



#### Module RLE G1 EXC OTD

Module RLE EXCITE

#### Product description

- High efficiency outdoor modules
- Suitable for harsh and humid outdoor conditions
- Tested acc. to salt fog test (IEC 60068-2-25) and harmful gas test (GR-1217-CORE)
- Huge performance temperature range from -40 ... +105 °C
- Suitable for standard lenses
- Efficacy of the module up to 142 lm/W at 700 mA (nominal operation)
- Two colour rendering index to fit the application:  
CRI > 70 high efficiency, CRI > 80 for high colour rendering
- Small luminous flux tolerances<sup>①</sup>
- Colour temperatures: CRI 70 available in 3,000 and 4,000 K (5,700 and 6,500 K on request) and CRI 80 available in 3,000 and 4,000 K
- Integrated protection:  
PL0 ... NTC and polarity protection,  
PL1 ... Shunts, NTC and polarity protection
- Push terminals for quick and simple wiring
- Simple installation (e.g. screws)
- Long life-time up to 100,000 hours
- 5-year guarantee



**Standards**, page 5

**Colour temperatures and tolerances**, page 8



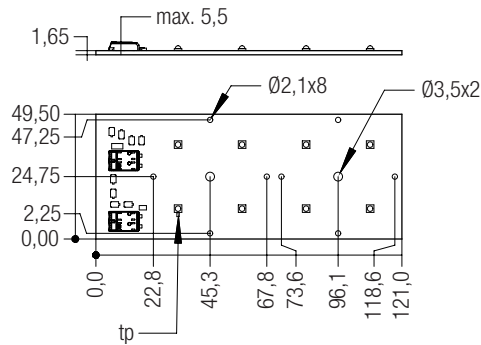


#### Module RLE G1 EXC OTD

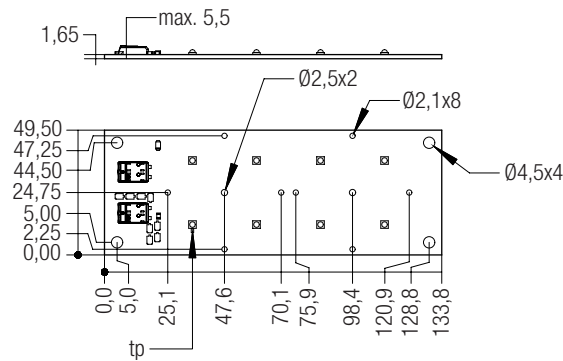
Module RLE EXCITE

#### Technical data

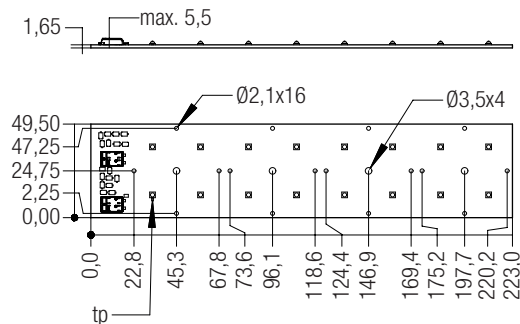
|                                                   |                                       |
|---------------------------------------------------|---------------------------------------|
| Beam characteristic                               | 120°                                  |
| Ambient temperature range                         | -40 ... +75 °C                        |
| tp rated                                          | 75 °C                                 |
| tc                                                | 105 °C                                |
| Imax                                              | 1.200 mA                              |
| Max. DC forward current                           | 1.400 mA                              |
| Max. permissible LF current ripple                | 1.800 mA                              |
| Max. permissible peak current                     | 2.000 mA / max. 10 ms                 |
| Max. working voltage for insulation <sup>2)</sup> | 320 V                                 |
| Insulation test voltage                           | 1.6 kV                                |
| CTI of the printed circuit board                  | ≥ 600                                 |
| ESD classification                                | severity level 4                      |
| Risk group (IEC 62471:2008) <sup>3)</sup>         | RG2 (Ethr = 767 lx, RG1 at d ≥ 50 cm) |
| Classification acc. to IEC 62031                  | Built-in                              |
| Type of protection                                | IP00                                  |



