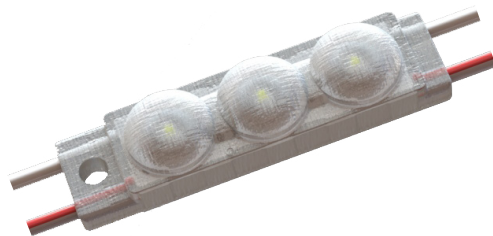




- LED chain for highlighting lines and edges and for backlighting complex contours, letters and symbols in signage applications
- Optimised for use in signage (lettering, surface backlighting)
- High color consistency (MacAdam 5)
- Beam characteristic: 155°
- LED module with plastic casing and strain relief with IP68 protection
- Integrated current source to stabilise luminous flux
- Flexible chain, can be split between any module
- Mounting with screw or premounted double-sided adhesive tape possible
- Nominal life-time up to 50,000 hours (at Ta 60 °C)



ORDERING GUIDE

Type	Article Number(s)	Color	Wavelength Range	Color Temperature ⁵
(3 Light Points per Module)				
LED P541E-C CW 12 150 100 68 B G1	28000715	Crystal White	N/A	7500K
LED P541E-C CW 12 200 100 68 B G1 X	28000716	Crystal White	N/A	7500K
LED P541E-C DL 12 100 100 68 B G1	28000361	Daylight White	N/A	6500K
LED P541E-C DL 12 150 100 68 B G1	28000362	Daylight White	N/A	6500K
LED P541E-C DL 12 150 100 68 B G1 X	28000363	Daylight White	N/A	6500K
LED P541E-C DL 12 200 100 68 B G1 X	28000364	Daylight White	N/A	6500K
LED P541E-C R 12 150 100 68 B G1	28000468	Red	620-630 nm	N/A

Packaging: 1 piece/roll, 10 pieces/carton, 120 pieces/pallet

SPECIFIC TECHNICAL DATA

Type	Photometric Code ²	Wavelength Range	Color Temperature ⁵	Typ. Luminous Flux Per Module ²	CRI ²	Supply Voltage DC ³	Typ. Current per Module ²	Typ. Power per Module	Luminous Efficacy
(3 Light Points per Module)									
LED P541E-C CW	775	N/A	7500K	31 lm	>63	12 V	23 mA	0.28 W	111 lm/W
LED P541E-C CW ... X	775	N/A	7500K	45 lm	>63	12 V	36 mA	0.43 W	105 lm/W
LED P541E-C DL	765	N/A	6500K	31 lm	>70	12 V	22 mA	0.26 W	119 lm/W
LED P541E-C DL ... X	765	N/A	6500K	45 lm	>70	12 V	33 mA	0.4 W	113 lm/W
LED P541E-C R	N/A	620-630 nm	N/A	12 lm	N/A	12 V	28 mA	0.34 W	35 lm/W

¹ If the max temperature limits are exceeded, the life of the module will be greatly reduced or the module maybe damaged.

² Tolerance range for optical and electrical data: ±15% (electrical data for red and blue: +15/-30%)

³ Exceeding the max operating voltage leads to an overload on the chain. This may, in turn, result in a reduction in life-time or even in destruction. Tolerance range for the supply voltage: 12 V: +2 V / -0 V.

⁴ Maximum submerge depth 1 m / 60 min.

⁵ Colour temperature for information only. Valid colour see coordinates and tolerances according to CIE 1931'. All values at Ta = 25 °C.



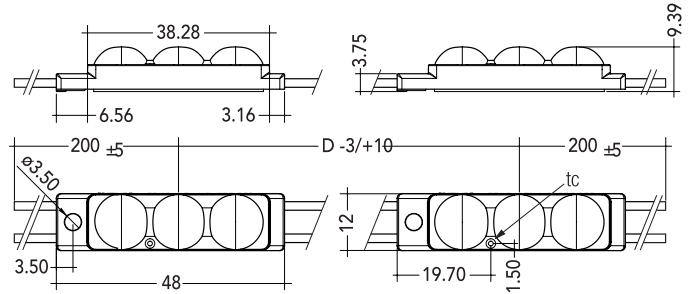
MODULE DIMENSIONS

Part Number	Length (in/mm)	Width (in/mm)	Height (in/mm)
LED P541E-C XX 12 XXX 100 68 B G1	1.89/48	0.47/12	0.37/9.4

TECHNICAL DATA

Ambient Temperature T_a	-40 – 60 °C
Max Surface Temperature on Module T_c	65 °C
Storage Temperature T_s	-40 – 85 °C
Type of Protection ⁴	IP68
Risk Group (EN 62471:2008)	0

DIMENSION DRAWING



TYPECODE

EXAMPLE: LED P541E-C DL 12 200 100 68 B G1 X

Category	LED P541E-C	DL	12	200	100	68	B	G1	X
Sub-Category	TALEXXchain	Color	Supply Voltage	Module distance D	# of Modules	Protection	Beam Characteristic	Generation	Increased Luminous Flux
Spec. (=)	Crystal Classic	Daylight White	12 Volts	200 mm	100	IP68	155°	Gen. 1	

PHOTOMETRIC CODE

Key for photometric code, e.g. 765.

