



Module LLE 24x70-560mm 1250lm HV ADV5

Modules LLE advanced

Product description

- Ideal for linear and panel lights
- 2 terminals for serial wiring
- Perfectly uniform light, even if several LED modules are used together in a line
- Push terminals for quick and simple wiring of LED module to LED module
- Broad portfolio from extruded lenses and covers available
- Long life-time: 72,000 hours
- 5-year guarantee

Optical properties

- Colour temperatures 2,700 K, 3,000 K, 3,500 K, 4,000 K, 5,000 K and 6,500 K
- Typ. luminous flux 325, 650, 1,250 and 2,400 lm
- Efficacy of the module up to 207 lm/W
- High colour rendering index CRI > 80
- High colour consistency (MacAdam 3)[®]
- Small luminous flux tolerances

Mechanical properties

- Module dimension 24 x 70 mm, 24 x 140 mm, 24 x 280 mm and 24 x 560 mm (ZHAGA compliant)
- Simple installation (e.g. clips or screws)

System solution

- LED system solution with outstanding system efficacy up to 186 lm/W, consisting of linear LED modules and dimmable LED Driver LCA 50W 100–400mA Ip PRE



Standards, page 14

Colour temperatures and tolerances, page 20



LLE 24x70mm 325lm HV ADV5



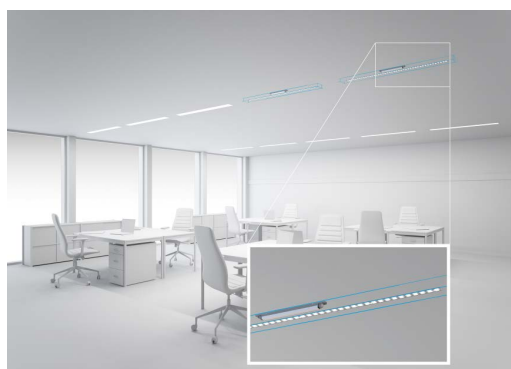
LLE 24x140mm 650lm HV ADV5



LLE 24x280mm 1250lm HV ADV5



LLE 24x560mm 2400lm HV ADV5



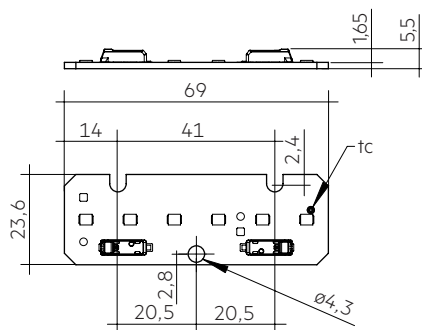


Module LLE 24x70-560mm 1250lm HV ADV5

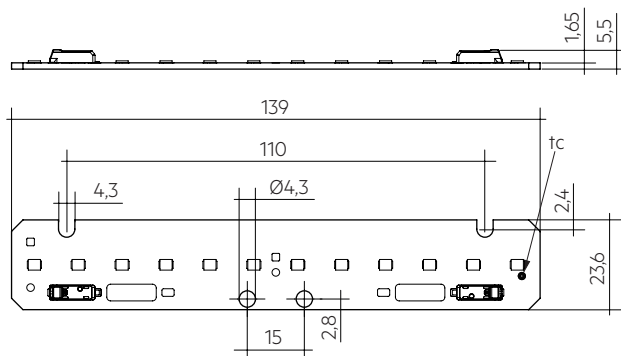
Modules LLE advanced

Technical data

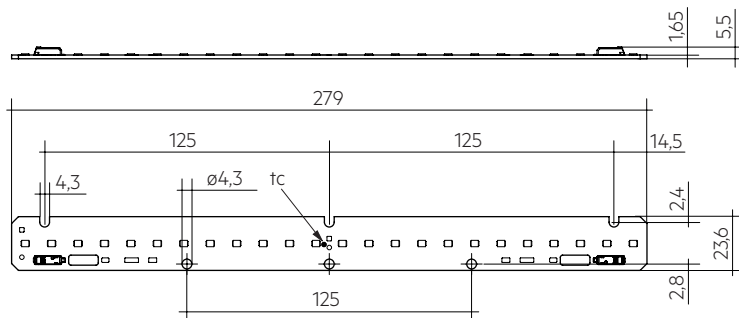
Beam characteristic	120°
Ambient temperature range	-40 ... +65 °C
tp rated	50 °C
tc	85 °C
Irated	300 mA
I _{max}	540 mA
Max. permissible LF current ripple	595 mA
Max. permissible peak current	900 mA / max. 10 ms
Max. working voltage for insulation [®]	440 V
Insulation test voltage	1.88 kV
CTI of the printed circuit board	≥ 600
ESD classification	severity level 4
Risk group (IEC 62471) at ≤ 470 mA	RG0
Risk group (IEC 62471) at I _{max}	RG1
Classification acc. to IEC 62031	Built-in
Type of protection	IP00
Life-time	up to 72,000 h
Guarantee	5 years



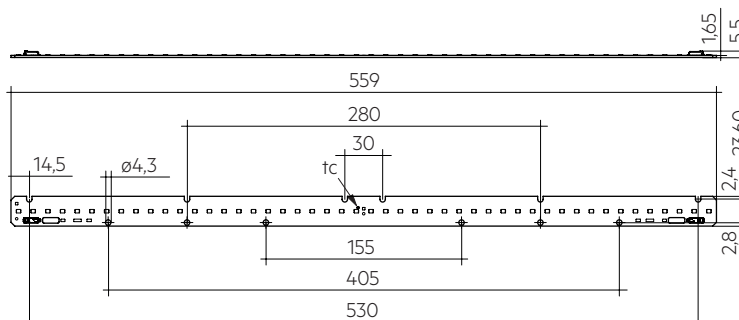
LLE 24x70mm 325lm HV ADV5



LLE 24x140mm 650lm HV ADV5



LLE 24x280mm 1250lm HV ADV5



LLE 24x560mm 2400lm HV ADV5

Module LLE 24mm 1250lm HV ADV5
Modules LLE advanced

Ordering data

Type	Article number	Colour temperature	Packaging carton®	Weight per pc.
LLE 24x70mm 325lm 830 HV ADV5 QTY4	89603203	3,000 K	120 pc(s).	0.022 kg
LLE 24x70mm 325lm 840 HV ADV5 QTY4	89603204	4,000 K	120 pc(s).	0.022 kg
LLE 24x70mm 325lm 850 HV ADV5 QTY4	28003379	5,000 K	120 pc(s).	0.022 kg
LLE 24x70mm 325lm 865 HV ADV5 QTY4	28002946	6,500 K	120 pc(s).	0.022 kg
LLE 24x140mm 650lm 830 HV ADV5	89603206	3,000 K	420 pc(s).	0.011 kg
LLE 24x140mm 650lm 835 HV ADV5	28003404	3,500 K	420 pc(s).	0.011 kg
LLE 24x140mm 650lm 840 HV ADV5	89603207	4,000 K	420 pc(s).	0.011 kg
LLE 24x280mm 1250lm 827 HV ADV5	89603210	2,700 K	210 pc(s).	0.023 kg
LLE 24x280mm 1250lm 830 HV ADV5	89603211	3,000 K	210 pc(s).	0.023 kg
LLE 24x280mm 1250lm 835 HV ADV5	28003405	3,500 K	210 pc(s).	0.023 kg
LLE 24x280mm 1250lm 840 HV ADV5	89603212	4,000 K	210 pc(s).	0.023 kg
LLE 24x280mm 1250lm 850 HV ADV5	89603213	5,000 K	210 pc(s).	0.023 kg
LLE 24x280mm 1250lm 865 HV ADV5	89603214	6,500 K	210 pc(s).	0.023 kg
LLE 24x560mm 2400lm 827 HV ADV5	89603215	2,700 K	180 pc(s).	0.046 kg
LLE 24x560mm 2400lm 830 HV ADV5	89603216	3,000 K	180 pc(s).	0.046 kg
LLE 24x560mm 2400lm 835 HV ADV5	28003262	3,500 K	180 pc(s).	0.046 kg
LLE 24x560mm 2400lm 840 HV ADV5	89603217	4,000 K	180 pc(s).	0.046 kg
LLE 24x560mm 2400lm 850 HV ADV5	89603218	5,000 K	180 pc(s).	0.046 kg
LLE 24x560mm 2400lm 865 HV ADV5	89603219	6,500 K	180 pc(s).	0.046 kg

® Min. order quantity LLE 24x70mm 325lm 8x0 HV ADV5 QTY4: 30 pcs.

The LLE 24x70mm 325lm 8x0 HV ADV5 module contains 4 single 24x70mm modules which have to be separated.

