24 MM INDOOR SERIES

Product family datasheet

PRODUCT FEATURES

- Constant current design
- Cree LED® 2835 G class (Performance) or 2835 J class (Economy) inside
- Wide range of CCTs (2200K-6500K) and CRI options including Pro9 technology[1]
- Independent dual channel design for human centric applications
- Up to 205 lm/W efficacy at nominal driving current and t_c for Performance version
- CRI 95 fidelity version available for Economy version
- Wide 120° angle
- Precision dimming to ensure colour consistency at low currents[2]
- Enhanced sulfur resistance
- WAGO 2065 series connectors for easy installation
- 4 terminals per channel for serial or parallel wiring
- Long lifetime L80 >100 000 hrs[3]
- t_c = 95°C
- Zhaga BOOK 7 compliant
- 0.5ft - 5ft versions available
- 5 years warranty[4]
- Made in EU

[1] See table below for details
[2] On request, contact your local sales for availability
[3] For tc = 85°C. For tc = 95°C L80 = 79 000hrs
[4] See www.tron.cz for detailed conditions

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GENERAL SPECIFICATIONS

Parameter	Value Economy version	Value Performance version
Viewing angle (FWHM)	120°	120°
R9 value for CRI90 versions[1]	Min. 50	Min. 50
R9 value for CRI95 versions[1]	Min. 80	Min. 80
Nominal current	300 mA	300 mA
Maximum current	700 mA	1 050 mA
Nominal t_c	45 °C	45 °C
Maximum t_c	95 °C	95 °C
Ambient temperature range	-40 °C - +70 °C	-40 °C - +70 °C
Maximum working voltage for insulation[2,3]	300 V	300 V
Insulation test voltage	1.6 kV	1.6 kV
Printed board material	FR4	FR4
Printed board CTI	≥600	≥600
Risk Group acc. to EN 62471	RG1[4]	RG1[4]
Protection	IP00	IP00
Lumen maintenance L80B50	>100 000 h[5]	>100 000 h[5]
Classification acc. to IEC 62031	Built-in	Built-in
Warranty	5 years	5 years

[1] Valid for standard versions only, not valid for Pro9.
[2] See page 8 for detailed mounting instructions
[3] Type of insulation - basic
[4] For cool white exceeds RG1 threshold at module current of 786mA
[5] For tc = 85°C. For tc = 95°C L80B50 = 79 000hrs

ECONOMY VERSION - TECHNICAL SPECIFICATIONS

Length	CCT	CRI[1]	Nominal current	Maximum current	Luminous flux[2]	Forward voltage	Power	Efficacy	Colour consistency[3]	Energy class
140 mm (0.5 ft)	2700 K	80	300 mA	700 mA	582 lm	10.9 V	3.3 W	177 lm/W	3 SDCM	D
		90			493 lm			149 lm/W		E
		95			415 lm			125 lm/W		F
	4000 K	80			645 lm			195 lm/W		C
		90			551 lm			167 lm/W		D
		95			470 lm			142 lm/W		E
	6500 K	80			645 lm			195 lm/W		C
		90			551 lm			167 lm/W		D
		95			470 lm			142 lm/W		E
280 mm (1 ft)	2700 K	80	300 mA	700 mA	1 165 lm	21.8 V	6.6 W	177 lm/W	3 SDCM	D
		90			986 lm			149 lm/W		E
		95			830 lm			125 lm/W		F
	4000 K	80			1 290 lm			195 lm/W		C
		90			1 103 lm			167 lm/W		D
		95			941 lm			142 lm/W		E
	6500 K	80			1 290 lm			195 lm/W		C
		90			1 103 lm			167 lm/W		D
		95			941 lm			142 lm/W		E
560 mm (2 ft)	2700 K	80	300 mA	700 mA	2 330 lm	43.7 V	13.1 W	177 lm/W	3 SDCM	D
		90			1 972 lm			149 lm/W		E
		95			1 661 lm			125 lm/W		F
	4000 K	80			2 580 lm			195 lm/W		C
		90			2 205 lm			167 lm/W		D
		95			1 882 lm			142 lm/W		E
	6500 K	80			2 580 lm			195 lm/W		C
		90			2 205 lm			167 lm/W		D
		95			1 882 lm			142 lm/W		E
1 120 mm (4 ft)	2700 K	80	300 mA	700 mA	4 660 lm	87.3V	26.2 W	177 lm/W	3 SDCM	D
		90			3 944 lm			149 lm/W		E
		95			3 322 lm			125 lm/W		F
	4000 K	80			5 159 lm			195 lm/W		C
		90			4 410 lm			167 lm/W		D
		95			3 763 lm			142 lm/W		E
	6500 K	80			5 159 lm			195 lm/W		C
		90			4 410 lm			167 lm/W		D
		95			3 763 lm			142 lm/W		E
1 400 mm (5 ft)	2700 K	80	300 mA	700 mA	5 825 lm	109.0 V	32.8 W	177 lm/W	3 SDCM	D
		90			4 930 lm			149 lm/W		E
		95			4 152 lm			125 lm/W		F
	4000 K	80			6 449 lm			195 lm/W		C
		90			5 513 lm			167 lm/W		D
		95			4 704 lm			142 lm/W		E
	6500 K	80			6 449 lm			195 lm/W		C
		90			5 513 lm			167 lm/W		D
		95			4 704 lm			142 lm/W		E

