

## Linear LED modules 1100lm 24V per 1ft 2C

### Product description

- Long life-time
- Built-in, constant current LED module
- Re-workable push-in terminals enabling easy connection
- Compliance and approval: CE, ENEC
- 2C - two connectors for series system, also recognized as a high voltage system - non-SELV
- Available CCT from 2200K to 6500K and CRI 80, 90



### LinLED CRI 80 Optimum G5

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>2</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x20mm 275lm 830 2C 6V Opt G5	1010 127 89146	3000	260	266	273	5.4	1.4	191	40	1000	C
LinLED 140x20mm 550lm 830 2C 12V Opt G5	1010 127 89246		260	532	546	11	2.8	191	40	1000	C
LinLED 280x20mm 1100lm 830 2C 24V Opt G5	1010 127 89346		260	1064	1092	21	5.6	191	40	1000	C
LinLED 560x20mm 2200lm 830 2C 48V Opt G5	1010 127 89446		260	2128	2183	43	11	191	40	1000	C
LinLED 70x20mm 275lm 840 2C 6V Opt G5	1010 127 89546	4000	260	284	291	5.4	1.4	204	40	1000	B
LinLED 140x20mm 550lm 840 2C 12V Opt G5	1010 127 89646		260	567	582	11	2.8	204	40	1000	B
LinLED 280x20mm 1100lm 840 2C 24V Opt G5	1010 127 89746		260	1135	1164	21	5.6	204	40	1000	B
LinLED 560x20mm 2200lm 840 2C 48V Opt G5	1010 127 89846		260	2270	2329	43	11	204	40	1000	B

### 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>2</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x20mm 275lm 830 2C 6V Opt G4	1010 127 96546	3000	270	267	274	5.4	1.5	182	40	1000	C
LinLED 140x20mm 550lm 830 2C 12V Opt G4	1010 127 96646		270	534	548	11	2.9	182	40	1000	C
LinLED 280x20mm 1100lm 830 2C 24V Opt G4	1010 127 96746		270	1069	1096	22	5.9	182	40	1000	C
LinLED 560x20mm 2200lm 830 2C 48V Opt G4	1010 127 96846		270	2137	2191	44	12	182	40	1000	C
LinLED 70x20mm 275lm 840 2C 6V Opt G4	1010 127 96946	4000	270	286	293	5.4	1.5	194	40	1000	C
LinLED 140x20mm 550lm 840 2C 12V Opt G4	1010 127 97046		270	571	586	11	2.9	194	40	1000	B
LinLED 280x20mm 1100lm 840 2C 24V Opt G4	1010 127 97146		270	1142	1171	22	5.9	194	40	1000	B
LinLED 560x20mm 2200lm 840 2C 48V Opt G4	1010 127 97246		270	2284	2343	44	12	194	40	1000	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>2</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x20mm 275lm 840 2C 6V Opt G3.1	1010 127 79646	4000	280	296	300	5.5	1.5	191	40	600	C
LinLED 140x20mm 550lm 840 2C 12V Opt G3.1	1010 127 79746		280	592	600	11	3.1	191	40	600	C
LinLED 280x20mm 1100lm 840 2C 24V Opt G3.1	1010 127 79846		280	1183	1199	22	6.2	191	40	600	C
LinLED 560x20mm 2200lm 840 2C 48V Opt G3.1	1010 127 79946		280	2366	2398	44	12	191	40	600	C

### LinLED CRI 90 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>2</sup> [mA]	Current maximum If max [mA]	Energy Efficiency Class
LinLED 70x20mm 275lm 930 2C 6V Opt G3.1	1010 127 81446	3000	330	284	294	5.6	1.8	154	40	600	D
LinLED 140x20mm 550lm 930 2C 12V Opt G3.1	1010 127 81546		330	567	588	11	3.7	154	40	600	D
LinLED 280x20mm 1100lm 930 2C 24V Opt G3.1	1010 127 81646		330	1135	1176	22	7.4	154	40	600	D
LinLED 560x20mm 2200lm 930 2C 48V Opt G3.1	1010 127 81746		330	2270	2352	45	15	154	40	600	D
LinLED 70x20mm 275lm 940 2C 6V Opt G3.1	1010 127 81846	4000	330	303	314	5.6	1.8	165	40	600	C
LinLED 140x20mm 550lm 940 2C 12V Opt G3.1	1010 127 81946		330	606	628	11	3.7	165	40	600	D
LinLED 280x20mm 1100lm 940 2C 24V Opt G3.1	1010 127 82046		330	1212	1256	22	7.4	165	40	600	D
LinLED 560x20mm 2200lm 940 2C 48V Opt G3.1	1010 127 82146		330	2423	2511	45	15	165	40	600	D

