	24	9.9 / 11.7	9	E
LTS-01400-15-TA20	PI-LED Tape IP20 1500LM / 10x140mm / 11W / DALI DT8 / 700mm	DALI DT8	700	1,500	24	11.0 / 13.0	10	E
LTS-01400-16-TA20	PI-LED Tape IP20 1500LM / 10x140mm / 11W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,500	24	11.0 / 13.0	10	E
LTS-01540-15-TA20	PI-LED Tape IP20 1650LM / 11x140mm / 12,1W / DALI DT8 / 700mm	DALI DT8	700	1,650	24	12.1 / 14.3	11	E
LTS-01540-16-TA20	PI-LED Tape IP20 1650LM / 11x140mm / 12,1W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,650	24	12.1 / 14.3	11	E
LTS-01680-15-TA20	PI-LED Tape IP20 1800LM / 12x140mm / 13,2W / DALI DT8 / 700mm	DALI DT8	700	1,800	24	13.2 / 15.6	12	E
LTS-01680-16-TA20	PI-LED Tape IP20 1800LM / 12x140mm / 13,2W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,800	24	13.2 / 15.6	12	E
LTS-01820-15-TA20	PI-LED Tape IP20 1950LM / 13x140mm / 14,3W / DALI DT8 / 700mm	DALI DT8	700	1,950	24	14.3 / 16.9	13	E
LTS-01820-16-TA20	PI-LED Tape IP20 1950LM / 13x140mm / 14,3W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,950	24	14.3 / 16.9	13	E
LTS-01960-15-TA20	PI-LED Tape IP20 2100LM / 14x140mm / 15,4W / DALI DT8 / 700mm	DALI DT8	700	2,100	24	15.4 / 18.2	14	E
LTS-01960-16-TA20	PI-LED Tape IP20 2100LM / 14x140mm / 15,4W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,100	24	15.4 / 18.2	14	E
LTS-02100-15-TA20	PI-LED Tape IP20 2250LM / 15x140mm / 16,5W / DALI DT8 / 700mm	DALI DT8	700	2,250	24	16.5 / 19.5	15	E
LTS-02100-16-TA20	PI-LED Tape IP20 2250LM / 15x140mm / 16,5W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,250	24	16.5 / 19.5	15	E
LTS-02240-15-TA20	PI-LED Tape IP20 2400LM / 16x140mm / 17,6W / DALI DT8 / 700mm	DALI DT8	700	2,400	24	17.6 / 20.8	16	E
LTS-02240-16-TA20	PI-LED Tape IP20 2400LM / 16x140mm / 17,6W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,400	24	17.6 / 20.8	16	E

Notes:

- All values apply at ta=25°C, tc = 35°C, 100% brightness and at 4,000K | illumination specifications in accordance with CIE1931
- Tolerance ranges: illumination data +/-15% | electrical data +/-15% | supply voltage 48V DC +/- 5%
- If the supply voltage exceeds the max. permitted operating voltage, the PI-LED TAPE 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 TAPE SYSTEM will be greatly reduced or the system may be damaged. Temperature measurements of the LED tape or the LMU 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 TAPE SYSTEM is limited to the corresponding values above in column "Power typ. | max. (W)" due to its software.
- According to colour temperature and temperature of the PI-LED TAPE SYSTEM, the Mac Adam tolerance takes on values < 4.
- All diagrams shown in this document show typical curves and not the exact behaviour of single LED modules.

Notes concerning cabling, configuration, installation and operation of the PI-LED TAPE SYSTEM can be found in the associated Application Note. The Application Note is enclosed with the product & can be downloaded from the Lumitech website.