[1] CRI tollerance ±2
[2] Luminous flux tolerance ±7%
[3] Colour coordinate tollerance ±0.01

* At nominal PCB drive current and tc of 45°C
** Specified values are typical

PRO9 ECONOMY VERSION - TECHNICAL SPECIFICATIONS

Length	CCT	CRI[1]	Nominal current	Maximum current	Luminous flux[2]	Forward voltage	Power	Efficacy	Colour consistency[3]	Energy class
140 mm (0.5 ft)	2700 K	90	300 mA	700 mA	590 lm	10.9 V	3.3 W	180 lm/W	3 SDCM	C
	4000 K	90			628 lm			192 lm/W		C
	6500 K	90			619 lm			189 lm/W		C
280 mm (1 ft)	2700 K	90	300 mA	700 mA	1 181 lm	21.8 V	6.6 W	180 lm/W	3 SDCM	C
	4000 K	90			1 255 lm			192 lm/W		C
	6500 K	90			1 239 lm			189 lm/W		C
560 mm (2 ft)	2700 K	90	300 mA	700 mA	2 361 lm	43.7 V	13.1 W	180 lm/W	3 SDCM	C
	4000 K	90			2 511 lm			192 lm/W		C
	6500 K	90			2 478 lm			189 lm/W		C
1 120 mm (4 ft)	2700 K	90	300 mA	700 mA	4 722 lm	87.3 V	26.2 W	180 lm/W	3 SDCM	C
	4000 K	90			5 022 lm			192 lm/W		C
	6500 K	90			4 955 lm			189 lm/W		C
1 400 mm (5 ft)	2700 K	90	300 mA	700 mA	5 903 lm	109.0 V	32.8 W	180 lm/W	3 SDCM	C
	4000 K	90			6 277 lm			192 lm/W		C
	6500 K	90			6 194 lm			189 lm/W		C

[1] CRI tollerance ±2
[2] Luminous flux tolerance ±7%
[3] Colour coordinate tollerance ±0.01

* At nominal PCB drive current and tc of 45°C
** Specified values are typical

PERFORMANCE VERSION - TECHNICAL SPECIFICATIONS

Length	CCT	CRI[1]	Nominal current	Maximum current	Luminous flux[2]	Forward voltage	Power	Efficacy	Colour consistency[3]	Energy class
140 mm (0.5 ft)	2200 K	80	300 mA	1 050 mA	527 lm	10.9 V	3.3 W	161 lm/W	3 SDCM	D
		90			448 lm			137 lm/W		E
	2700 K	80			606 lm			186 lm/W		C
		90			515 lm			158 lm/W		D
	4000 K	80			669 lm			205 lm/W		C
		90			575 lm			176 lm/W		D
	6500 K	80			666 lm			204 lm/W		C
		90			573 lm			175 lm/W		D
280 mm (1 ft)	2200 K	80	300 mA	1 050 mA	1 054 lm	21.7 V	6.5 W	161 lm/W	3 SDCM	D
		90			895 lm			137 lm/W		E
	2700 K	80			1 212 lm			186 lm/W		C
		90			1 030 lm			158 lm/W		D
	4000 K	80			1 337 lm			205 lm/W		C
		90			1 150 lm			176 lm/W		D
	6500 K	80			1 332 lm			204 lm/W		C
		90			1 145 lm			175 lm/W		D
560 mm (2 ft)	2200 K	80	300 mA	1 050 mA	2 107 lm	43.5 V	13.1 W	161 lm/W	3 SDCM	D
		90			1 790 lm			137 lm/W		E
	2700 K	80			2 424 lm			186 lm/W		C
		90			2 059 lm			158 lm/W		D
	4000 K	80			2 674 lm			205 lm/W		C
		90			2 299 lm			176 lm/W		D
	6500 K	80			2 664 lm			204 lm/W		C
		90			2 290 lm			175 lm/W		D
1 120 mm (4 ft)	2200 K	80	300 mA	1 050 mA	4 214 lm	86.9 V	26.1 W	161 lm/W	3 SDCM	D
		90			3 581 lm			137 lm/W		E
	2700 K	80			4 848 lm			186 lm/W		C
		90			4 118 lm			158 lm/W		D
	4000 K	80			5 347 lm			205 lm/W		C
		90			4 598 lm			176 lm/W		D
	6500 K	80			5 328 lm			204 lm/W		C
		90			4 579 lm			175 lm/W		D
1 400 mm (5 ft)	2200 K	80	300 mA	1 050 mA	5 268 lm	108.7 V	32.6 W	161 lm/W	3 SDCM	D
		90			4 476 lm			137 lm/W		E
	2700 K	80			6 060 lm			186 lm/W		C
		90			5 148 lm			158 lm/W		D
	4000 K	80			6 684 lm			205 lm/W		C
		90			5 748 lm			176 lm/W		D
	6500 K	80			6 660 lm			204 lm/W		C
		90			5 724 lm			175 lm/W		D