1st Digit	2nd + 3rd Digit
Code	CRI
7	67 - 76
8	77 - 86
9	87 - ≥90
	Color temperature in Kelvin x 100

LED Control Gear Matrix | CRYSTAL CLASSIC P541

IN-BUILT LCU					
Type	LCU 15W 12V IP67	LCU 35W 12V IP67	LCU 60W 12V IP67 / LCU 60W 12V IP66	LCU 100W 12V IP67 / LCU 100W 12V IP66	LCU 180W 12V IP67
Article Number	28000507	28000508	28000509 / 28001026	28000510 / 28001027	28000511

Assignable LED Control Gear

Type	Number of Modules										Max. Chaining
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
LED P541E-C CW	4	38	9	89	16	153	39	256	47	460	100
LED P541E-C CW ... X	3	25	7	60	11	103	26	173	32	311	100
LED P541E-C DL	4	38	9	89	16	153	39	256	47	460	100
LED P541E-C DL ... X	3	25	7	60	11	103	26	173	32	311	100
LED P541E-C R	3	24	6	56	10	96	30	161	29	289	100



STANDARDS

- EN 62031
- EN 62471

The product meets the “inbuilt LED module” classification according to EN 62031. The product passed the glow-wire test with 850 °C according to EN 62031.

Certificates

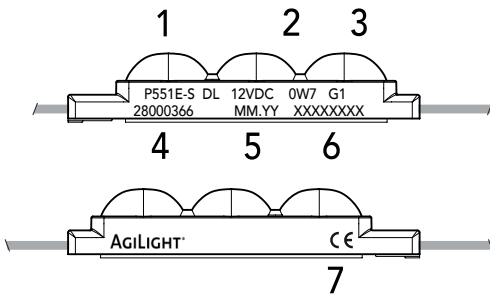
- UL file: E313318
- CSA file: 249699
- ENEC

THERMAL BEHAVIOR

Operation temperature (operation, no defects)	T _a	-40 – 60 °C
Storage temperature	T _s	-40 – 85 °C
Max. temperature Tc point	T _c	-20 – 80 °C

The values apply to operation at 100% output, natural convection. If the maximum temperature limits are exceeded, the life of the module will be greatly reduced. The module can fail within a short time. The T_c point temperature of the module has to be measured in the thermally stable state and under operating conditions. Measurement setup e.g. according to IEC/EN 60598-1.

LABEL PRODUCT (SAMPLE)



KEY	
Code	
1	Type
2	Electr. Specification
3	Generation
4	Article Code
5	Production Date
6	Production Batch
7	Normative Symbols

LUMEN MAINTENANCE¹

Lumen depreciation – the decrease in lumen output that occurs as a lamp is operated.

L70 or L50 – shorthand for lumen depreciation to 70% of initial lumen output indicates 70% lumen maintenance. L50 would be lumen depreciation of 50%.

B50 – another aspect of LED life projection, used in conjunction with the lumen depreciation.

B50 indicates no more than 50% of a sample of LED devices would be expected to fail before a certain number of operating hours. Failure means light output drops below a target lumen maintenance level (such as L70 or L50). B10 would mean no more than 10% of the sample fails within the given time.

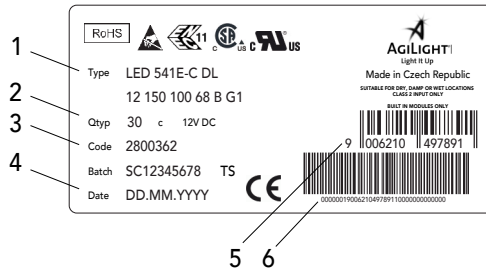
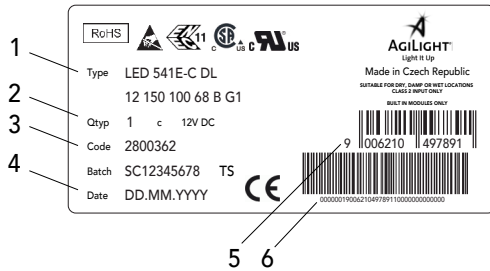
¹reference: LM-80 Test Report LED package supplier.

MAINTENANCE NOTE

The product is maintenance free. If cleaning during application only clear water without the addition of cleaning agents should be used.