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PI-LED TAPE

ORDERING DATA AND TECHNICAL DATA – PI-LED TAPE IP55

Type	Description	Control mode	Cable [mm]	[lm]	Voltage [V DC]	Power typ./max [W]	Number of segments	Energy Efficiency Class
LTS-00280-15-TA55	PI-LED Tape IP55 300LM / 2x140mm / 2,2W / DALI DT8 / 700mm	DALI DT8	700	300	24	2.2 / 2.6	2	E
LTS-00280-16-TA55	PI-LED Tape IP55 300LM / 2x140mm / 2,2W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	300	24	2.2 / 2.6	2	E
LTS-00420-15-TA55	PI-LED Tape IP55 450LM / 3x140mm / 3,3W / DALI DT8 / 700mm	DALI DT8	700	450	24	3.3 / 3.9	3	E
LTS-00420-16-TA55	PI-LED Tape IP55 450LM / 3x140mm / 3,3W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	450	24	3.3 / 3.9	3	E
LTS-00560-15-TA55	PI-LED Tape IP55 600LM / 4x140mm / 4,4W / DALI DT8 / 700mm	DALI DT8	700	600	24	4.4 / 5.2	4	E
LTS-00560-16-TA55	PI-LED Tape IP55 600LM / 4x140mm / 4,4W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	600	24	4.4 / 5.2	4	E
LTS-00700-15-TA55	PI-LED Tape IP55 750LM / 5x140mm / 5,5W / DALI DT8 / 700mm	DALI DT8	700	750	24	5.5 / 6.5	5	E
LTS-00700-16-TA55	PI-LED Tape IP55 750LM / 5x140mm / 5,5W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	750	24	5.5 / 6.5	5	E
LTS-00840-15-TA55	PI-LED Tape IP55 900LM / 6x140mm / 6,6W / DALI DT8 / 700mm	DALI DT8	700	900	24	6.6 / 7.8	6	E
LTS-00840-16-TA55	PI-LED Tape IP55 900LM / 6x140mm / 6,6W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	900	24	6.6 / 7.8	6	E
LTS-00980-15-TA55	PI-LED Tape IP55 1050LM / 7x140mm / 7,7W / DALI DT8 / 700mm	DALI DT8	700	1,050	24	7.7 / 9.1	7	E
LTS-00980-16-TA55	PI-LED Tape IP55 1050LM / 7x140mm / 7,7W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,050	24	7.7 / 9.1	7	E
LTS-01120-15-TA55	PI-LED Tape IP55 1200LM / 8x140mm / 8,8W / DALI DT8 / 700mm	DALI DT8	700	1,200	24	8.8 / 10.4	8	E
LTS-01120-16-TA55	PI-LED Tape IP55 1200LM / 8x140mm / 8,8W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,200	24	8.8 / 10.4	8	E
LTS-01260-15-TA55	PI-LED Tape IP55 1350LM / 9x140mm / 9,9W / DALI DT8 / 700mm	DALI DT8	700	1,350	24	9.9 / 11.7	9	E
LTS-01260-16-TA55	PI-LED Tape IP55 1350LM / 9x140mm / 9,9W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,350	24	9.9 / 11.7	9	E
LTS-01400-15-TA55	PI-LED Tape IP55 1500LM / 10x140mm / 11W / DALI DT8 / 700mm	DALI DT8	700	1,500	24	11.0 / 13.0	10	E
LTS-01400-16-TA55	PI-LED Tape IP55 1500LM / 10x140mm / 11W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,500	24	11.0 / 13.0	10	E
LTS-01540-15-TA55	PI-LED Tape IP55 1650LM / 11x140mm / 12,1W / DALI DT8 / 700mm	DALI DT8	700	1,650	24	12.1 / 14.3	11	E
LTS-01540-16-TA55	PI-LED Tape IP55 1650LM / 11x140mm / 12,1W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,650	24	12.1 / 14.3	11	E
LTS-01680-15-TA55	PI-LED Tape IP55 1800LM / 12x140mm / 13,2W / DALI DT8 / 700mm	DALI DT8	700	1,800	24	13.2 / 15.6	12	E
LTS-01680-16-TA55	PI-LED Tape IP55 1800LM / 12x140mm / 13,2W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,800	24	13.2 / 15.6	12	E
LTS-01820-15-TA55	PI-LED Tape IP55 1950LM / 13x140mm / 14,3W / DALI DT8 / 700mm	DALI DT8	700	1,950	24	14.3 / 16.9	13	E
LTS-01820-16-TA55	PI-LED Tape IP55 1950LM / 13x140mm / 14,3W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	1,950	24	14.3 / 16.9	13	E
LTS-01960-15-TA55	PI-LED Tape IP55 2100LM / 14x140mm / 15,4W / DALI DT8 / 700mm	DALI DT8	700	2,100	24	15.4 / 18.2	14	E
LTS-01960-16-TA55	PI-LED Tape IP55 2100LM / 14x140mm / 15,4W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,100	24	15.4 / 18.2	14	E
LTS-02100-15-TA55	PI-LED Tape IP55 2250LM / 15x140mm / 16,5W / DALI DT8 / 700mm	DALI DT8	700	2,250	24	16.5 / 19.5	15	E
LTS-02100-16-TA55	PI-LED Tape IP55 2250LM / 15x140mm / 16,5W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,250	24	16.5 / 19.5	15	E
LTS-02240-15-TA55	PI-LED Tape IP55 2400LM / 16x140mm / 17,6W / DALI DT8 / 700mm	DALI DT8	700	2,400	24	17.6 / 20.8	16	E
LTS-02240-16-TA55	PI-LED Tape IP55 2400LM / 16x140mm / 17,6W / ZigBee 3.0 / 700mm	ZigBee 3.0	700	2,400	24	17.6 / 20.8	16	E

