

## Linear LED modules 2000lm per 1ft 4C

### Product description

- Long life-time
- Built-in, constant current LED module
- Re-workable push-in terminals enabling easy connection
- Compliance and approval: CE, ENEC
- 4C - four connectors for parallel system, also recognized as a low voltage system - SELV
- Available CCT from 2700K to 6500K and CRI 80, 90



### LinLED CRI 80 Optimum G4

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> φ [lm]	Useful luminous flux <sup>2</sup> [lm]	Voltage <sup>1</sup> Vf [V]	Power <sup>1</sup> P [W]	Efficacy <sup>1</sup> [lm/W]	Current minimum If min <sup>3</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x24mm 500lm 830 4C 42V Opt G4	1010 137 12846	3000	70	501	514	38	2.6	191	10	200	C
LinLED 140x24mm 1000lm 830 4C 42V Opt G4	1010 137 12946		140	1002	1027	38	5.3	191	20	400	C
LinLED 280x24mm 2000lm 830 4C 42V Opt G4	1010 137 13046		280	2004	2055	38	11	191	40	800	C
LinLED 560x24mm 4000lm 830 4C 42V Opt G4	1010 137 13146		560	4008	4110	38	21	191	80	1600	C
LinLED 70x24mm 500lm 840 4C 42V Opt G4	1010 137 13246		70	521	534	38	2.6	198	10	200	B
LinLED 140x24mm 1000lm 840 4C 42V Opt G4	1010 137 13346	4000	140	1042	1069	38	5.3	198	20	400	B
LinLED 280x24mm 2000lm 840 4C 42V Opt G4	1010 137 13446		280	2084	2137	38	11	198	40	800	B
LinLED 560x24mm 4000lm 840 4C 42V Opt G4	1010 137 13546		560	4168	4274	38	21	198	80	1600	B

### LinLED CRI 80 Optimum G3.1

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> φ [lm]	Useful luminous flux <sup>2</sup> [lm]	Voltage <sup>1</sup> Vf [V]	Power <sup>1</sup> P [W]	Efficacy <sup>1</sup> [lm/W]	Current minimum If min <sup>3</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x24mm 500lm 840 4C 42V Opt G3.1	1010 127 78046	4000	75	553	573	39	2.9	190	10	150	C
LinLED 140x24mm 1000lm 840 4C 42V Opt G3.1	1010 127 78146		150	1106	1146	39	5.8	190	20	300	C
LinLED 280x24mm 2000lm 840 4C 42V Opt G3.1	1010 127 78246		300	2212	2292	39	12	190	40	600	C
LinLED 560x24mm 4000lm 840 4C 42V Opt G3.1	1010 127 78346		600	4424	4584	39	23	190	80	1200	C

### LinLED CRI 80 Optimum G2

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> φ [lm]	Useful luminous flux <sup>2</sup> [lm]	Voltage <sup>1</sup> Vf [V]	Power <sup>1</sup> P [W]	Efficacy <sup>1</sup> [lm/W]	Current minimum If min <sup>3</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 280x24mm 2000lm 830 4C 42V Opt G2	1010 117 32846	3000	280	1846	1909	40	11	166	40	600	D
LinLED 560x24mm 4000lm 830 4C 42V Opt G2	1010 117 33446		560	3691	3819	40	22	166	80	1200	D
LinLED 280x24mm 2000lm 840 4C 42V Opt G2	1010 117 32946	4000	280	1940	2007	40	11	175	40	600	C
LinLED 560x24mm 4000lm 840 4C 42V Opt G2	1010 117 33546		560	3880	4014	40	22	175	80	1200	C

### LinLED CRI 90 Optimum G2

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> φ [lm]	Useful luminous flux <sup>2</sup> [lm]	Voltage <sup>1</sup> Vf [V]	Power <sup>1</sup> P [W]	Efficacy <sup>1</sup> [lm/W]	Current minimum If min <sup>3</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 280x24mm 2000lm 927 4C 42V Opt G2	1010 117 70146	2700	330	1745	1808	41	13	130	40	600	E
LinLED 560x24mm 4000lm 927 4C 42V Opt G2	1010 117 70246		660	3490	3617	41	27	130	80	1200	E
LinLED 280x24mm 2000lm 930 4C 42V Opt G2	1010 117 40346	3000	330	1874	1963	41	13	140	40	600	E
LinLED 560x24mm 4000lm 930 4C 42V Opt G2	1010 117 40946		660	3748	3925	41	27	140	80	1200	E
LinLED 280x24mm 2000lm 940 4C 42V Opt G2	1010 117 40446	4000	330	2003	2098	41	13	149	40	600	D
LinLED 560x24mm 4000lm 940 4C 42V Opt G2	1010 117 41046		660	4007	4196	41	27	149	80	1200	D