Specific technical data

Type [®]	Photo- metric code	Typ. luminous flux at tp = 25 °C [®] [®]	Typ. luminous flux at tp = 50 °C [®] [®]	Typ. forward current	Min. forward voltage at tp = 50 °C [®]	Max. forward voltage at tp = 25 °C [®]	Typ. power consumption at tp = 50 °C [®]	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 50 °C	Efficacy of the system at tp = 50 °C	Colour rendering index CRI
Operating mode HE at 200 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	215 lm	210 lm	200 mA	5.2 V	5.6 V	1.1 W	196 lm/W	192 lm/W	177 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	225 lm	220 lm	200 mA	5.2 V	5.6 V	1.1 W	206 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	230 lm	225 lm	200 mA	5.2 V	5.6 V	1.1 W	211 lm/W	207 lm/W	190 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	220 lm	215 lm	200 mA	5.2 V	5.6 V	1.1 W	201 lm/W	196 lm/W	180 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	425 lm	415 lm	200 mA	10.3 V	11.2 V	2.2 W	196 lm/W	192 lm/W	177 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	430 lm	420 lm	200 mA	10.3 V	11.2 V	2.2 W	198 lm/W	194 lm/W	178 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	450 lm	435 lm	200 mA	10.3 V	11.2 V	2.2 W	206 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	815 lm	795 lm	200 mA	20.7 V	22.4 V	4.3 W	187 lm/W	184 lm/W	169 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	855 lm	830 lm	200 mA	20.7 V	22.4 V	4.3 W	196 lm/W	192 lm/W	177 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	865 lm	840 lm	200 mA	20.7 V	22.4 V	4.3 W	198 lm/W	194 lm/W	178 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	895 lm	875 lm	200 mA	20.7 V	22.4 V	4.3 W	206 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	920 lm	895 lm	200 mA	20.7 V	22.4 V	4.3 W	211 lm/W	207 lm/W	190 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	900 lm	875 lm	200 mA	20.7 V	22.4 V	4.3 W	207 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	1,630 lm	1,590 lm	200 mA	41.4 V	44.8 V	8.7 W	187 lm/W	184 lm/W	169 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	1,710 lm	1,660 lm	200 mA	41.4 V	44.8 V	8.7 W	196 lm/W	192 lm/W	177 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	1,730 lm	1,680 lm	200 mA	41.4 V	44.8 V	8.7 W	198 lm/W	194 lm/W	178 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	1,800 lm	1,750 lm	200 mA	41.4 V	44.8 V	8.7 W	206 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	1,840 lm	1,790 lm	200 mA	41.4 V	44.8 V	8.7 W	211 lm/W	207 lm/W	190 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	1,800 lm	1,750 lm	200 mA	41.4 V	44.8 V	8.7 W	207 lm/W	202 lm/W	186 lm/W	> 80
Operating mode HE at 250 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	270 lm	255 lm	250 mA	5.2 V	5.7 V	1.4 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	280 lm	270 lm	250 mA	5.2 V	5.7 V	1.4 W	201 lm/W	197 lm/W	181 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	285 lm	275 lm	250 mA	5.2 V	5.7 V	1.4 W	206 lm/W	202 lm/W	186 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	270 lm	265 lm	250 mA	5.2 V	5.7 V	1.4 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	525 lm	515 lm	250 mA	10.4 V	11.3 V	2.7 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	530 lm	515 lm	250 mA	10.4 V	11.3 V	2.7 W	193 lm/W	189 lm/W	174 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	525 lm	515 lm	250 mA	10.4 V	11.3 V	2.7 W	199 lm/W	195 lm/W	179 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,000 lm	980 lm	250 mA	20.9 V	22.6 V	5.5 W	183 lm/W	179 lm/W	165 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,045 lm	1,025 lm	250 mA	20.9 V	22.6 V	5.5 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	1,060 lm	1,030 lm	250 mA	20.9 V	22.6 V	5.5 W	193 lm/W	189 lm/W	174 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	1,100 lm	1,070 lm	250 mA	20.9 V	22.6 V	5.5 W	201 lm/W	197 lm/W	181 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	1,115 lm	1,080 lm	250 mA	20.9 V	22.6 V	5.5 W	203 lm/W	199 lm/W	183 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	1,100 lm	1,070 lm	250 mA	20.9 V	22.6 V	5.5 W	201 lm/W	197 lm/W	181 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	2,010 lm	1,950 lm	250 mA	41.8 V	45.3 V	10.9 W	183 lm/W	179 lm/W	165 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	2,100 lm	2,040 lm	250 mA	41.8 V	45.3 V	10.9 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	2,120 lm	2,060 lm	250 mA	41.8 V	45.3 V	10.9 W	193 lm/W	189 lm/W	174 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	2,205 lm	2,155 lm	250 mA	41.8 V	45.3 V	10.9 W	201 lm/W	197 lm/W	181 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	2,225 lm	2,175 lm	250 mA	41.8 V	45.3 V	10.9 W	203 lm/W	199 lm/W	183 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	2,205 lm	2,155 lm	250 mA	41.8 V	45.3 V	10.9 W	201 lm/W	197 lm/W	181 lm/W	> 80

^① Integral measurement over the complete module.^② If mounted with M4 screws and plastic washers.[®] HE ... high efficiency, NM ... nominal mode, HO ... high output.[®] Tolerance range for optical and electrical data: ±10 %.[®] Measurement tolerance optical data: ±5 %.[®] Measurement tolerance forward voltage: ±0.1 V.

Specific technical data

Type [®]	Photo- metric code	Typ. luminous flux at tp = 25 °C [®] [®]	Typ. luminous flux at tp = 50 °C [®] [®]	Typ. forward current	Min. forward voltage at tp = 50 °C [®]	Max. forward voltage at tp = 25 °C [®]	Typ. power consumption at tp = 50 °C [®]	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 50 °C	Efficacy of the system at tp = 50 °C	Colour rendering index CRI
Operating mode HE at 275 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	285 lm	275 lm	275 mA	5.3 V	5.7 V	1.5 W	187 lm/W	182 lm/W	167 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	300 lm	290 lm	275 mA	5.3 V	5.7 V	1.5 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	305 lm	295 lm	275 mA	5.3 V	5.7 V	1.5 W	201 lm/W	197 lm/W	181 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	290 lm	285 lm	275 mA	5.3 V	5.7 V	1.5 W	193 lm/W	188 lm/W	173 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	565 lm	555 lm	275 mA	10.5 V	11.4 V	3.0 W	187 lm/W	182 lm/W	167 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	575 lm	560 lm	275 mA	10.5 V	11.4 V	3.0 W	189 lm/W	185 lm/W	170 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	595 lm	575 lm	275 mA	10.5 V	11.4 V	3.0 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,080 lm	1,060 lm	275 mA	21.0 V	22.7 V	6.0 W	179 lm/W	175 lm/W	161 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,140 lm	1,105 lm	275 mA	21.0 V	22.7 V	6.0 W	187 lm/W	182 lm/W	167 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	1,150 lm	1,120 lm	275 mA	21.0 V	22.7 V	6.0 W	189 lm/W	185 lm/W	170 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	1,195 lm	1,165 lm	275 mA	21.0 V	22.7 V	6.0 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	1,205 lm	1,175 lm	275 mA	21.0 V	22.7 V	6.0 W	199 lm/W	194 lm/W	178 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	1,195 lm	1,165 lm	275 mA	21.0 V	22.7 V	6.0 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	2,170 lm	2,110 lm	275 mA	42.0 V	45.5 V	12.1 W	179 lm/W	175 lm/W	161 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	2,265 lm	2,205 lm	275 mA	42.0 V	45.5 V	12.1 W	187 lm/W	182 lm/W	167 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	2,295 lm	2,235 lm	275 mA	42.0 V	45.5 V	12.1 W	189 lm/W	185 lm/W	170 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	2,390 lm	2,320 lm	275 mA	42.0 V	45.5 V	12.1 W	197 lm/W	193 lm/W	178 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	2,415 lm	2,340 lm	275 mA	42.0 V	45.5 V	12.1 W	199 lm/W	194 lm/W	178 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	2,390 lm	2,320 lm	275 mA	42.0 V	45.5 V	12.1 W	197 lm/W	193 lm/W	178 lm/W	> 80
Operating mode NM at 300 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	305 lm	300 lm	300 mA	5.3 V	5.7 V	1.7 W	184 lm/W	181 lm/W	167 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	325 lm	315 lm	300 mA	5.3 V	5.7 V	1.7 W	194 lm/W	190 lm/W	175 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	330 lm	320 lm	300 mA	5.3 V	5.7 V	1.7 W	199 lm/W	195 lm/W	179 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	315 lm	310 lm	300 mA	5.3 V	5.7 V	1.7 W	187 lm/W	181 lm/W	167 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	615 lm	600 lm	300 mA	10.5 V	11.4 V	3.3 W	184 lm/W	181 lm/W	167 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	620 lm	605 lm	300 mA	10.5 V	11.4 V	3.3 W	187 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	645 lm	630 lm	300 mA	10.5 V	11.4 V	3.3 W	194 lm/W	190 lm/W	175 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,170 lm	1,140 lm	300 mA	21.1 V	22.8 V	6.6 W	176 lm/W	173 lm/W	159 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,230 lm	1,200 lm	300 mA	21.1 V	22.8 V	6.6 W	184 lm/W	181 lm/W	167 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	1,240 lm	1,210 lm	300 mA	21.1 V	22.8 V	6.6 W	187 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	1,290 lm	1,260 lm	300 mA	21.1 V	22.8 V	6.6 W	194 lm/W	190 lm/W	175 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	1,320 lm	1,290 lm	300 mA	21.1 V	22.8 V	6.6 W	199 lm/W	195 lm/W	179 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	1,300 lm	1,260 lm	300 mA	21.1 V	22.8 V	6.6 W	195 lm/W	191 lm/W	176 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	2,350 lm	2,290 lm	300 mA	42.2 V	45.7 V	13.2 W	176 lm/W	173 lm/W	159 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	2,460 lm	2,390 lm	300 mA	42.2 V	45.7 V	13.2 W	184 lm/W	181 lm/W	167 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	2,490 lm	2,420 lm	300 mA	42.2 V	45.7 V	13.2 W	187 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	2,580 lm	2,510 lm	300 mA	42.2 V	45.7 V	13.2 W	194 lm/W	190 lm/W	175 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	2,650 lm	2,570 lm	300 mA	42.2 V	45.7 V	13.2 W	199 lm/W	195 lm/W	179 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	2,590 lm	2,520 lm	300 mA	42.2 V	45.7 V	13.2 W	195 lm/W	191 lm/W	176 lm/W	> 80

[®] Integral measurement over the complete module.[®] If mounted with M4 screws and plastic washers.[®] HE ... high efficiency, NM ... nominal mode, HO ... high output.[®] Tolerance range for optical and electrical data: ±10 %.[®] Measurement tolerance optical data: ±5 %.[®] Measurement tolerance forward voltage: ±0.1 V.