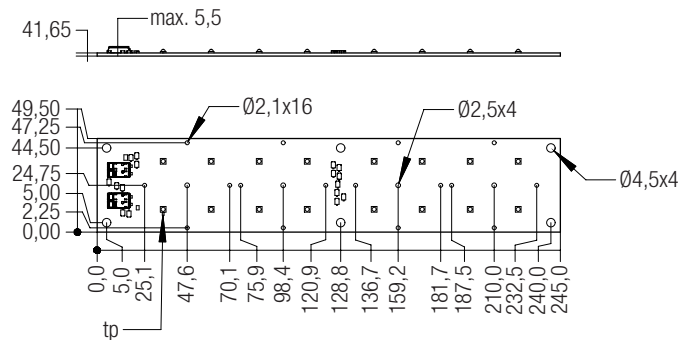
RLE G1 49x121mm 2000lm xxx EXC OTD



RLE G1 49x133mm 2000lm xxx EXC OTD



RLE G1 49x223mm 4000lm xxx EXC OTD



RLE G1 49x245mm 4000lm xxx EXC OTD

## Module RLE G1 EXC OTD

Module RLE EXCITE

## Ordering data

| Type                                   | Article number® | Colour temperature | Packaging carton | Weight per pc. |
|----------------------------------------|-----------------|--------------------|------------------|----------------|
| RLE G1 49x121mm 2000lm 730 PLO EXC OTD | <b>89602500</b> | 3,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 730 PL1 EXC OTD | <b>89602501</b> | 3,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 740 PLO EXC OTD | <b>89602502</b> | 4,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 740 PL1 EXC OTD | <b>89602503</b> | 4,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 830 PLO EXC OTD | <b>89602550</b> | 3,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 830 PL1 EXC OTD | <b>89602551</b> | 3,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 840 PLO EXC OTD | <b>89602552</b> | 4,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x121mm 2000lm 840 PL1 EXC OTD | <b>89602553</b> | 4,000 K            | 46 pc(s).        | 0.027 kg       |
| RLE G1 49x133mm 2000lm 730 PLO EXC OTD | <b>89602504</b> | 3,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 730 PL1 EXC OTD | <b>89602505</b> | 3,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 740 PLO EXC OTD | <b>89602506</b> | 4,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 740 PL1 EXC OTD | <b>89602507</b> | 4,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 830 PLO EXC OTD | <b>89602554</b> | 3,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 830 PL1 EXC OTD | <b>89602555</b> | 3,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 840 PLO EXC OTD | <b>89602556</b> | 4,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x133mm 2000lm 840 PL1 EXC OTD | <b>89602557</b> | 4,000 K            | 50 pc(s).        | 0.030 kg       |
| RLE G1 49x223mm 4000lm 730 PLO EXC OTD | <b>89602508</b> | 3,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 730 PL1 EXC OTD | <b>89602509</b> | 3,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 740 PLO EXC OTD | <b>89602510</b> | 4,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 740 PL1 EXC OTD | <b>89602511</b> | 4,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 830 PLO EXC OTD | <b>89602558</b> | 3,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 830 PL1 EXC OTD | <b>89602559</b> | 3,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 840 PLO EXC OTD | <b>89602560</b> | 4,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x223mm 4000lm 840 PL1 EXC OTD | <b>89602561</b> | 4,000 K            | 88 pc(s).        | 0.050 kg       |
| RLE G1 49x245mm 4000lm 730 PLO EXC OTD | <b>89602512</b> | 3,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 730 PL1 EXC OTD | <b>89602513</b> | 3,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 740 PLO EXC OTD | <b>89602514</b> | 4,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 740 PL1 EXC OTD | <b>89602515</b> | 4,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 765 PL1 EXC OTD | <b>89602516</b> | 6,500 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 830 PLO EXC OTD | <b>89602562</b> | 3,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 830 PL1 EXC OTD | <b>89602563</b> | 3,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 840 PLO EXC OTD | <b>89602564</b> | 4,000 K            | 96 pc(s).        | 0.054 kg       |
| RLE G1 49x245mm 4000lm 840 PL1 EXC OTD | <b>89602565</b> | 4,000 K            | 96 pc(s).        | 0.054 kg       |

® Make to order except 89602510, 89602550, 89602552, 89602558 and 89602560.  
5,700 K and 6,500 K CRI = 70 variants on request.