Every PI-LED TAPE system consists of:
- **1 pc. PI-LED LMU**
- **PI-LED TAPE in predefined length (according to ordered article number)**
- **1 pc. connection cable between PI-LED LMU and PI-LED TAPE**
- **24V DC driver (as accessory)**

A PI-LED TAPE System must be operated only after complete configuration and cabling.
The length of the PI-LED TAPE per PI-LED LMU is given by the particular article number and the PI-LED LMU is programmed accordingly.
Cutting off segments of the PI-LED TAPE per PI-LED LMU subsequently is not permitted and can lead to damage or destruction of the PI-LED TAPE system!
Adding segments to the PI-LED TAPE per PI-LED LMU subsequently (e.g. by soldering on further PI-LED TAPE segments) is not permitted and can lead to malfunction of the PI-LED TAPE system.

Alternative luminous flux levels are available on request.

Notes:
- All values apply at ta=25°C, tc = 35°C, 100% brightness and at 4,000K | illumination specifications in accordance with CIE1931
- Tolerance ranges: illumination data +/-15% | electrical data +/-15% | supply voltage 48V DC +/- 5%
- If the supply voltage exceeds the max. permitted operating voltage, the PI-LED TAPE 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 TAPE SYSTEM will be greatly reduced or the system may be damaged. Temperature measurements of the LED tape or the LMU 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 TAPE SYSTEM is limited to the corresponding values above in column "Power typ. | max. (W)" due to its software.
- According to colour temperature and temperature of the PI-LED TAPE SYSTEM, the Mac Adam tolerance takes on values < 4.
- All diagrams shown in this document show typical curves and not the exact behaviour of single LED modules.

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PI-LED TAPE

TECHNICAL DRAWINGS AND DATA

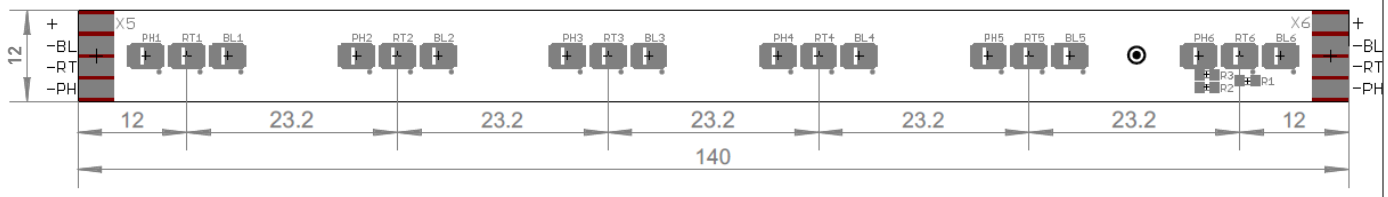
Dimension/Features of one PI-LED TAPE segment