Specific technical data

Type [®]	Photo- metric code	Typ. luminous flux at tp = 25 °C [®] [®]	Typ. luminous flux at tp = 50 °C [®] [®]	Typ. forward current	Min. forward voltage at tp = 50 °C [®]	Max. forward voltage at tp = 25 °C [®]	Typ. power consumption at tp = 50 °C [®]	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 50 °C	Efficacy of the system at tp = 50 °C	Colour rendering index CRI
Operating mode HO at 350 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	360 lm	350 lm	350 mA	5.3 V	5.8 V	2.0 W	181 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	370 lm	360 lm	350 mA	5.3 V	5.8 V	2.0 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	385 lm	370 lm	350 mA	5.3 V	5.8 V	2.0 W	196 lm/W	191 lm/W	176 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	365 lm	355 lm	350 mA	5.3 V	5.8 V	2.0 W	187 lm/W	184 lm/W	169 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	705 lm	690 lm	350 mA	10.6 V	11.5 V	3.9 W	181 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	720 lm	700 lm	350 mA	10.6 V	11.5 V	3.9 W	184 lm/W	180 lm/W	166 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	745 lm	725 lm	350 mA	10.6 V	11.5 V	3.9 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,365 lm	1,325 lm	350 mA	21.3 V	23.0 V	7.8 W	174 lm/W	170 lm/W	156 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,425 lm	1,385 lm	350 mA	21.3 V	23.0 V	7.8 W	181 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	1,440 lm	1,400 lm	350 mA	21.3 V	23.0 V	7.8 W	184 lm/W	180 lm/W	166 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	1,495 lm	1,450 lm	350 mA	21.3 V	23.0 V	7.8 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	1,510 lm	1,465 lm	350 mA	21.3 V	23.0 V	7.8 W	192 lm/W	189 lm/W	174 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	1,495 lm	1,450 lm	350 mA	21.3 V	23.0 V	7.8 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	2,715 lm	2,645 lm	350 mA	42.5 V	46.1 V	15.6 W	174 lm/W	170 lm/W	156 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	2,840 lm	2,765 lm	350 mA	42.5 V	46.1 V	15.6 W	181 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	2,875 lm	2,795 lm	350 mA	42.5 V	46.1 V	15.6 W	184 lm/W	180 lm/W	166 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	2,985 lm	2,915 lm	350 mA	42.5 V	46.1 V	15.6 W	191 lm/W	187 lm/W	172 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	3,015 lm	2,945 lm	350 mA	42.5 V	46.1 V	15.6 W	192 lm/W	189 lm/W	174 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	2,985 lm	2,915 lm	350 mA	42.5 V	46.1 V	15.6 W	191 lm/W	187 lm/W	172 lm/W	> 80
Operating mode HO at 400 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	410 lm	400 lm	400 mA	5.4 V	5.8 V	2.2 W	180 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	425 lm	415 lm	400 mA	5.4 V	5.8 V	2.2 W	190 lm/W	186 lm/W	171 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	440 lm	425 lm	400 mA	5.4 V	5.8 V	2.2 W	194 lm/W	190 lm/W	175 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	420 lm	410 lm	400 mA	5.4 V	5.8 V	2.2 W	186 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	815 lm	795 lm	400 mA	10.7 V	11.6 V	4.5 W	180 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	825 lm	805 lm	400 mA	10.7 V	11.6 V	4.5 W	183 lm/W	179 lm/W	165 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	855 lm	835 lm	400 mA	10.7 V	11.6 V	4.5 W	190 lm/W	186 lm/W	171 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,555 lm	1,515 lm	400 mA	21.5 V	23.2 V	9.0 W	173 lm/W	170 lm/W	156 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,630 lm	1,590 lm	400 mA	21.5 V	23.2 V	9.0 W	180 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	1,650 lm	1,610 lm	400 mA	21.5 V	23.2 V	9.0 W	183 lm/W	179 lm/W	165 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	1,720 lm	1,670 lm	400 mA	21.5 V	23.2 V	9.0 W	190 lm/W	186 lm/W	171 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	1,735 lm	1,685 lm	400 mA	21.5 V	23.2 V	9.0 W	191 lm/W	188 lm/W	173 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	1,720 lm	1,670 lm	400 mA	21.5 V	23.2 V	9.0 W	190 lm/W	186 lm/W	171 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	3,120 lm	3,040 lm	400 mA	42.9 V	46.4 V	17.9 W	173 lm/W	170 lm/W	156 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	3,260 lm	3,175 lm	400 mA	42.9 V	46.4 V	17.9 W	180 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	3,295 lm	3,215 lm	400 mA	42.9 V	46.4 V	17.9 W	183 lm/W	180 lm/W	166 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	3,430 lm	3,335 lm	400 mA	42.9 V	46.4 V	17.9 W	190 lm/W	186 lm/W	171 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	3,465 lm	3,370 lm	400 mA	42.9 V	46.4 V	17.9 W	191 lm/W	188 lm/W	173 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	3,430 lm	3,335 lm	400 mA	42.9 V	46.4 V	17.9 W	190 lm/W	186 lm/W	171 lm/W	> 80

^① Integral measurement over the complete module.^② If mounted with M4 screws and plastic washers.[®] HE ... high efficiency, NM ... nominal mode, HO ... high output.[®] Tolerance range for optical and electrical data: ±10 %.[®] Measurement tolerance optical data: ±5 %.[®] Measurement tolerance forward voltage: ±0.1 V.

Specific technical data

Type ^①	Photo- metric code	Typ. luminous flux at tp = 25 °C ^② ③	Typ. luminous flux at tp = 50 °C ^② ③	Typ. forward current	Min. forward voltage at tp = 50 °C ^②	Max. forward voltage at tp = 25 °C ^②	Typ. power consumption at tp = 50 °C ^②	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 50 °C	Efficacy of the system at tp = 50 °C	Colour rendering index CRI
Operating mode HO at 500 mA											
LLE 24x70mm 325lm 830 HV ADV5 QTY4	830/359	495 lm	480 lm	500 mA	5.5 V	5.9 V	2.8 W	173 lm/W	169 lm/W	155 lm/W	> 80
LLE 24x70mm 325lm 840 HV ADV5 QTY4	840/359	520 lm	505 lm	500 mA	5.2 V	5.6 V	2.8 W	182 lm/W	178 lm/W	164 lm/W	> 80
LLE 24x70mm 325lm 850 HV ADV5 QTY4	850/359	535 lm	520 lm	500 mA	5.2 V	5.6 V	2.8 W	186 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x70mm 325lm 865 HV ADV5 QTY4	865/359	510 lm	495 lm	500 mA	5.2 V	5.6 V	2.8 W	181 lm/W	177 lm/W	163 lm/W	> 80
LLE 24x140mm 650lm 830 HV ADV5	830/359	990 lm	965 lm	500 mA	10.9 V	11.8 V	5.7 W	173 lm/W	169 lm/W	155 lm/W	> 80
LLE 24x140mm 650lm 835 HV ADV5	835/359	1,000 lm	975 lm	500 mA	10.9 V	11.8 V	5.7 W	175 lm/W	171 lm/W	157 lm/W	> 80
LLE 24x140mm 650lm 840 HV ADV5	840/359	1,040 lm	1,010 lm	500 mA	10.9 V	11.8 V	5.7 W	182 lm/W	178 lm/W	164 lm/W	> 80
LLE 24x280mm 1250lm 827 HV ADV5	827/359	1,890 lm	1,840 lm	500 mA	21.8 V	23.5 V	11.4 W	165 lm/W	162 lm/W	149 lm/W	> 80
LLE 24x280mm 1250lm 830 HV ADV5	830/359	1,980 lm	1,930 lm	500 mA	21.8 V	23.5 V	11.4 W	173 lm/W	169 lm/W	155 lm/W	> 80
LLE 24x280mm 1250lm 835 HV ADV5	835/359	2,000 lm	1,950 lm	500 mA	21.8 V	23.5 V	11.4 W	175 lm/W	171 lm/W	157 lm/W	> 80
LLE 24x280mm 1250lm 840 HV ADV5	840/359	2,080 lm	2,030 lm	500 mA	21.8 V	23.5 V	11.4 W	182 lm/W	178 lm/W	164 lm/W	> 80
LLE 24x280mm 1250lm 850 HV ADV5	850/359	2,130 lm	2,080 lm	500 mA	21.8 V	23.5 V	11.4 W	186 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x280mm 1250lm 865 HV ADV5	865/359	2,090 lm	2,030 lm	500 mA	21.8 V	23.5 V	11.4 W	182 lm/W	179 lm/W	165 lm/W	> 80
LLE 24x560mm 2400lm 827 HV ADV5	827/359	3,790 lm	3,690 lm	500 mA	43.6 V	47.1 V	22.8 W	165 lm/W	162 lm/W	149 lm/W	> 80
LLE 24x560mm 2400lm 830 HV ADV5	830/359	3,960 lm	3,860 lm	500 mA	43.6 V	47.1 V	22.8 W	173 lm/W	169 lm/W	155 lm/W	> 80
LLE 24x560mm 2400lm 835 HV ADV5	835/359	4,010 lm	3,900 lm	500 mA	43.6 V	47.1 V	22.8 W	175 lm/W	171 lm/W	157 lm/W	> 80
LLE 24x560mm 2400lm 840 HV ADV5	840/359	4,170 lm	4,050 lm	500 mA	43.6 V	47.1 V	22.8 W	182 lm/W	178 lm/W	164 lm/W	> 80
LLE 24x560mm 2400lm 850 HV ADV5	850/359	4,270 lm	4,150 lm	500 mA	43.6 V	47.1 V	22.8 W	186 lm/W	183 lm/W	168 lm/W	> 80
LLE 24x560mm 2400lm 865 HV ADV5	865/359	4,180 lm	4,070 lm	500 mA	43.6 V	47.1 V	22.8 W	182 lm/W	179 lm/W	165 lm/W	> 80

① Integral measurement over the complete module.