## Specific technical data

| Type                                          | Photo-metric code | Typ. luminous flux at tp = 25 °C <sup>®</sup> | Typ. luminous flux at tp = 75 °C <sup>®</sup> | Typ. forward current | Min. forward voltage at tp = 75 °C | Max. forward voltage at tp = 25 °C | Typ. power consumption at tp = 75 °C <sup>®</sup> | Efficacy of the module at tp = 25 °C | Efficacy of the module at tp = 75 °C | Efficacy of the system at tp = 75 °C | Colour rendering index CRI |
|-----------------------------------------------|-------------------|-----------------------------------------------|-----------------------------------------------|----------------------|------------------------------------|------------------------------------|---------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|
| <b>RLE G1 49x121mm 2000lm</b>                 |                   |                                               |                                               |                      |                                    |                                    |                                                   |                                      |                                      |                                      |                            |
| <b>RLE G1 49x121mm 2000lm 730 PLO EXC OTD</b> | 730/459           | 2,180 lm                                      | 2,100 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x121mm 2000lm 730 PL1 EXC OTD</b> | 730/459           | 2,180 lm                                      | 2,100 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x121mm 2000lm 740 PLO EXC OTD</b> | 740/459           | 2,370 lm                                      | 2,270 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x121mm 2000lm 740 PL1 EXC OTD</b> | 740/459           | 2,370 lm                                      | 2,270 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x121mm 2000lm 830 PLO EXC OTD</b> | 830/459           | 1,950 lm                                      | 1,860 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x121mm 2000lm 830 PL1 EXC OTD</b> | 830/459           | 1,950 lm                                      | 1,860 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x121mm 2000lm 840 PLO EXC OTD</b> | 840/459           | 2,070 lm                                      | 1,970 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x121mm 2000lm 840 PL1 EXC OTD</b> | 840/459           | 2,070 lm                                      | 1,970 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x133mm 2000lm</b>                 |                   |                                               |                                               |                      |                                    |                                    |                                                   |                                      |                                      |                                      |                            |
| <b>RLE G1 49x133mm 2000lm 730 PLO EXC OTD</b> | 730/459           | 2,180 lm                                      | 2,100 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x133mm 2000lm 730 PL1 EXC OTD</b> | 730/459           | 2,180 lm                                      | 2,100 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x133mm 2000lm 740 PLO EXC OTD</b> | 740/459           | 2,370 lm                                      | 2,270 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x133mm 2000lm 740 PL1 EXC OTD</b> | 740/459           | 2,370 lm                                      | 2,270 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x133mm 2000lm 830 PLO EXC OTD</b> | 830/459           | 1,950 lm                                      | 1,860 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x133mm 2000lm 830 PL1 EXC OTD</b> | 830/459           | 1,950 lm                                      | 1,860 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x133mm 2000lm 840 PLO EXC OTD</b> | 840/459           | 2,070 lm                                      | 1,970 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x133mm 2000lm 840 PL1 EXC OTD</b> | 840/459           | 2,070 lm                                      | 1,970 lm                                      | 700 mA               | 21.8 V                             | 24.9 V                             | 16.0 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x223mm 4000lm</b>                 |                   |                                               |                                               |                      |                                    |                                    |                                                   |                                      |                                      |                                      |                            |
| <b>RLE G1 49x223mm 4000lm 730 PLO EXC OTD</b> | 730/459           | 4,360 lm                                      | 4,190 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x223mm 4000lm 730 PL1 EXC OTD</b> | 730/459           | 4,360 lm                                      | 4,190 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x223mm 4000lm 740 PLO EXC OTD</b> | 740/459           | 4,730 lm                                      | 4,540 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x223mm 4000lm 740 PL1 EXC OTD</b> | 740/459           | 4,730 lm                                      | 4,540 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x223mm 4000lm 830 PLO EXC OTD</b> | 830/459           | 3,890 lm                                      | 3,710 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x223mm 4000lm 830 PL1 EXC OTD</b> | 830/459           | 3,890 lm                                      | 3,710 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x223mm 4000lm 840 PLO EXC OTD</b> | 840/459           | 4,140 lm                                      | 3,940 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x223mm 4000lm 840 PL1 EXC OTD</b> | 840/459           | 4,140 lm                                      | 3,940 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x245mm 4000lm</b>                 |                   |                                               |                                               |                      |                                    |                                    |                                                   |                                      |                                      |                                      |                            |
| <b>RLE G1 49x245mm 4000lm 730 PLO EXC OTD</b> | 730/459           | 4,360 lm                                      | 4,190 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x245mm 4000lm 730 PL1 EXC OTD</b> | 730/459           | 4,360 lm                                      | 4,190 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 132 lm/W                             | 131 lm/W                             | 121 lm/W                             | > 70                       |
| <b>RLE G1 49x245mm 4000lm 740 PLO EXC OTD</b> | 740/459           | 4,730 lm                                      | 4,540 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x245mm 4000lm 740 PL1 EXC OTD</b> | 740/459           | 4,730 lm                                      | 4,540 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 143 lm/W                             | 142 lm/W                             | 128 lm/W                             | > 70                       |
| <b>RLE G1 49x245mm 4000lm 765 PL1 EXC OTD</b> | 765/459           | 4,730 lm                                      | 4,540 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 143 lm/W                             | 141 lm/W                             | 127 lm/W                             | > 70                       |
| <b>RLE G1 49x245mm 4000lm 830 PLO EXC OTD</b> | 830/459           | 3,890 lm                                      | 3,710 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x245mm 4000lm 830 PL1 EXC OTD</b> | 830/459           | 3,890 lm                                      | 3,710 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 118 lm/W                             | 116 lm/W                             | 107 lm/W                             | > 80                       |
| <b>RLE G1 49x245mm 4000lm 840 PLO EXC OTD</b> | 840/459           | 4,140 lm                                      | 3,940 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |
| <b>RLE G1 49x245mm 4000lm 840 PL1 EXC OTD</b> | 840/459           | 4,140 lm                                      | 3,940 lm                                      | 700 mA               | 43.6 V                             | 49.8 V                             | 32.1 W                                            | 125 lm/W                             | 123 lm/W                             | 113 lm/W                             | > 80                       |