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### LinLED CRI 80 Optimum G3

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> $\phi$ [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 70x20mm 275lm 830 2C 6V Opt G3	1010 127 20446	3000	280	268	277	5.5	1.5	175	40	800	C
LinLED 140x20mm 550lm 830 2C 12V Opt G3	1010 127 09246		280	536	553	11	3.1	175	40	800	C
LinLED 280x20mm 1100lm 830 2C 24V Opt G3	1010 127 09346		280	1073	1107	22	6.1	175	40	800	C
LinLED 560x20mm 2200lm 830 2C 48V Opt G3	1010 127 09446		280	2146	2214	44	12	175	40	800	C

### LinLED CRI 80 Optimum G2

Product name	Ordering code	Colour temperature [K]	Current nominal If nom [mA]	Luminous flux <sup>1</sup> $\phi$ [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 70x20mm 275lm 830 2C 6V Opt G2	1010 127 19946	3000	280	271	281	5.6	1.6	175	40	600	C
LinLED 140x20mm 550lm 830 2C 12V Opt G2	1010 117 94046		280	543	562	11	3.2	172	40	600	C
LinLED 280x20mm 1100lm 830 2C 24V Opt G2	1010 117 44046		280	1086	1124	23	6.3	172	40	600	C
LinLED 560x20mm 2200lm 830 2C 48V Opt G2	1010 117 44246		280	2172	2247	45	13	172	40	600	C
LinLED 70x20mm 275lm 840 2C 6V Opt G2	1010 127 20046	4000	280	285	295	5.6	1.6	180	40	600	C
LinLED 140x20mm 550lm 840 2C 12V Opt G2	1010 117 94146		280	570	590	11	3.2	180	40	600	C
LinLED 280x20mm 1100lm 840 2C 24V Opt G2	1010 117 44146		280	1141	1180	23	6.3	180	40	600	C
LinLED 560x20mm 2200lm 840 2C 48V Opt G2	1010 117 44346		280	2281	2360	45	13	180	40	600	C

<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  $\pm 10\%$

### Temperature & humidity

Specification item	Unit	Value
T <sub>p</sub>	[°C]	45
T <sub>p</sub> rated	[°C]	65
T <sub>c</sub>	[°C]	85
Relative humidity (non-condensing)	[%]	5 ... 85
Storage ambient temperature	[°C]	-25 ... +85
Storage relative humidity (non-condensing)	[%]	5 ... 85

T<sub>p</sub> - Temperature related to the performance parameters of the LED modules

T<sub>p</sub> rated - Maximum operating temperature to which the rated performance characteristics are declared

T<sub>c</sub> - Highest permissible value for safe operation

### Technical data

Specification item	Unit	Value
Classification acc. to IEC 62031		built-in
Working voltage	[Vdc]	350
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
6500K	0.3123	0.3282

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### Certificates & standards

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

### Lumen maintenance

for CRI 80 Optimum G3

Forward current	Tp temp.	L70 [h]		L80 [h]		L90 [h]	
		B50	B10	B50	B10	B50	B10
If nom	45°C	>100 000	>100 000	98 000	89 000	44 000	39 000
	65°C	99 000	99 000	79 000	69 000	34 000	29 000
	85°C	99 000	99 000	69 000	59 000	29 000	25 000

calculated data based on LM80 LED data 10 000h)

### LinLED CRI 80

for LinLED CRI 80 Optimum G4 & G5

Forward current	Tp temp.	L70 [h]		L80 [h]		L90 [h]	
		B50	B10	B50	B10	B50	B10
If nom	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
	85°C	>102 000	>102 000	>102 000	>102 000	63 000	62 000
If max	45°C	>102 000	>102 000	>102 000	>102 000	>102 000	>102 000
	55°C	>102 000	>102 000	>102 000	>102 000	93 000	92 000
	65°C	>102 000	>102 000	>102 000	>102 000	79 000	78 000
	75°C	>102 000	>102 000	>102 000	>102 000	67 000	66 000
85°C	>102 000	>102 000	>102 000	>102 000	57 000	56 000	