② If mounted with M4 screws and plastic washers.

③ HE ... high efficiency, NM ... nominal mode, HO ... high output.

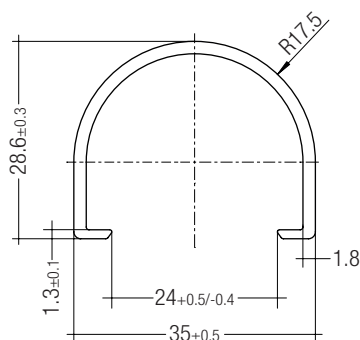
④ Tolerance range for optical and electrical data: ±10 %.

⑤ Measurement tolerance optical data: ±5 %.

⑥ Measurement tolerance forward voltage: ±0.1 V.

Product description

- LINEAR COVER for LLE 24
- Protection against direct touch for non-SELV applications
(recommendation: use all fixing points)
- Fast snap on mounting on to LLE 24 with clips or plastic washers
- High transmission: transparent 94 %, semi-transparent 87 %, diffuse 76 %
- Made of PMMA
- Tolerances: ± 1 mm for 597 mm length (ends finished),
+ 20 mm for 1,200 / 1,500 / 1,600 / 1,800 mm length (ends raw)



Ordering data

Type	Article number	Colour	Length	Packaging carton	Weight per pc.
LINEAR COVER SY Transparent 1600mm	28000338	Transparent	1,600 mm	12 pc(s).	0.272 kg
LINEAR COVER SY Frosted 1800mm	28000437	Semi-transparent	1,800 mm	12 pc(s).	0.308 kg
LINEAR COVER SY Frosted 1600mm	28000339	Semi-transparent	1,600 mm	12 pc(s).	0.272 kg
LINEAR COVER SY Frosted 1500mm	28000435	Semi-transparent	1,500 mm	12 pc(s).	0.244 kg
LINEAR COVER SY Frosted 1200mm	28000422	Semi-transparent	1,200 mm	12 pc(s).	0.205 kg
LINEAR COVER SY Frosted 597mm	28000340	Semi-transparent	597 mm	12 pc(s).	0.102 kg
LINEAR COVER SY Diffuse 1800mm	28000438	Diffuse	1,800 mm	12 pc(s).	0.308 kg
LINEAR COVER SY Diffuse 1600mm	28000341	Diffuse	1,600 mm	12 pc(s).	0.272 kg
LINEAR COVER SY Diffuse 1500mm	28000436	Diffuse	1,500 mm	12 pc(s).	0.257 kg
LINEAR COVER SY Diffuse 1200mm	28000434	Diffuse	1,200 mm	12 pc(s).	0.205 kg
LINEAR COVER SY Diffuse 597mm	28000342	Diffuse	597 mm	12 pc(s).	0.102 kg

Product description

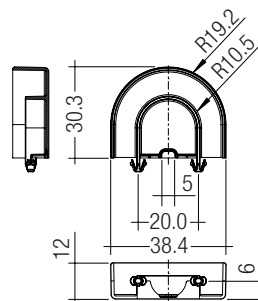
- ENDCAP for LLE 24
- PUSH-FIX: Fast snap on mounting (sheet thickness 0.5 – 1.0 mm), for drilling hole 4 mm
- SCREW-FIX: Screw mounting with EJOT Delta PT WN 5451 30x8, tightening torque 0.7 Nm
- Made of Polycarbonat



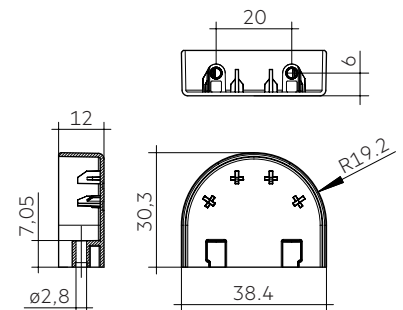
ACL ENDCAP LLE24 PUSH-FIX



ACL ENDCAP LLE24 SCREW-FIX



ACL ENDCAP LLE24 PUSH-FIX



ACL ENDCAP LLE24 SCREW-FIX

Ordering data

Type	Article number	Colour	Packaging carton	Weight per pc.
ACL ENDCAP LLE24 PUSH-FIX	28001037	White	480 pc(s).	0.003 kg
ACL ENDCAP LLE24 SCREW-FIX	28002315	White	480 pc(s).	0.003 kg

Product description LINEAR LENS

- Linear lens for LLE 24
- Available with different beam characteristics
- Protection against direct touch for non-SELV applications (recommendation: use all fixing points)
- Fast snap on mounting on to LLE 24 with clips or plastic washers
- Linear lense made of PMMA
- Available lengths: 1,200, 1,500, 1,600 and 1,800 mm, Tolerance: + 10 mm, at 1,600 mm length $\pm$ 20 mm tolerance and raw ends
- Max. permissible temperature 80 °C
- Photometric data available on website

Product description Endcap

- ENDCAP for LINEAR LENS 24mm INTENSE, ASY and DASY
- Mounting by clipping in and screwing from below using screw EJOT Delta PT WN 5451 20x4, tightening torque 0.7 Nm
- Made of Polyamide UL94 V0