L/W [mm]	Light spots P / B / PCR*	Assembly of light spots
140 x 12	6 / 6 / 6	Linear

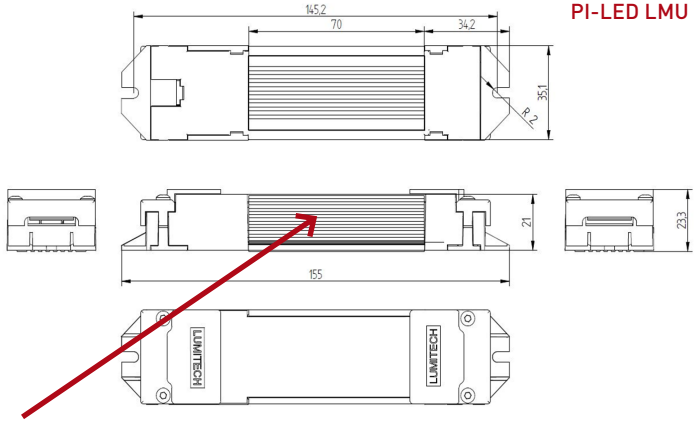
*Each light spot represents a LED triple consisting of 3 LED chips on which the PI-LED technology is based on: P = Phosphor / B = Blue / PCR = Phosphor Converted Red

Size in mm

PI-LED TAPE segment



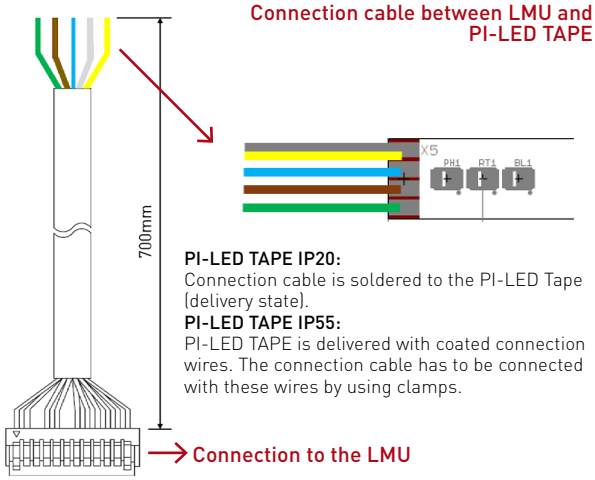
PI-LED LMU



tc point on the LMU = any point on the heat sink

Size in mm

Connection cable between LMU and PI-LED TAPE



PI-LED TAPE IP20:
Connection cable is soldered to the PI-LED Tape (delivery state).

PI-LED TAPE IP55:
PI-LED TAPE is delivered with coated connection wires. The connection cable has to be connected with these wires by using clamps.

Connection to the LMU

ACCESSORIES: RECOMMENDED DRIVERS

DRIVER

Type		Description	Power
LTP-1120		CONVERTER 15W 24V IP10 138x40x12mm	15W
LTP-1077		CONVERTER 35W 24V IP20 142x43x30mm	35W
LTP-1062		CONVERTER 60W 24V IP20 225x43x30,2mm	60W
LTP-1063		CONVERTER 100W 24V IP20 295x43x30mm	100W

For one driver, one or more PI-LED TAPE systems of different types can be combined. The total quantity of the PI-LED TAPE systems connected to one driver depends on the total power of these systems.

In order to plan which and how many drivers are needed, the following notes must be considered:

- The maximum power of the PI-LED TAPE systems (not the typical power) serves as calculation base for obtaining the total power of the used systems.
- Final power value = calculated total power x 1.15.