Reported data based on LM80 LED data 12000h

### LinLED CRI 80

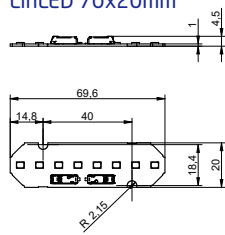
for LinLED G2 & G3.1

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	68 000	57 000
	55°C	>100 000	>100 000	>100 000	>100 000	68 000	57 000
	65°C	>100 000	>100 000	>100 000	>100 000	66 000	56 000
	75°C	>100 000	>100 000	>100 000	>100 000	64 000	55 000
	85°C	>100 000	>100 000	>100 000	>100 000	63 000	54 000
If max	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	69 000	43 000	34 000	

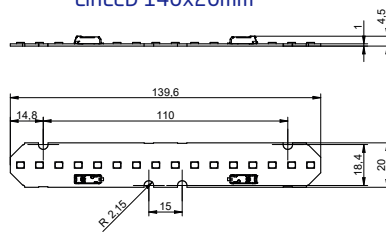
calculated data based on LM80 LED data (@65mA 17000h / @160mA & 200mA 12000h)

### Dimensions

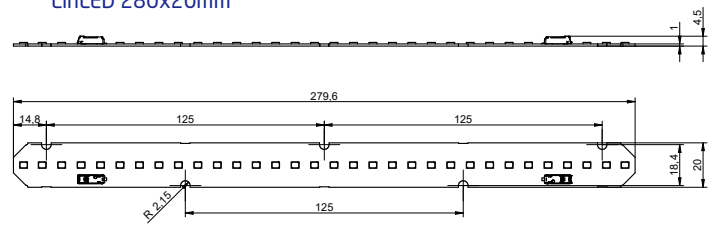
LinLED 70x20mm



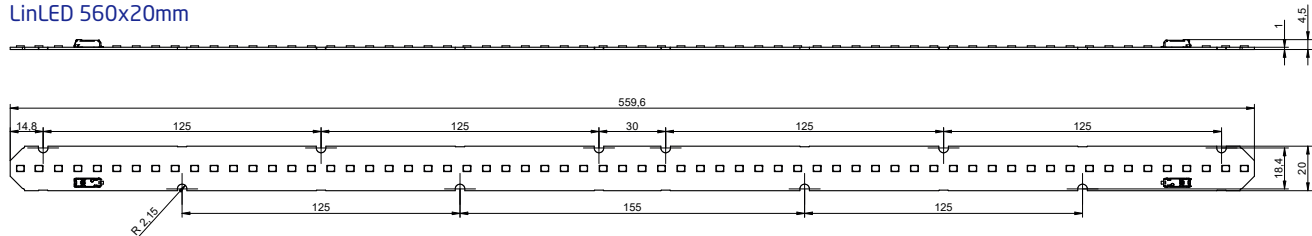
LinLED 140x20mm



LinLED 280x20mm



LinLED 560x20mm



### Mounting

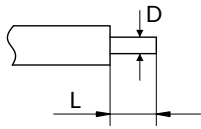
LED Modules cannot be exposed to tensile or compressive stresses. For this purpose it is necessary that the modules are assembled to a flat surface by only rounded head screws. Additionally plastic flat washer should be used to ensure creepage distance between screw's head and surface of the pcb. Max.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