ACL LINEAR LENS 24mm 60°



ACL LINEAR LENS 24mm 90°



ACL LINEAR LENS 24mm INTENSE



ACL LINEAR LENS 24mm BATWING



ACL LINEAR LENS 24mm ASY

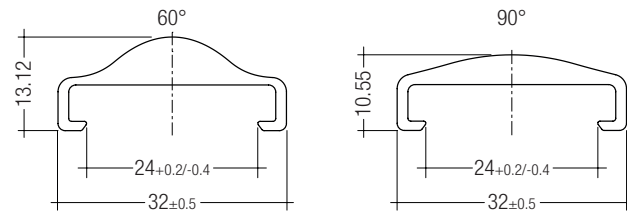


ACL LINEAR LENS 24mm DASY

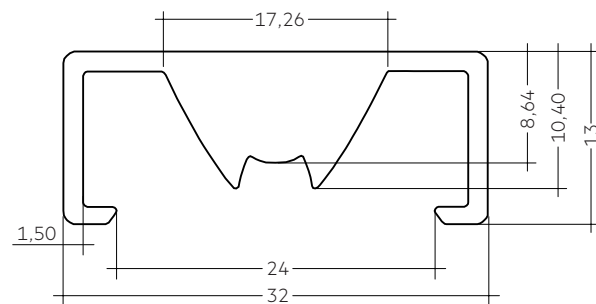


ACL Endcap LENS 24mm PSF

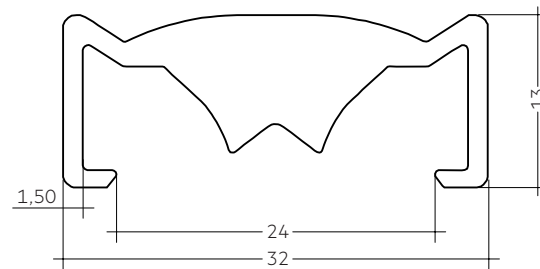
ACL LENS 24mm



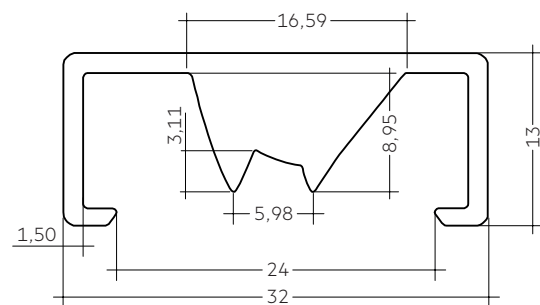
ACL LINEAR LENS 24mm 60° and 90°



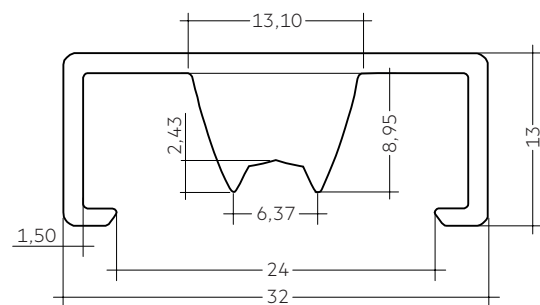
ACL LINEAR LENS 24mm INTENSE



ACL LINEAR LENS 24mm BATWING

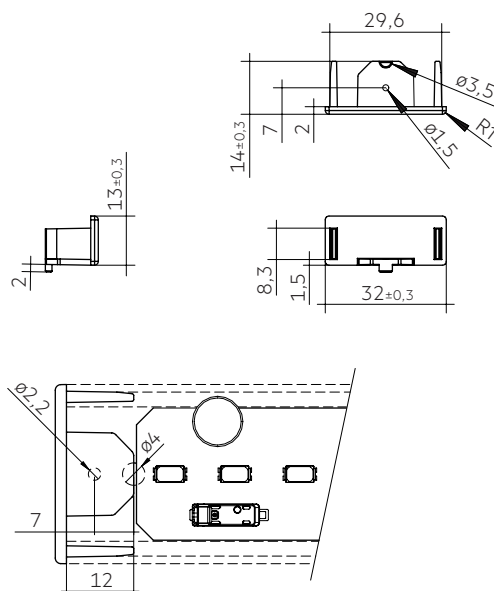


ACL LINEAR LENS 24mm ASY



ACL LINEAR LENS 24mm DASY

ACL LENS 24mm



ACL Endcap LENS 24mm PSF

Ordering data

Type	Article number	Beam characteristic	Efficiency	Packaging carton	Weight per pc.
ACL LINEAR LENS 24x1200mm 60°	28001428	60°	97 %	21 pc(s).	0.196 kg
ACL LINEAR LENS 24x1200mm 90°	28001429	90°	97 %	21 pc(s).	0.165 kg
ACL LINEAR LENS 24x1600mm 60°	28000953	60°	97 %	21 pc(s).	0.261 kg
ACL LINEAR LENS 24x1600mm 90°	28000955	90°	97 %	21 pc(s).	0.221 kg
ACL LINEAR LENS 24x1200mm INTENSE	28002024	40°	95 %	18 pc(s).	0.261 kg
ACL LINEAR LENS 24x1500mm INTENSE	28002025	40°	95 %	18 pc(s).	0.326 kg
ACL LINEAR LENS 24x1800mm INTENSE	28002026	40°	95 %	18 pc(s).	0.392 kg
ACL LINEAR LENS 24x1200mm BATWING	28002027	batwing	95 %	18 pc(s).	0.275 kg
ACL LINEAR LENS 24x1500mm BATWING	28002028	batwing	95 %	18 pc(s).	0.344 kg
ACL LINEAR LENS 24x1800mm BATWING	28002029	batwing	95 %	18 pc(s).	0.412 kg
ACL LINEAR LENS 24x1200mm ASY	28002030	asymmetric	95 %	18 pc(s).	0.250 kg
ACL LINEAR LENS 24x1500mm ASY	28002031	asymmetric	95 %	18 pc(s).	0.312 kg
ACL LINEAR LENS 24x1800mm ASY	28002032	asymmetric	95 %	18 pc(s).	0.375 kg
ACL LINEAR LENS 24x1200mm DASY	28002033	double asymmetric	92 %	18 pc(s).	0.249 kg
ACL LINEAR LENS 24x1500mm DASY	28002034	double asymmetric	92 %	18 pc(s).	0.311 kg
ACL LINEAR LENS 24x1800mm DASY	28002035	double asymmetric	92 %	18 pc(s).	0.373 kg
ACL Endcap LENS 24mm PSF	28002669	–	–	720 pc(s).	0.003 kg

**ACCES-
SORIES**

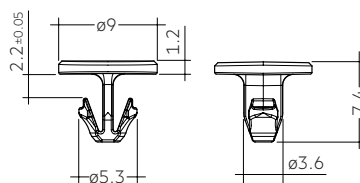
CLIP 4.3mm

Product description

- Clip for fixation of LED modules with 4.3 mm holes
- Fast snap on mounting (sheet thickness 0.5 – 1.0 mm for PUSH-FIX and 1 – 2 mm for PUSH-FIX Long)
- For drilling hole 4 mm
- Clip made of Polycarbonat



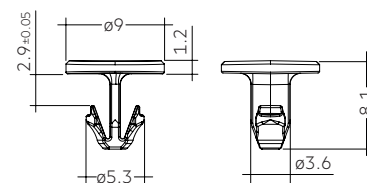
ACL CLIP 4.3mm PUSH-FIX



ACL CLIP 4.3mm PUSH-FIX



ACL CLIP 4.3mm PUSH-FIX Long



ACL CLIP 4.3mm PUSH-FIX Long

Ordering data

Type	Article number	Colour	Packaging bag ^①	Weight per pc.
ACL CLIP 4.3mm PUSH-FIX	28001036	White	500 pc(s).	0.001 kg
ACL CLIP 4.3mm PUSH-FIX Long	28002314	Transparent	500 pc(s).	0.001 kg

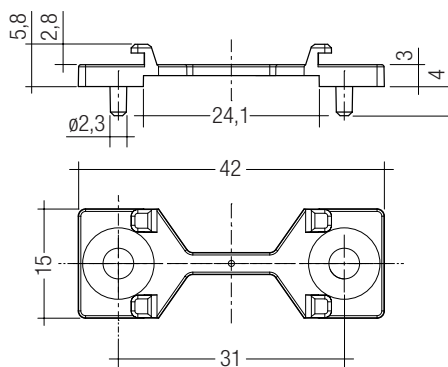
^① Minimum sales quantity 500 pcs.

**ACCES-
SORIES**

BRIDGE LLE24/40

Product description

- Enables the fixation of 24 mm wide Tridonic LED modules to fixtures made for 40 mm wide modules
- Ideal for extruded aluminium gear trays made for 40 mm modules with pre-alignment knobs
- Clip-on for LINEAR COVER and LINEAR LENS[®]
- For LLE 24 with 280 mm module minimum 2 bridges required
- For LLE 24 with 560 mm module minimum 3 bridges required
- Fixation via M3 or M4 countersunk screw, max. tightening torque 0.5 Nm
- BRIDGE made of white polycarbonate



Ordering data

Type	Article number	Colour	Packaging carton ^①	Weight per pc.
ACL BRIDGE LLE24/40 SCREW-FIX	28001205	White	600 Stk.	0.001 kg

^① Minimum sales quantity 600 pcs.

[®] Beam characteristics will change due to the elevated fixation (see photometric files for details).

1. Standards

IEC 62031
IEC 62471
IEC 61000-4-2
IEC 62778
IEC 61547
UL 8750

1.1 Photometric code

Key for photometric code, e. g. 830 / 349

1 st digit	2 nd + 3 rd digit	4 th digit	5 th digit	6 th digit
Code	Colour temperature in Kelvin x 100	MacAdam initial	MacAdam after 25% of the life-time (max.6000h)	Luminous flux after 25% of the life-time (max.6000h)
7	70 – 79			Code
8	80 – 89			Luminous flux
9	≥90			7
				8
				9

1.2 Energy classification

Type	Energy classification
LLE 24mm HV ADV5	A++

2. Thermal details

2.1 tc point, ambient temperature and life-time

The temperature at tp reference point is crucial for the light output and life-time of a LED product.

For LLE a tp temperature of 50 °C has to be complied in order to achieve an optimum between heat sink requirements, light output and life-time.

Compliance with the maximum permissible reference temperature at the tc point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

The tc and tp temperature of LED modules from Tridonic are measured at the same reference point.

2.2 Storage and humidity

Storage temperature	-40... +80 °C
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Operation only in non condensing environment.

Humidity during processing of the module should be between 30 to 70 %.

2.3 Heat sink values

LLE 24x70mm 325lm ADV5

ta	tp	Forward current	R _{th, hs-a}	Cooling area
25 °C	50 °C	300 mA	28.97 K/W	23 cm ²
25 °C	50 °C	500 mA	17.21 K/W	39 cm ²
35 °C	50 °C	300 mA	17.37 K/W	38 cm ²
35 °C	50 °C	500 mA	10.32 K/W	65 cm ²
40 °C	50 °C	300 mA	11.57 K/W	58 cm ²
40 °C	50 °C	500 mA	6.87 K/W	97 cm ²
45 °C	50 °C	300 mA	5.77 K/W	115 cm ²
45 °C	50 °C	500 mA	3.42 K/W	195 cm ²

LLE 24x140mm 650lm ADV5

ta	tp	Forward current	R _{th, hs-a}	Cooling area
25 °C	50 °C	300 mA	14.49 K/W	46 cm ²
25 °C	50 °C	500 mA	8.61 K/W	77 cm ²
35 °C	50 °C	300 mA	8.69 K/W	77 cm ²
35 °C	50 °C	500 mA	5.16 K/W	129 cm ²
40 °C	50 °C	300 mA	5.79 K/W	115 cm ²
40 °C	50 °C	500 mA	3.43 K/W	194 cm ²
45 °C	50 °C	300 mA	2.89 K/W	231 cm ²
45 °C	50 °C	500 mA	1.71 K/W	390 cm ²

LLE 24x280mm 1250lm ADV5

ta	tp	Forward current	R _{th, hs-a}	Cooling area
25 °C	50 °C	300 mA	7.25 K/W	92 cm ²
25 °C	50 °C	500 mA	4.30 K/W	155 cm ²
35 °C	50 °C	300 mA	4.35 K/W	153 cm ²
35 °C	50 °C	500 mA	2.58 K/W	259 cm ²
40 °C	50 °C	300 mA	2.90 K/W	230 cm ²
40 °C	50 °C	500 mA	1.72 K/W	388 cm ²
45 °C	50 °C	300 mA	1.44 K/W	462 cm ²
45 °C	50 °C	500 mA	0.85 K/W	780 cm ²

LLE 24x560mm 2400lm ADV5

ta	tp	Forward current	R _{th, hs-a}	Cooling area
25 °C	50 °C	300 mA	3.62 K/W	184 cm ²
25 °C	50 °C	500 mA	2.15 K/W	310 cm ²
35 °C	50 °C	300 mA	2.17 K/W	307 cm ²
35 °C	50 °C	500 mA	1.29 K/W	517 cm ²
40 °C	50 °C	300 mA	1.45 K/W	460 cm ²
40 °C	50 °C	500 mA	0.86 K/W	776 cm ²
45 °C	50 °C	300 mA	0.72 K/W	923 cm ²
45 °C	50 °C	500 mA	0.43 K/W	1,559 cm ²

Notes

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. Depending on the heat sink a heat conducting paste or heat conducting film might be necessary to keep the specified tp temperature.