<sup>®</sup> Integral measurement over the complete module.

<sup>®</sup> If mounted with M3 or M4 screws.

<sup>®</sup> Measured at 700 mA.

<sup>®</sup> Tolerance range for optical and electrical data: ±10 %.

## 1. Standards

EC 62031  
IEC 62717  
IEC 62471  
IEC 61000-4-2  
IEC 60068-2-52  
GR-1217-CORE

### 1.1 Photometric code

Key for photometric code, e. g. 830 / 459

| 1 <sup>st</sup> digit | 2 <sup>nd</sup> + 3 <sup>rd</sup> digit | 4 <sup>th</sup> digit | 5 <sup>th</sup> digit                         | 6 <sup>th</sup> digit                                |
|-----------------------|-----------------------------------------|-----------------------|-----------------------------------------------|------------------------------------------------------|
| Code CRI              | Colour temperature in Kelvin x 100      | McAdam initial        | McAdam after 25% of the life-time (max.6000h) | Luminous flux after 25% of the life-time (max.6000h) |
| 7 70 – 79             |                                         |                       |                                               | Code Luminous flux                                   |
| 8 80 – 89             |                                         |                       |                                               | 7 $\geq 70$ %                                        |
| 9 $\geq 90$           |                                         |                       |                                               | 8 $\geq 80$ %<br>9 $\geq 90$ %                       |

### 1.2 Energy classification

| Typ                         | Energieklassifizierung |
|-----------------------------|------------------------|
| RLE G1 49xxxxmm 730 EXC OTD | A+                     |
| RLE G1 49xxxxmm 740 EXC OTD | A++                    |
| RLE G1 49xxxxmm 765 EXC OTD | A++                    |
| RLE G1 49xxxxmm 830 EXC OTD | A+                     |
| RLE G1 49xxxxmm 840 EXC OTD | 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 RLE a tp temperature of 65°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 | -30 ... +80 °C |
|---------------------|----------------|

Operation only in non condensing environment.