[1] CRI tollerance ±2
[2] Luminous flux tolerance ±7%
[3] Colour coordinate tollerance ±0.01

* At nominal PCB drive current and tc of 45°C
** Specified values are typical

PRO9 PERFORMANCE VERSION - TECHNICAL SPECIFICATIONS

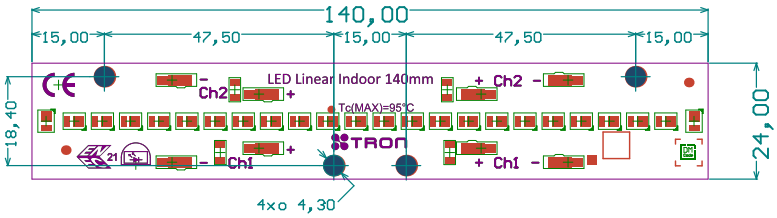
Length	CCT	CRI[1]	Nominal current	Maximum current	Luminous flux[2]	Forward voltage	Power	Efficacy	Colour consistency[3]	Energy class
140 mm (0.5 ft)	2700 K	90	300 mA	1 050 mA	599 lm	10.9 V	3.3 W	184 lm/W	3 SDCM	C
	4000 K	90			639 lm			196 lm/W		C
	6500 K	90			632 lm			194 lm/W		C
280 mm (1 ft)	2700 K	90	300 mA	1 050 mA	1 198 lm	21.7 V	6.5 W	184 lm/W	3 SDCM	C
	4000 K	90			1 277 lm			196 lm/W		C
	6500 K	90			1 265 lm			194 lm/W		C
560 mm (2 ft)	2700 K	90	300 mA	1 050 mA	2 395 lm	43.5 V	13.1 W	184 lm/W	3 SDCM	C
	4000 K	90			2 555 lm			196 lm/W		C
	6500 K	90			2 529 lm			194 lm/W		C
1 120 mm (4 ft)	2700 K	90	300 mA	1 050 mA	4 791 lm	86.9 V	26.1 W	184 lm/W	3 SDCM	C
	4000 K	90			5 109 lm			196 lm/W		C
	6500 K	90			5 059 lm			194 lm/W		C
1 400 mm (5 ft)	2700 K	90	300 mA	1 050 mA	5 988 lm	108.7 V	32.6 W	184 lm/W	3 SDCM	C
	4000 K	90			6 386 lm			196 lm/W		C
	6500 K	90			6 323 lm			194 lm/W		C

[1] CRI tollerance ±2
[2] Luminous flux tolerance ±7%
[3] Colour coordinate tollerance ±0.01