3. Installation / wiring

3.1 Electrical supply/choice of LED Driver

LLE modules from Tridonic are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a LED Driver which complies with the relevant standards. The use of LED Driver from Tridonic in combination with LLE modules guarantees the necessary protection for safe and reliable operation.

If a LED Driver other than Tridonic is used, it must provide the following protection:

- Short-circuit protection
- Overload protection
- Overtemperature protection



LLE modules must be supplied by a constant current LED Driver. Operation with a constant voltage LED Driver will lead to an irreversible damage of the module.

Wrong polarity can damage the LLE.

The LLE module is designed for serial wiring.

With parallel wiring tolerance-related differences in output are possible (thermal stress of the module) and can cause differences in brightness.

If a wire breaks or a complete module fails then the current passing through the other module increases. This may reduce its life considerably.

Max. 8 pieces 280 mm modules or 4 pieces 560 mm modules may be connected in parallel.

LLE can be operated either from SELV LED Drivers or from LED Drivers with LV output voltage.



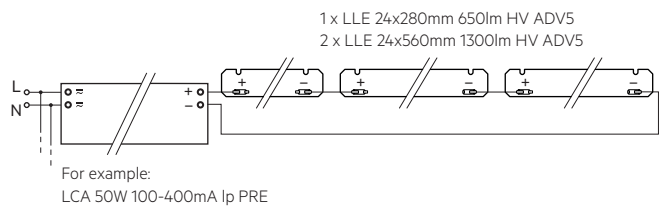
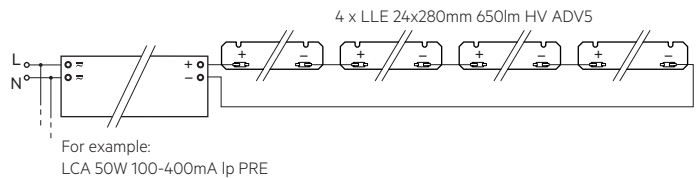
LLE are basic insulated up to 440 V (if mounted with M4 screws with head diameter 7 mm in combination with plastic washers) against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 440 V, an additional insulation between LED module and heat sink is required (for example by insulated thermal pads) or by a suitable luminaire construction.

At voltages > 60 V an additional protection against direct touch (test finger) to the light emitting side of the module has to be guaranteed. This is typically achieved by means of a non removable light distributor over the module.

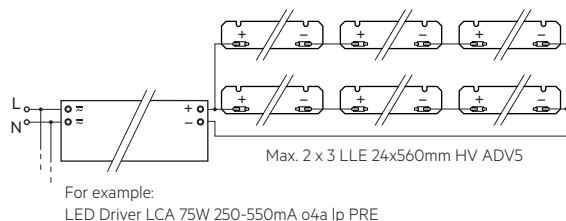
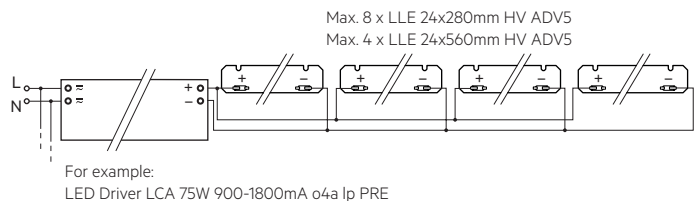
3.2 Wiring



Wiring examples for serial wiring



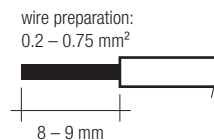
Wiring examples for parallel wiring



3.3 Wiring type and cross section

The wiring can be in stranded wires or solid with a cross section of 0.2 to 0.75 mm².

For the push-wire connection you have to strip the insulation (8-9 mm).



To remove the wires use a suitable tool (e.g. Microcon release pin) or through twist and pull.

3.4 Mounting instruction



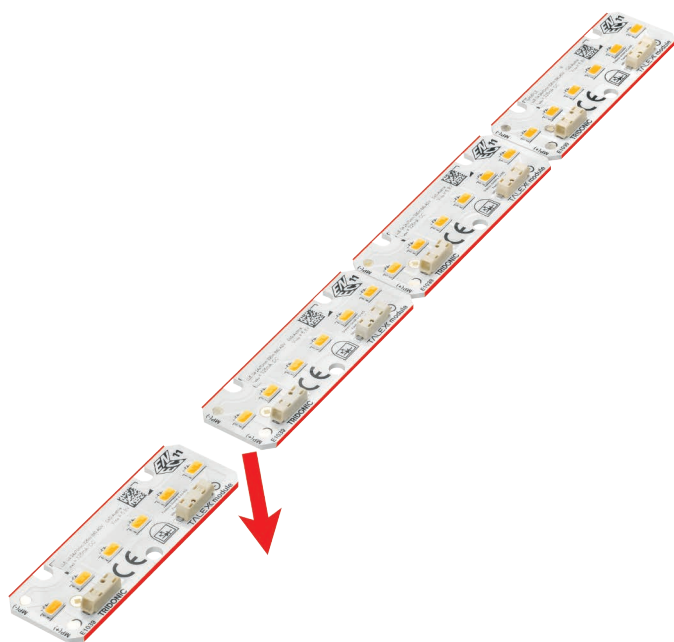
None of the components of the LLE (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

Max. torque for fixing: 0.5 Nm.

The LED modules are mounted onto a heat sink with min. 3 screws per module or ACL CLIP 4.3mm.

The LLE 24x70mm module is delivered as a board of 280mm (4 pcs.) and must be separated.

Only touch the module at the edge to separate the modules (see marking below).



Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate.

Avoid corrosive atmosphere during usage and storage.

3.5 EOS/ESD safety guidelines



The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline_EOS_ESD.pdf) at: <http://www.tridonic.com/esd-protection>

4. Life-time

4.1 Life-time, lumen maintenance and failure rate

The light output of an LED Module decreases over the life-time, this is characterized with the L value.
L70 means that the LED module will give 70 % of its initial luminous flux.
This value is always related to the number of operation hours and therefore defines the life-time of an LED module.

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules.

The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value.
In addition the percentage of failed modules (fatal failure) is characterized by the C value.

The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LED modules may fail or be below 70 % of the initial luminous flux.

4.2 Lumen maintenance for LLE 24mm HV ADV5

Forward current	tp tempera- ture	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
150 mA	40 °C	43,000 h	59,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	42,000 h	57,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	41,000 h	55,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	40,000 h	54,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	39,000 h	52,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	38,000 h	50,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	38,000 h	49,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	37,000 h	47,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	36,000 h	46,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	35,000 h	45,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
200 mA	40 °C	43,000 h	58,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	42,000 h	57,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	41,000 h	55,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	40,000 h	53,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	39,000 h	51,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	38,000 h	50,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	37,000 h	48,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	36,000 h	47,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	36,000 h	45,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	35,000 h	44,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
300 mA	40 °C	42,000 h	58,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	41,000 h	56,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	40,000 h	54,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	40,000 h	52,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	39,000 h	51,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	38,000 h	49,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	37,000 h	48,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	36,000 h	46,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	35,000 h	45,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	34,000 h	44,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h

Forward current	tp tempera- ture	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
375 mA	40 °C	42,000 h	57,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	41,000 h	55,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	40,000 h	54,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	39,000 h	52,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	38,000 h	50,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	37,000 h	49,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	37,000 h	47,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	36,000 h	46,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	35,000 h	44,000 h	71,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	34,000 h	43,000 h	69,000 h	>72,000 h	>72,000 h	>72,000 h
450 mA	40 °C	42,000 h	56,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	41,000 h	55,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	40,000 h	53,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	39,000 h	51,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	38,000 h	50,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	37,000 h	48,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	36,000 h	47,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	35,000 h	45,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	35,000 h	44,000 h	70,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	34,000 h	43,000 h	69,000 h	>72,000 h	>72,000 h	>72,000 h
500 mA	40 °C	41,000 h	56,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	45 °C	40,000 h	54,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	50 °C	39,000 h	52,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	55 °C	38,000 h	51,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	60 °C	38,000 h	49,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	65 °C	37,000 h	48,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	70 °C	36,000 h	46,000 h	>72,000 h	>72,000 h	>72,000 h	>72,000 h
	75 °C	35,000 h	45,000 h	71,000 h	>72,000 h	>72,000 h	>72,000 h
	80 °C	34,000 h	43,000 h	70,000 h	>72,000 h	>72,000 h	>72,000 h
	85 °C	34,000 h	42,000 h	68,000 h	>72,000 h	>72,000 h	>72,000 h

4.3 Switching capability

100,000 cycles

Tridonic test according to IEC 62717 Cl 10.3.3
30 s on / 30 s off at Imax

5. Electrical values

5.1 Declaration of electrical parameters

Irated ... Nominal operating current the module is designed for.