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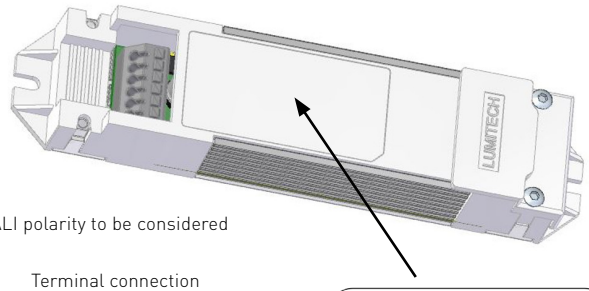
PI-LED TAPE

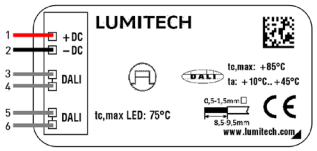
CONNECTION - DALI DT8



No DALI polarity to be considered

Terminal connection

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



FUNCTIONAL DESCRIPTION - DALI DT8*

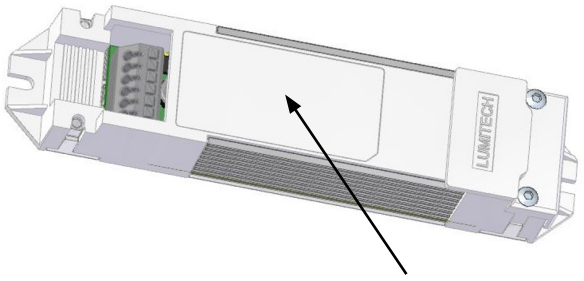
Mode	CCT	RGB	CIE
Colour	1,800K-16,000K	Channels separately controllable	PI-LED colour space
Brightness	1% - 100%		

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

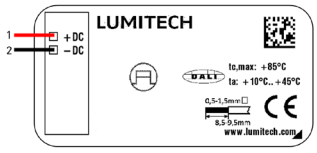
*PI-LED systems with DALI interface are DALI1 / DALI Device Type 8 registered where colour control with regard to DALI Device Type 8 is fully implemented according to the underlying DALI standard. Since there is currently no possibility for testing products for compliance with the DALI Device Type 8 standard (no official DALI tester exisiting 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."

CONNECTION - ZIGBEE 3.0



Terminal connection

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



FUNCTIONAL DESCRIPTION - ZIGBEE 3.0

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 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-x.2

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!

NOTES ON STANDARDS AND SECURITY POLICIES

EOS/ESD security police	The PI-LED TAPE 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 TAPE 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 EN62471 EN61347-2-13 ETSI EN 300 328 V2.1.1 EN 301 489-3	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)