Humidity during processing of the module should be between 0 to 70 %.

### 2.3 Thermal design and heat sink

The rated life of LED products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the RLE will be greatly reduced or the RLE may be destroyed.

### 2.4 Heat sink values

RLE G1 49x121mm 2000lm xxx EXC / RLE G1 49x133mm 2000lm xxx EXC

| ta   | tp   | Forward current | R <sub>th, hs-a</sub> | Cooling area |
|------|------|-----------------|-----------------------|--------------|
| 25°C | 75°C | 700 mA          | 4.40 K/W              | 152 cm²      |
| 35°C | 75°C | 700 mA          | 3.52 K/W              | 190 cm²      |
| 40°C | 75°C | 700 mA          | 3.08 K/W              | 217 cm²      |
| 45°C | 75°C | 700 mA          | 2.64 K/W              | 253 cm²      |
| 50°C | 75°C | 700 mA          | 2.20 K/W              | 303 cm²      |
| 55°C | 75°C | 700 mA          | 1.76 K/W              | 380 cm²      |
| 60°C | 75°C | 700 mA          | 1.32 K/W              | 506 cm²      |

RLE G1 49x223mm 4000lm xxx EXC / RLE G1 49x245mm 4000lm xxx EXC

| ta   | tp   | Forward current | R <sub>th, hs-a</sub> | Cooling area |
|------|------|-----------------|-----------------------|--------------|
| 25°C | 75°C | 700 mA          | 2.21 K/W              | 301 cm²      |
| 35°C | 75°C | 700 mA          | 1.77 K/W              | 377 cm²      |
| 40°C | 75°C | 700 mA          | 1.55 K/W              | 431 cm²      |
| 45°C | 75°C | 700 mA          | 1.33 K/W              | 503 cm²      |
| 50°C | 75°C | 700 mA          | 1.10 K/W              | 604 cm²      |
| 55°C | 75°C | 700 mA          | 0.88 K/W              | 756 cm²      |
| 60°C | 75°C | 700 mA          | 0.66 K/W              | 1,010 cm²    |

### 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

RLE 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 RLE 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



RLE 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.

If RLE modules are wired in parallel and a wire breaks or a complete module fails then the current passing through the other module increases. This may reduce its life considerably. In addition there can be slight differences in light output caused by tolerances.

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

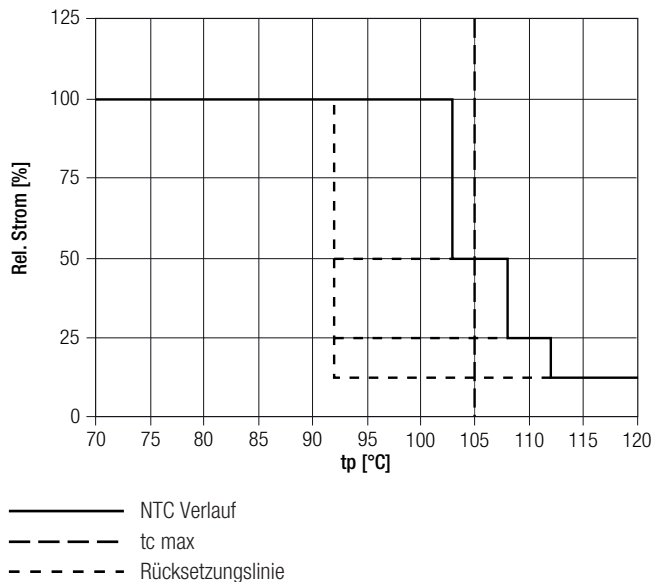


RLE modules are basic isolated up to 320 V (if mounted with M3 or M4 screws) against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 320 V, an additional isolation between LED module and heat sink is required (for example by isolated 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.

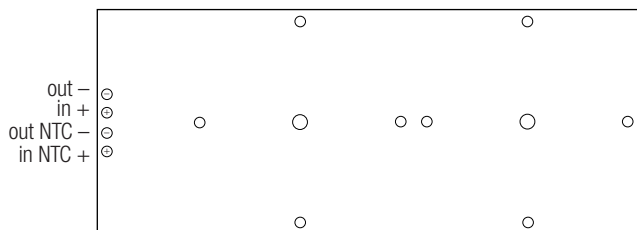
### Integrated protection

RLE modules are available with two different protection levels. The basic protection level (PLO) consists of protection against reverse polarity and an NTC for overtemperature protection of the module. The higher protection level (PL1) includes additional LED shunts to bypass single LED light point failures.