<sup>1</sup>At nominal current and T<sub>p</sub>

<sup>2</sup>At nominal current and 25°C

<sup>3</sup>It is recommended not to operate below minimum current in order to avoid un-even brightness

Tolerance range for optical and electrical ±10%

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### Temperature & humidity

Specification item	Unit	Value
Tp	[°C]	45
Tp rated	[°C]	65
Tc	[°C]	85
Relative humidity (non-condensing)	[%]	5 ... 85
Storage ambient temperature	[°C]	-25 ... +85
Storage relative humidity (non-condensing)	[%]	5 ... 85

Tp - Temperature related to the performance parameters of the LED modules

Tp rated - Maximum operating temperature to which the rated performance characteristics are declared

Tc - Highest permissible value for safe operation

### Technical data

Specification item	Unit	Value
Classification acc. to IEC 62031		built-in
Working voltage	[Vdc]	60
Beam angle	[deg]	120
Initial color consistency	[SDCM]	3
Photobiological safety		RG1 unlimited

### Color coordinates

According to CIE 1931

Specification item	CIE <sub>x</sub>	CIE <sub>y</sub>
2700K	0.4578	0.4101
3000K	0.4338	0.4030
4000K	0.3818	0.3797

### Certificates & standards

Specification item	Compliant
ENEC	Yes
CE	Yes
RoHS	Yes
REACH	Yes
IP rating	No IP rating

## Linear LED modules 2000lm per 1ft 4C

### Lumen maintenance

### LinLED CRI 80

for LinLED CRI 80 Optimum G4

Forward current	Tp temp.	L70 [h]		L80 [h]		L90 [h]	
		B50	B10	B50	B10	B50	B10
If nom (100mA)	45°C	>102 000	>102 000	>102 000	>102 000	>102 000	>102 000
	55°C	>102 000	>102 000	>102 000	>102 000	>102 000	>102 000
	65°C	>102 000	>102 000	>102 000	>102 000	87 000	86 000
	75°C	>102 000	>102 000	>102 000	>102 000	74 000	73 000
If max (200mA)	85°C	>102 000	>102 000	>102 000	>102 000	63 000	62 000
	45°C	>102 000	>102 000	>102 000	>102 000	>102 000	>102 000
	55°C	>102 000	>102 000	>102 000	>102 000	97 000	96 000
	65°C	>102 000	>102 000	>102 000	>102 000	82 000	81 000
	75°C	>102 000	>102 000	>102 000	>102 000	69 000	68 000
	85°C	>102 000	>102 000	>102 000	>102 000	59 000	58 000

Reported data based on LM80 LED data 12000h

### LinLED CRI 80

for LinLED CRI 80 Optimum G2 & G3.1

Forward current	Tp temp.	L70 [h]		L80 [h]		L90 [h]	
		B50	B10	B50	B10	B50	B10
If nom	45°C	>100 000	>100 000	>100 000	>100 000	70 000	59 000
	55°C	>100 000	>100 000	>100 000	>100 000	70 000	59 000
	65°C	>100 000	>100 000	>100 000	>100 000	68 000	58 000
	75°C	>100 000	>100 000	>100 000	>100 000	66 000	57 000
If max	85°C	>100 000	>100 000	>100 000	>100 000	65 000	57 000
	45°C	>100 000	>100 000	>100 000	>100 000	51 000	39 000
	55°C	>100 000	>100 000	>100 000	>100 000	51 000	39 000
	65°C	>100 000	>100 000	>100 000	>100 000	48 000	37 000
	75°C	>100 000	>100 000	>100 000	>100 000	45 000	35 000
	85°C	>100 000	>100 000	>100 000	>100 000	43 000	34 000

calculated data based on LM80 LED data (@65mA 17000h / @160mA & 200mA 12000h)