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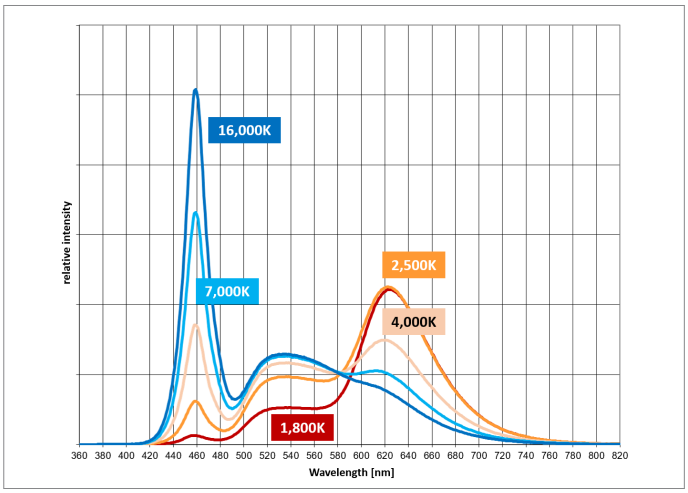
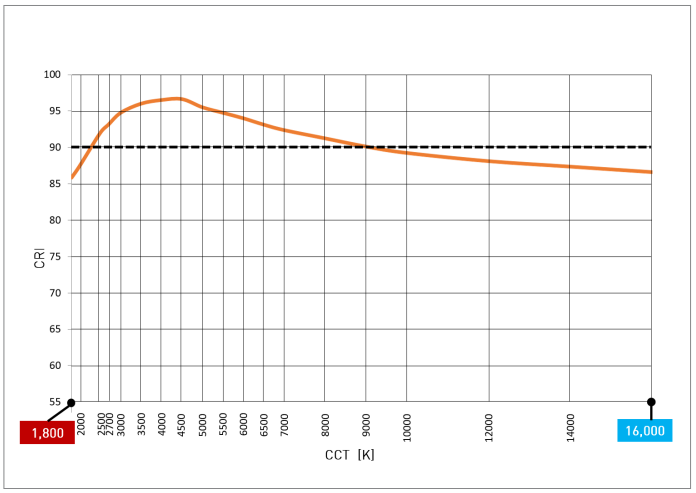
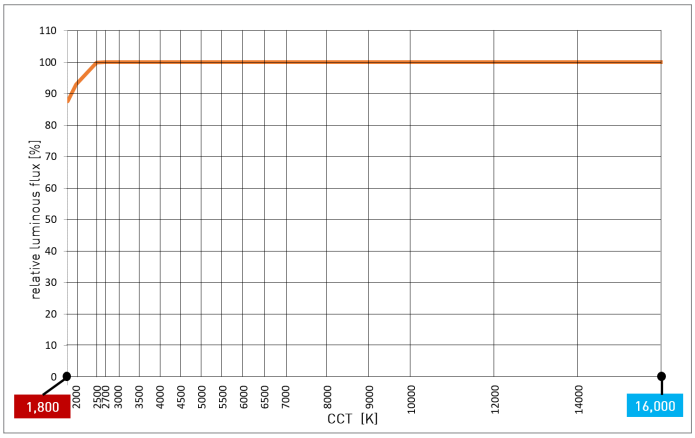
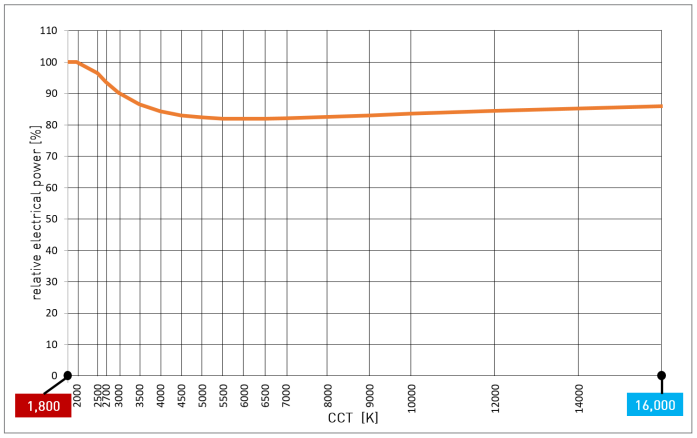
PHOTOMETRICAL PROPERTIES / VISUAL DATA AND DATA FOR MELANOPIC LIGHT DESIGN