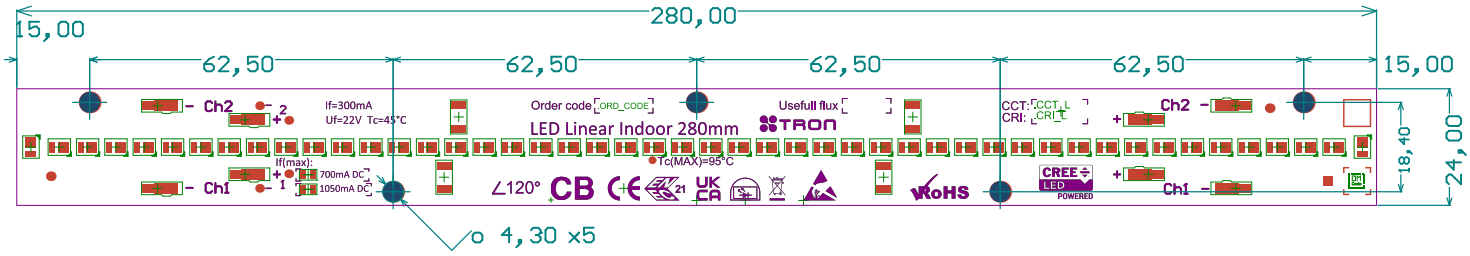
* At nominal PCB drive current and tc of 45°C
** Specified values are typical

TECHNICAL DRAWINGS

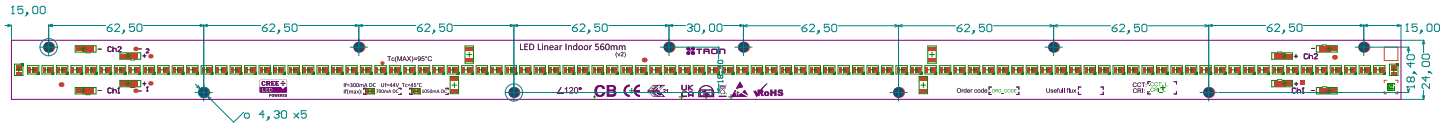
0.5 ft (140 mm)



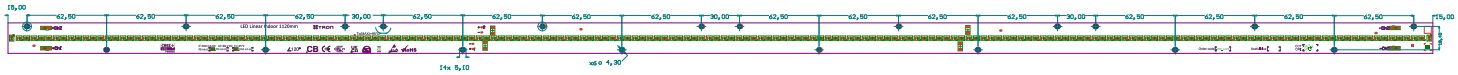
1 ft (280 mm)



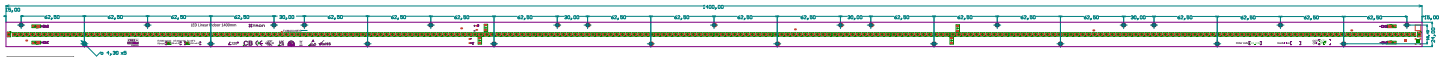
2 ft (560 mm)



4 ft (1120 mm)



5 ft (1400 mm)



WIRING SPECIFICATION

Connector type	Wago 2065-100 Push-button terminal
Wire type	Solid or fine-stranded conductor
Strip length	7.5 - 9.5 mm
Wire size	0.2 - 0.75 mm² / 24 - 18 AWG
Wire can be released by 2065-189 operating tool	

MOUNTING INSTRUCTIONS

The following mounting methods must be used to ensure compliance with specifications:
1. Plastic washer must be used with diameter at least 4mm greater than the diameter of the screw head and thickness greater than 1 mm.
2. Plastic mounting clips.

SPECIAL PRECAUTIONS

LED Modules are ESD sensitive electronic devices and should be installed, maintained and tested by a qualified person. Handle with care according to IEC 61340-5-1 regulation.

ORDER CODE CONFIGURATION

Product code		Length		Class		Channel 1 CRI	Channel 1 CCT		Channel 2[1] CRI	Channel 2[1] CCT
LMIND	-	**LLLL**	-	**C**	-	**I1**	**TT1**	-	**I2**	**TT2**
		0140 = 140 mm		**E** = Economy		**H** = 80	**22** = 2200 K		**H** = 80	**22** = 2200 K
		0280 = 280 mm		**P** = Performance		**U** = 90	**27** = 2700 K		**U** = 90	**27** = 2700 K
		0560 = 560 mm				**P** = Pro9	**30** = 3000 K		**P** = Pro9	**30** = 3000 K
		1120 = 1 120 mm				**Z** = 95	**40** = 4000 K		**Z** = 95	**40** = 4000 K
		1400 = 1 400 mm					**50** = 5000 K			**50** = 5000 K
							65 = 6500 K			**65** = 6500 K

Example: **LMIND-0560-E-U65-U27**[2]
LMIND-0560-E-H40-000[2]

[1] Leave blank or put -000 for static white version
[2] Contact your local sales for pricing and availability of other CCT and CRI combinations not listed in the tables above