### LinLED CRI 90

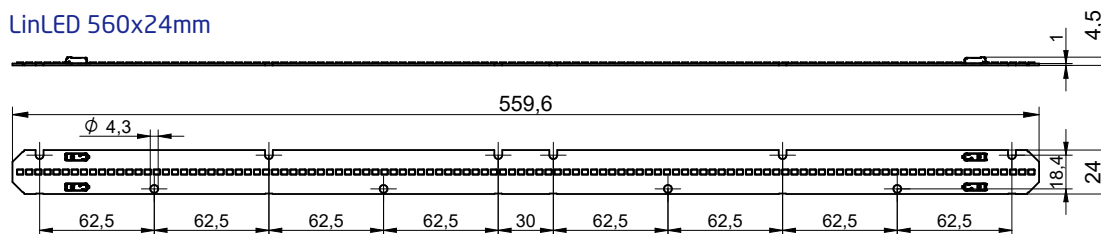
for LinLED CRI 90 Optimum G2

Forward current	Tp temp.	L70 [h]		L80 [h]		L90 [h]	
		B50	B10	B50	B10	B50	B10
If nom	45°C	>100 000	>100 000	>100 000	>100 000	60 000	57 000
	55°C	>100 000	>100 000	99 000	91 000	48 000	47 000
	65°C	>100 000	>100 000	78 000	73 000	38 000	34 000
If max	45°C	82 000	69 000	52 000	49 000	29 000	28 000
	55°C	73 000	63 000	47 000	44 000	25 000	24 000
	65°C	64 000	58 000	41 000	38 000	22 000	19 000

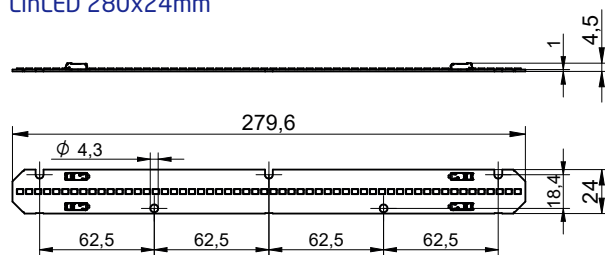
calculated data based on LM80 LED data 10 000h

### Dimensions

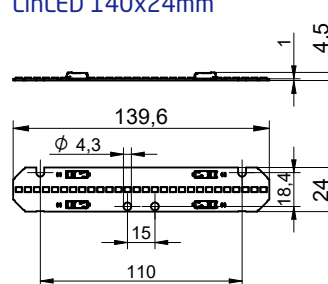
#### LinLED 560x24mm



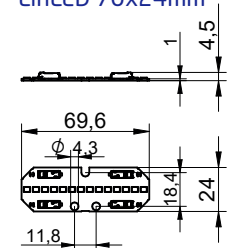
#### LinLED 280x24mm



#### LinLED 140x24mm



#### LinLED 70x24mm



### Mounting

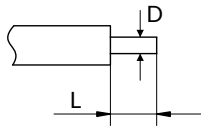
LED Modules cannot be exposed to tensile or compressive stresses. For this purpose it is necessary that the modules are assembled to a flat surface by only rounded head screws. Additionally plastic flat washer should be used to ensure creepage distance between screw's head and surface of the pcb. Max. torque for fixing: 0,5Nm.

LED modules are sensitive to electrostatic discharge (ESD). Follow safety regulations according to IEC 61340-5-1.

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### Wiring

Wire cross section and strip length:



D - wire cross section (solid and flexible wires)	Min	Max
	0.2mm <sup>2</sup>	0.75mm <sup>2</sup>
	AWG 24	AWG 18

L - strip length	Min	Max
	8mm	9mm

Opening for the release of wires from the top with release pin Electroterminal art. 881 167 884:

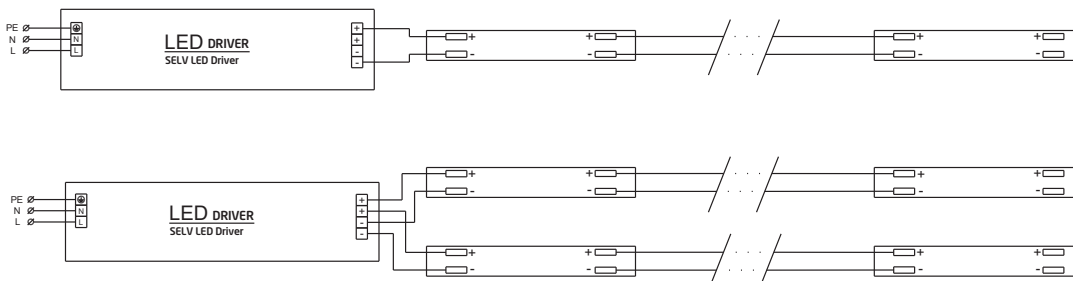


### Connections

Max number of modules	Unit	Series	Parallel
LinLED 70x24mm	[pcs]	-	32
LinLED 140x24mm	[pcs]	-	16
LinLED 280x24mm	[pcs]	-	8
LinLED 560x24mm	[pcs]	-	4

You can combine different lengths of LED modules so that the maximum length does not exceed 2240mm

#### Wiring for parallel connection system (4C)



To prevent irregular luminous intensity in parallel connection use only LED modules from the same V-code group.

V-code (e.g. "A", "B", "AB") is printed on the LED module and box label. Naming is not adequate to efficacy or luminous flux.

### Mounting

LED Modules cannot be exposed to tensile or compressive stresses. For this purpose it is necessary that the modules are assembled to a flat surface by only rounded head screws. Additionally plastic flat washer should be used to ensure creepage distance between screw's head and surface of the pcb. Max. torque for fixing: 0,5Nm.

LED modules are sensitive to electrostatic discharge (ESD). Follow safety regulations according to IEC 61340-5-1.

## Linear LED modules 2000lm per 1ft 4C

### Ordering codes

Product name	Ordering code	Pieces per box	Pieces per pallet	Box dimensions [mm]
LinLED 70x24mm 500lm 830 4C 42V Opt G4	1010 137 12846	320	76800	150 x 266 x 83
LinLED 140x24mm 1000lm 830 4C 42V Opt G4	1010 137 12946	108	24624	248 x 175 x 66
LinLED 280x24mm 2000lm 830 4C 42V Opt G4	1010 137 13046	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 830 4C 42V Opt G4	1010 137 13146	160	9600	603 x 266 x 83
LinLED 70x24mm 500lm 840 4C 42V Opt G4	1010 137 13246	320	76800	150 x 266 x 83
LinLED 140x24mm 1000lm 840 4C 42V Opt G4	1010 137 13346	108	24624	248 x 175 x 66
LinLED 280x24mm 2000lm 840 4C 42V Opt G4	1010 137 13446	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 840 4C 42V Opt G4	1010 137 13546	150	18000	300 x 266x 83
LinLED 70x24mm 500lm 840 4C 42V Opt G3.1	1010 127 78046	320	76800	150 x 266 x 83
LinLED 140x24mm 1000lm 840 4C 42V Opt G3.1	1010 127 78146	108	24624	248 x 175 x 66
LinLED 280x24mm 2000lm 840 4C 42V Opt G3.1	1010 127 78246	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 840 4C 42V Opt G3.1	1010 127 78346	160	9600	603 x 266 x 83
LinLED 280x24mm 2000lm 830 4C 42V Opt G2	1010 117 32846	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 830 4C 42V Opt G2	1010 117 33446	160	9600	603 x 266 x 83
LinLED 280x24mm 2000lm 840 4C 42V Opt G2	1010 117 32946	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 840 4C 42V Opt G2	1010 117 33546	160	9600	603 x 266 x 83
LinLED 280x24mm 2000lm 927 4C 42V Opt G2	1010 117 70146	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 927 4C 42V Opt G2	1010 117 70246	160	9600	603 x 266 x 83
LinLED 280x24mm 2000lm 930 4C 42V Opt G2	1010 117 40346	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 930 4C 42V Opt G2	1010 117 40946	160	9600	603 x 266 x 83
LinLED 280x24mm 2000lm 940 4C 42V Opt G2	1010 117 40446	150	18000	300 x 266x 83
LinLED 560x24mm 4000lm 940 4C 42V Opt G2	1010 117 41046	160	9600	603 x 266 x 83