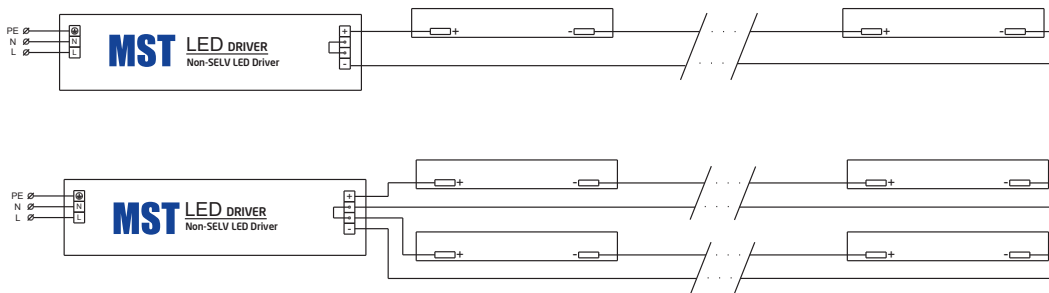


### Connections

Max number of modules	Unit	Series	Parallel
LinLED 70x20mm	[pcs]	53	-
LinLED 140x20mm	[pcs]	27	-
LinLED 280x20mm	[pcs]	13	-
LinLED 560x20mm	[pcs]	6	-

You can combine different lengths of LED modules so that the maximum length does not exceed 3780mm

Wiring for series connection system (2C)



### Energy Label / EPREL database

To obtain Energy Label for this product visit <https://eprel.ec.europa.eu/> and enter model identifier

Model identifier consists of 10 digits XXXX XXX XXX. It is printed directly on the LED module or on product label. This is the number you can see in EPREL database.

Ordering code consist of 12 digits XXXX XXX XXX46. Additional last two digits means packaging of the product.

## Linear LED modules 1100lm 24V per 1ft 2C

### Ordering codes

Product name	Ordering code	Pieces per box	Pieces per pallet	Box dimensions [mm]
LinLED 70x20mm 275lm 830 2C 6V Opt G5	1010 127 89146	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 830 2C 12V Opt G5	1010 127 89246	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 830 2C 24V Opt G5	1010 127 89346	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 830 2C 48V Opt G5	1010 127 89446	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 840 2C 6V Opt G5	1010 127 89546	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 840 2C 12V Opt G5	1010 127 89646	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 840 2C 24V Opt G5	1010 127 89746	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 840 2C 48V Opt G5	1010 127 89846	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 830 2C 6V Opt G4	1010 127 96546	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 830 2C 12V Opt G4	1010 127 96646	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 830 2C 24V Opt G4	1010 127 96746	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 830 2C 48V Opt G4	1010 127 96846	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 840 2C 6V Opt G4	1010 127 96946	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 840 2C 12V Opt G4	1010 127 97046	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 840 2C 24V Opt G4	1010 127 97146	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 840 2C 48V Opt G4	1010 127 97246	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 840 2C 6V Opt G3.1	1010 127 79646	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 840 2C 12V Opt G3.1	1010 127 79746	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 840 2C 24V Opt G3.1	1010 127 79846	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 840 2C 48V Opt G3.1	1010 127 79946	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 930 2C 6V Opt G3.1	1010 127 81446	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 930 2C 12V Opt G3.1	1010 127 81546	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 930 2C 24V Opt G3.1	1010 127 81646	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 930 2C 48V Opt G3.1	1010 127 81746	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 940 2C 6V Opt G3.1	1010 127 81846	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 940 2C 12V Opt G3.1	1010 127 81946	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 940 2C 24V Opt G3.1	1010 127 82046	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 940 2C 48V Opt G3.1	1010 127 82146	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 830 2C 6V Opt G3	1010 127 20446	432	103680	150 x 266 x 83
LinLED 140x20mm 550lm 830 2C 12V Opt G3	1010 127 09246	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 830 2C 24V Opt G3	1010 127 09346	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 830 2C 48V Opt G3	1010 127 09446	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 830 2C 6V Opt G2	1010 127 19946	432	103680	150 x 266 x 83
LinLED 140x20mm 5500lm 830 2C 12V Opt G2	1010 117 94046	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 830 2C 24V Opt G2	1010 117 44046	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 830 2C 48V Opt G2	1010 117 44246	204	12240	603 x 266 x 83
LinLED 70x20mm 275lm 840 2C 6V Opt G2	1010 127 20046	432	103680	150 x 266 x 83
LinLED 140x20mm 5500lm 840 2C 12V Opt G2	1010 117 94146	154	29260	248 x 175 x 66
LinLED 280x20mm 1100lm 840 2C 24V Opt G2	1010 117 44146	204	24480	300 x 266 x 83
LinLED 560x20mm 2200lm 840 2C 48V Opt G2	1010 117 44346	204	12240	603 x 266 x 83