LABEL PRODUCT PACKAGING & LABEL CARTON



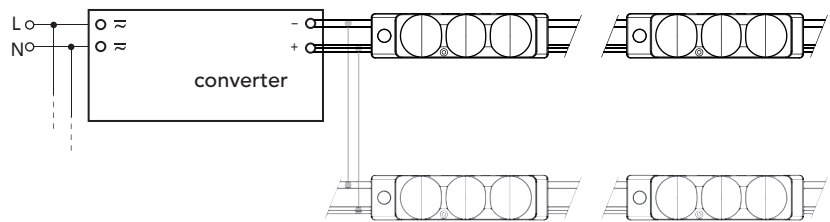
KEY (for both)	
Code	
1	Type
2	Packaging Quantity
3	Article Code
4	Production Date
5	Barcode EAN13 for packaging unit
6	Barcode EAN128 (includes EAN13 and batch number)

WIRING

Cable: AWG 18

Color	Red-White	White
Function	+	-

WIRING DIAGRAM



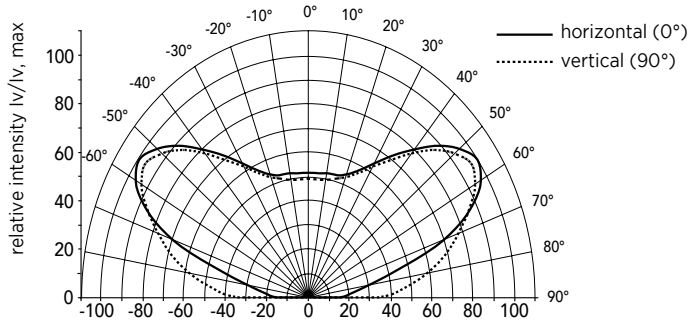
EMPIRICAL VALUES FOR DECREASE OF LUMINOUS FUX OVER CHAIN

Type	Color	Module Distance 100 mm	Module Distance 150 mm	Module Distance 200 mm	Number of Modules
LED P541E-C CW	Crystal White	0%	0%	--	100
LED P541E-C CW ... X	Crystal White	--	0%	0%	100
LED P541E-C DL	Daylight White	0%	0%	--	100
LED P541E-C DL ... X	Daylight White	--	0%	0%	100
LED P541E-C R	Red	--	0%	--	100



BEAM CHARACTERISTICS 155°

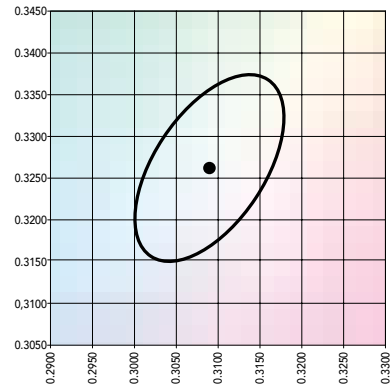
Light distribution Iv/lvmax



COORDINATES AND TOLERANCES ACCORDING TO CIE 1931

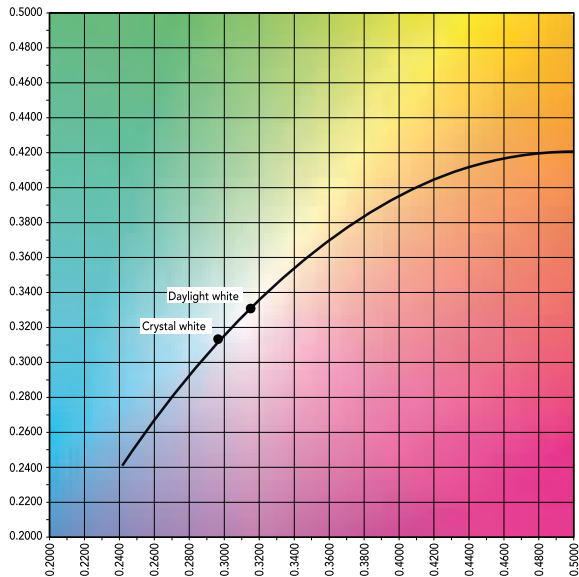
Daylight White (DL)

	x0	y0
Centre	0.3154	0.3305



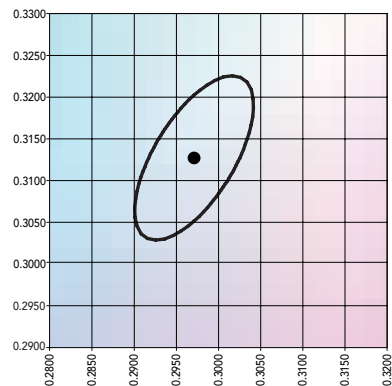
McAdam ellipse: 5 SDCM

COLOR DIAGRAM



Crystal White (CL)

	x0	y0
Centre	0.2970	0.3132



McAdam ellipse: 5 SDCM