CCT [K]	general data			visual data (exemplary for a PI-LED TAPE SYSTEM with 8 segments)		melanopic values (relevant for melanopic light design)			
	CRI	CIE-x	CIE-y	luminous flux [lm]	efficieny [lm/W]	alpha (smel)	alpha (smel) x correction factor 1.103	luminous flux (smel, d65) in %	efficiency (smel, d65) in lm/W
1,800	85.9	0.5492	0.4082	2,112 / 88%	105	0.256	0.282	25	30
2,000	87.5	0.5268	0.4133	2,240 / 93%	112	0.300	0.331	31	37
2,500	92.0	0.4770	0.4137	2,400 / 100%	124	0.399	0.440	44	55
2,700	93.1	0.4599	0.4106	2,400 / 100%	128	0.436	0.481	48	62
3,000	94.8	0.4369	0.4041	2,400 / 100%	133	0.488	0.538	54	72
3,500	96.0	0.4053	0.3907	2,400 / 100%	139	0.567	0.624	63	87
4,000	96.5	0.3804	0.3767	2,400 / 100%	142	0.638	0.704	70	100
4,500	96.6	0.3608	0.3635	2,400 / 100%	144	0.701	0.773	77	112
5,000	95.5	0.3451	0.3516	2,400 / 100%	146	0.757	0.835	84	122
5,500	94.8	0.3324	0.3410	2,400 / 100%	146	0.807	0.890	89	130
6,000	94.0	0.3221	0.3318	2,400 / 100%	147	0.852	0.940	94	138
6,500	93.1	0.3135	0.3236	2,400 / 100%	146	0.892	0.984	98	144
7,000	92.4	0.3064	0.3165	2,400 / 100%	146	0.928	1.023	102	150
8,000	91.3	0.2952	0.3048	2,400 / 100%	145	0.989	1.090	109	159
9,000	90.1	0.2869	0.2956	2,400 / 100%	144	1.038	1.145	115	165
10,000	89.3	0.2806	0.2883	2,400 / 100%	144	1.079	1.191	119	171
12,000	88.1	0.2718	0.2776	2,400 / 100%	142	1.142	1.259	126	179
14,000	87.4	0.2659	0.2702	2,400 / 100%	141	1.188	1.310	131	184
16,000	86.6	0.2618	0.2648	2,400 / 100%	140	1.222	1.348	135	188

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.

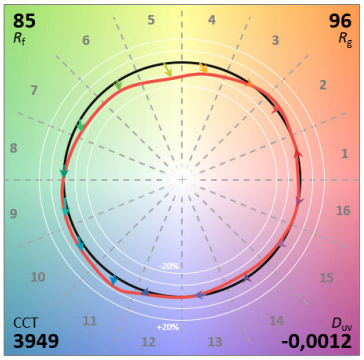
Notes concerning cabling, configuration, installation and operation of the PI-LED TAPE SYSTEM can be found in the associated Application Note. The Application Note is enclosed with the product & can be downloaded from the Lumitech website.

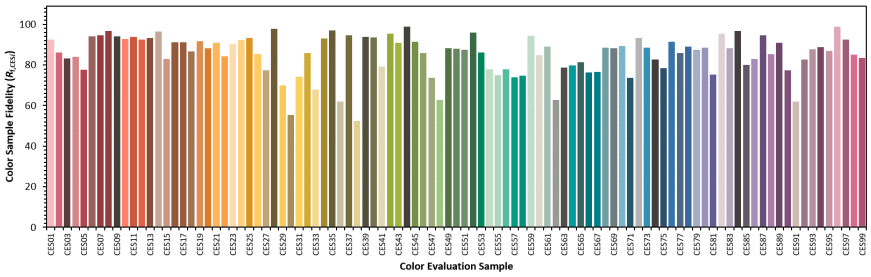
PI²-LED®

LUMITECH
YOUR LIGHTING SOLUTION

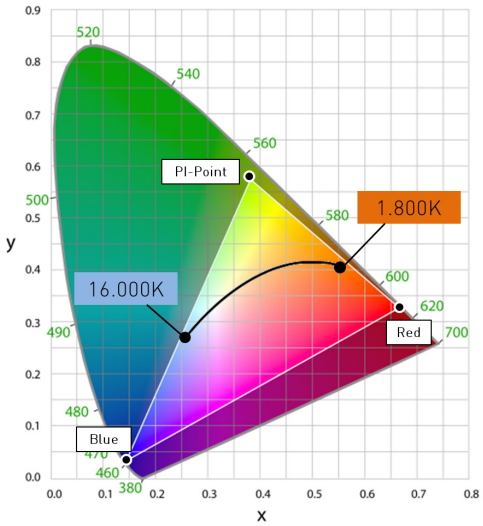
PI-LED TAPE

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 PI-LED TAPE

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 tapes.
- tp-position = tc-position LED tape

THERMAL CHARACTERISTICS

Ambient temperature	+10°C ... +45°C
Storage temperature	-20°C.. +80°C
$t_{c, max}$ PI-LED tape	+75°C
$t_{c, max}$ LMU	+85°C @ ta = 45°C