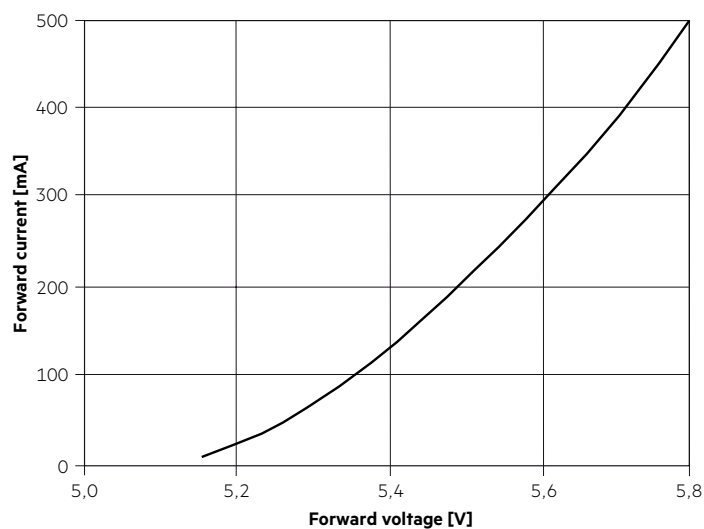
I_{max} ... Max. permissible continuous operating current incl. The tolerances of the LED driver.

Max. permissible LF current ripple ... Max. output current of the LED driver incl. Tolerances and LF current ripple must not exceed this value.

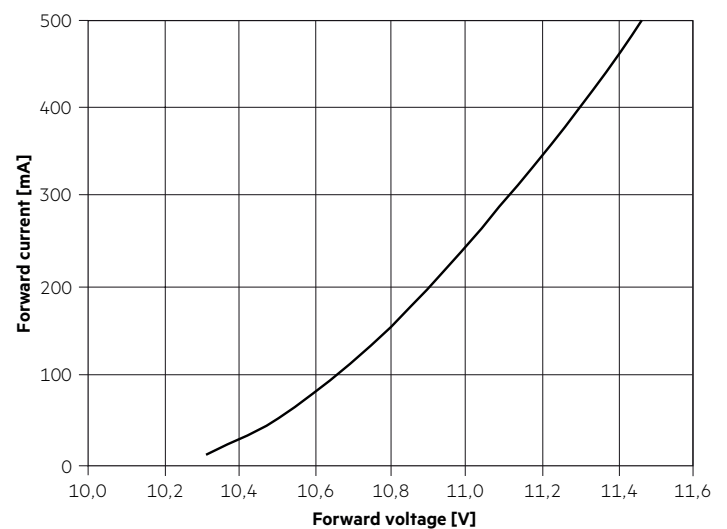
Max. permissible peak current ... The max. output peak current of the LED driver must not exceed this value.

5.2 Typ. forward voltage vs. forward current

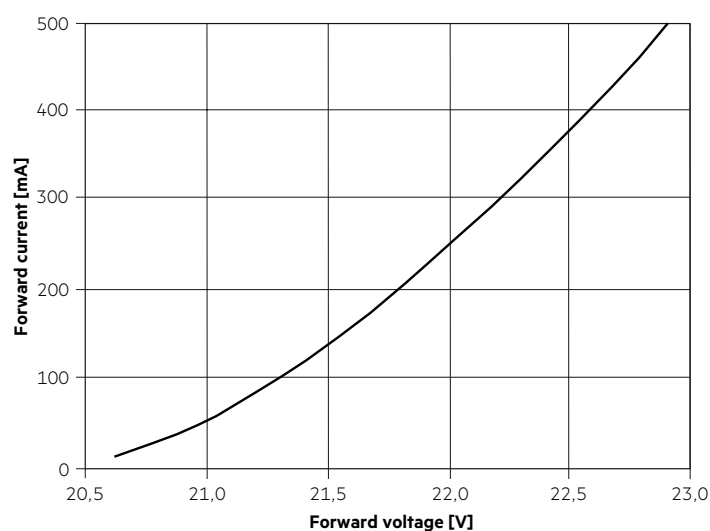
LLE 24x70mm 325lm 8xx HV ADV5



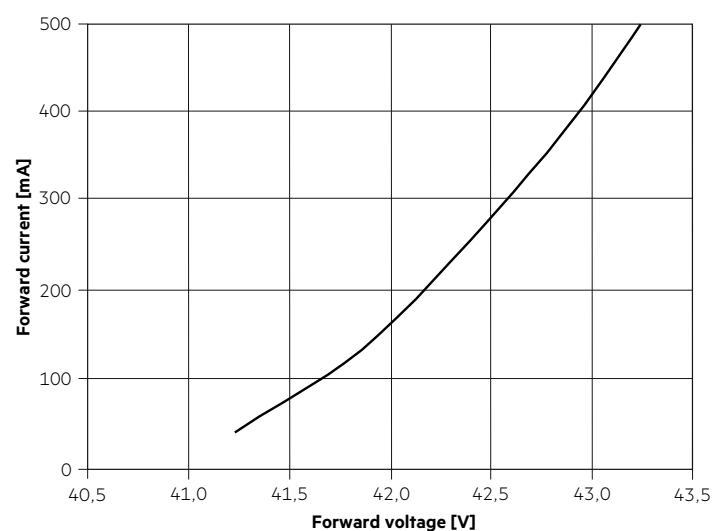
LLE 24x140mm 650lm 8xx HV ADV5



LLE 24x280mm 1250lm 8xx HV ADV5

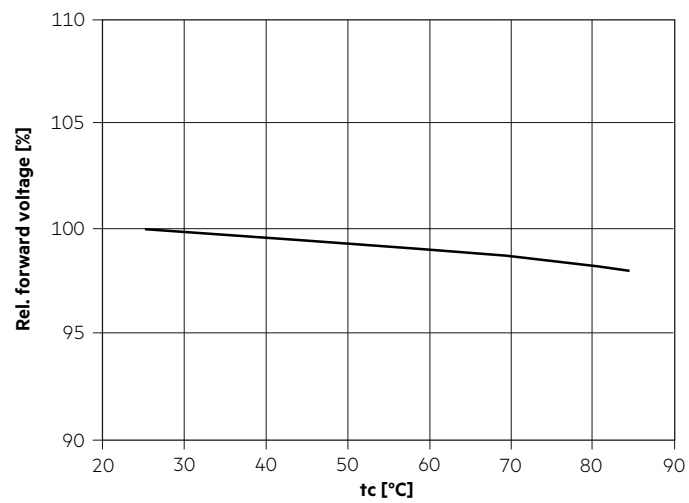


LLE 24x560mm 2400lm 8xx HV ADV5



The diagrams are based on statistic values.
The real values can be different.

5.3 Forward voltage vs. t_c temperature



The diagrams are based on statistic values.
The real values can be different.

6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

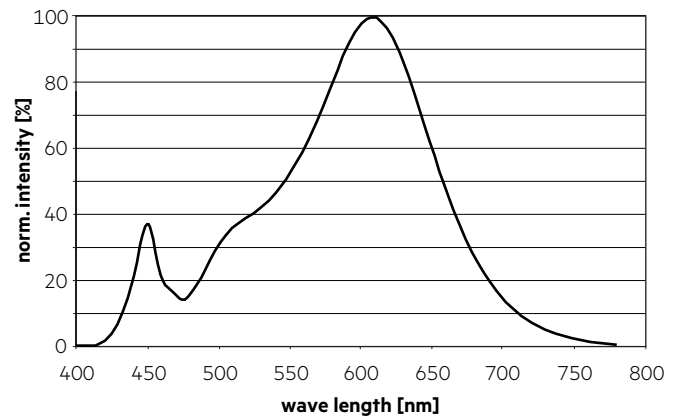
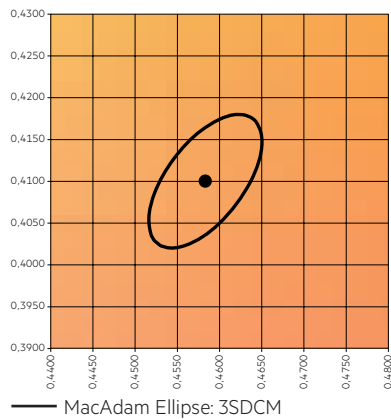
The specified colour coordinates are integral measured by current impulse of 195 mA and a duration of 100 ms.

The ambient temperature of the measurement is $t_a = 25^\circ\text{C}$.

The measurement tolerance of the colour coordinates are ± 0.01 .

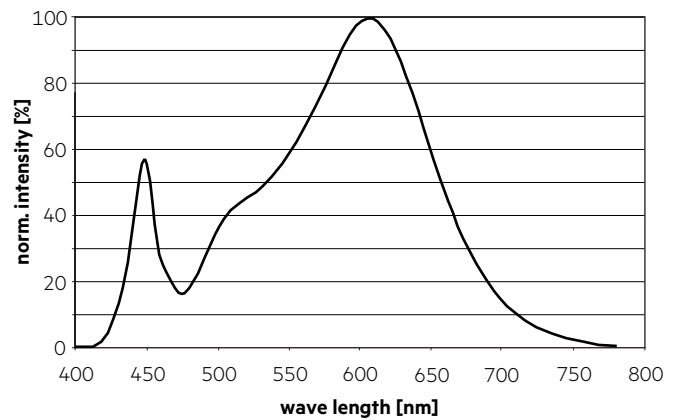
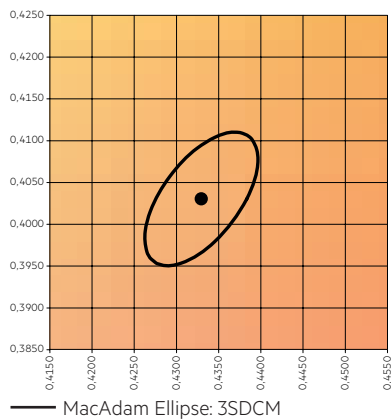
2,700 K

	x0	y0
Centre	0.4578	0.4101



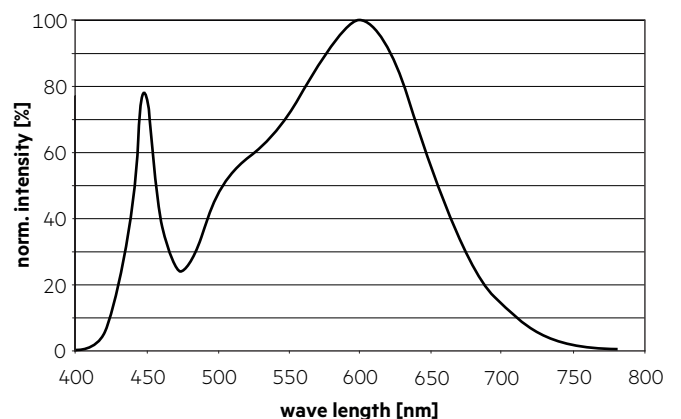
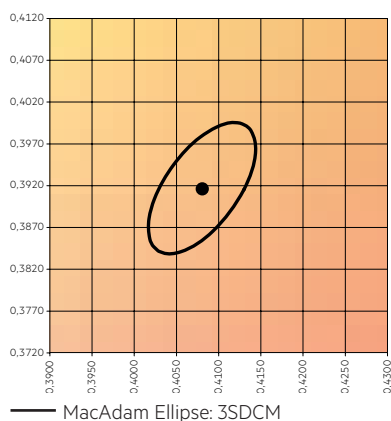
3,000 K

	x0	y0
Centre	0.4338	0.4030



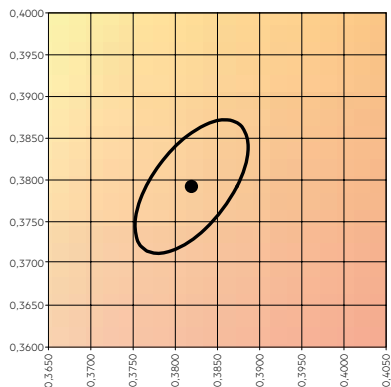
3,500 K

	x0	y0
Centre	0.4073	0.3917

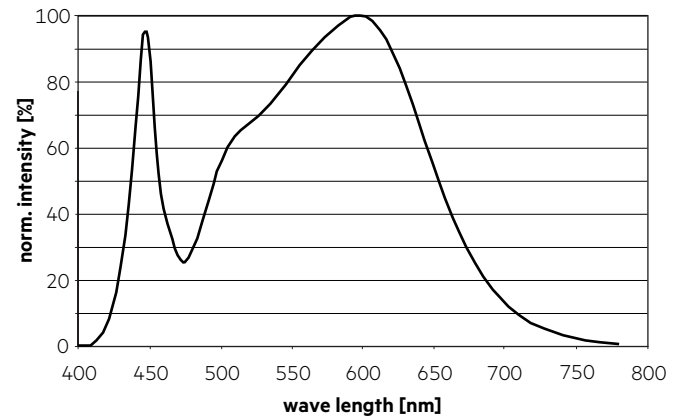


4,000 K

	x0	y0
Center	0.3818	0.3797

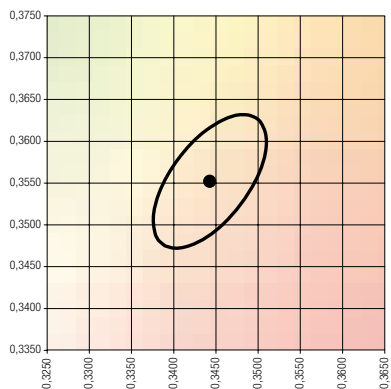


— MacAdam Ellipse: 3SDCM

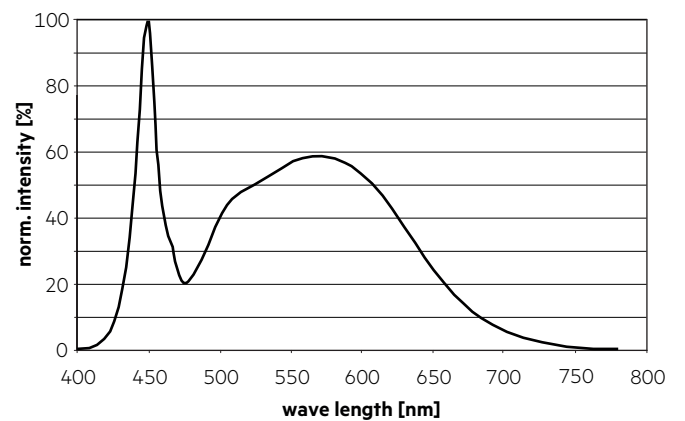


5,000 K

	x0	y0
Center	0.3447	0.3553

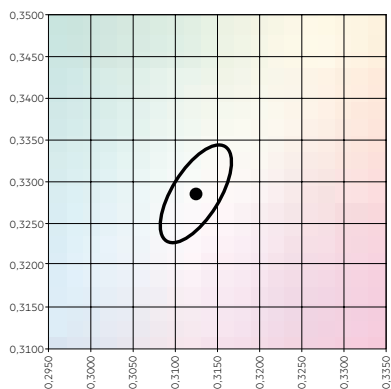


— MacAdam Ellipse: 3SDCM

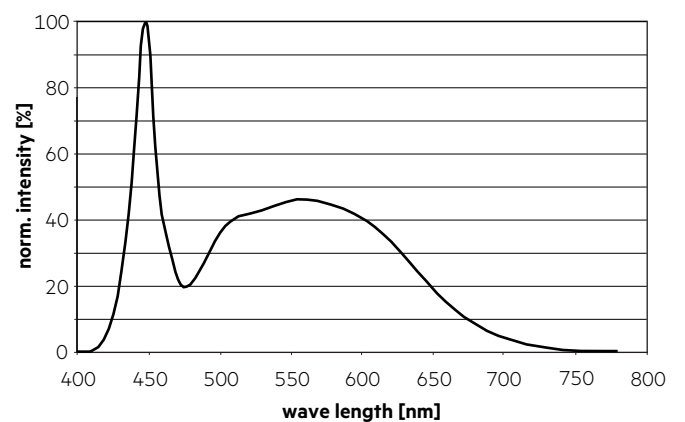


6,500 K

	x0	y0
Center	0.3123	0.3282

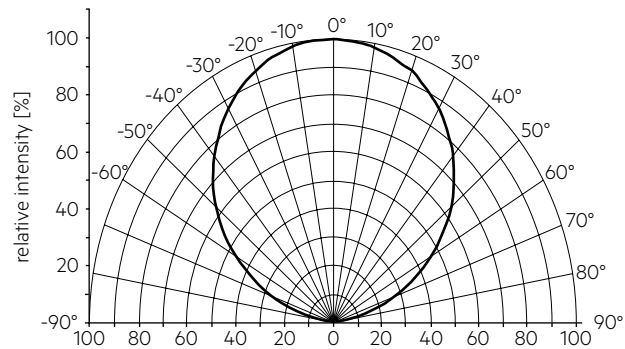


— MacAdam Ellipse: 3SDCM



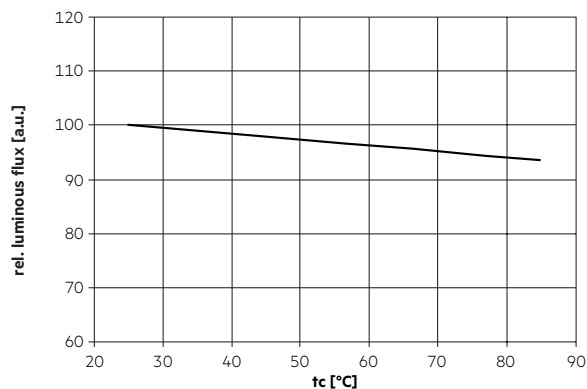
6.2 Light distribution

The optical design of the LLE product line ensures optimum homogeneity for the light distribution.

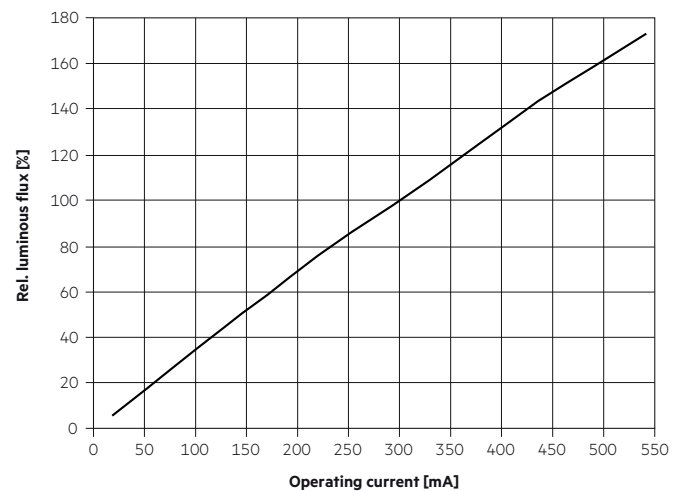


The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 5. To ensure an ideal mixture of colours and a homogeneous light distribution a suitable optic (e. g. PMMA diffuser) and a sufficient spacing between module and optic (typ. 4 cm) should be used.

6.3 Relative luminous flux vs. tc temperature



6.4 Relative luminous flux vs. operating current



The diagrams are based on statistic values.
The real values can be different.

7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Life-time declarations are informative and represent no warranty claim.