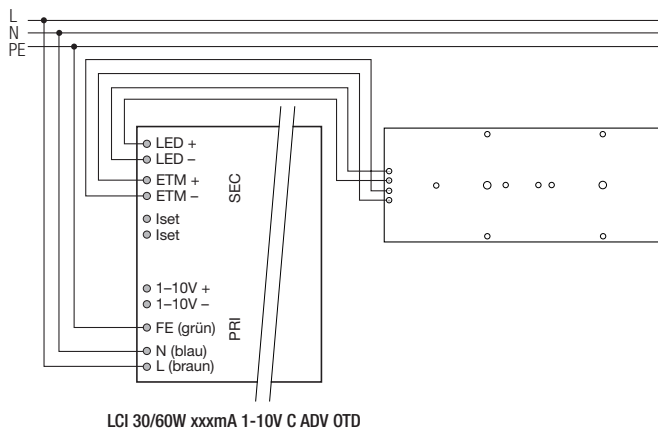
The NTC is designed to work with the LCA ADV OTD drivers supporting NTC functionality.



### 3.2 Wiring



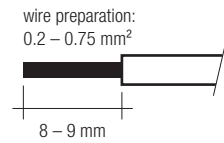
### Wiring examples



### 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 mm<sup>2</sup>.

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 RLE (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 M3 or M4 screws per module.



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.

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

Operation below 200 mA may reduce lumen maintenance.

## 4.2 Lumen maintenance

For CRI > 70 at 700 mA

| tp<br>temperature | L90 / B10  | L90 / B50  | L80 / B10  | L80 / B50  | L70 / B10  | L70 / B50  |
|-------------------|------------|------------|------------|------------|------------|------------|
| 45 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 50 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 55 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 60 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 65 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 70 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 75 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 80 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 85 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 90 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 95 °C             | >90,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 100 °C            | >62,000 h  | >76,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 105 °C            | >53,000 h  | >53,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |

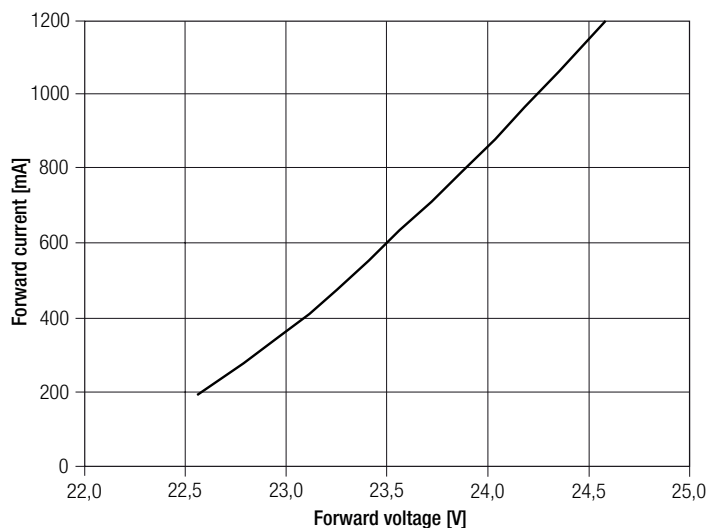
For CRI > 80 at 700 mA

| tp<br>temperature | L90 / B10  | L90 / B50  | L80 / B10  | L80 / B50  | L70 / B10  | L70 / B50  |
|-------------------|------------|------------|------------|------------|------------|------------|
| 45 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 50 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 55 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 60 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 65 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 70 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 75 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 80 °C             | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 85 °C             | >86,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 90 °C             | >65,000 h  | >77,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 95 °C             | >49,000 h  | >58,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 100 °C            | >37,000 h  | >44,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |
| 105 °C            | >28,000 h  | >34,000 h  | >100,000 h | >100,000 h | >100,000 h | >100,000 h |

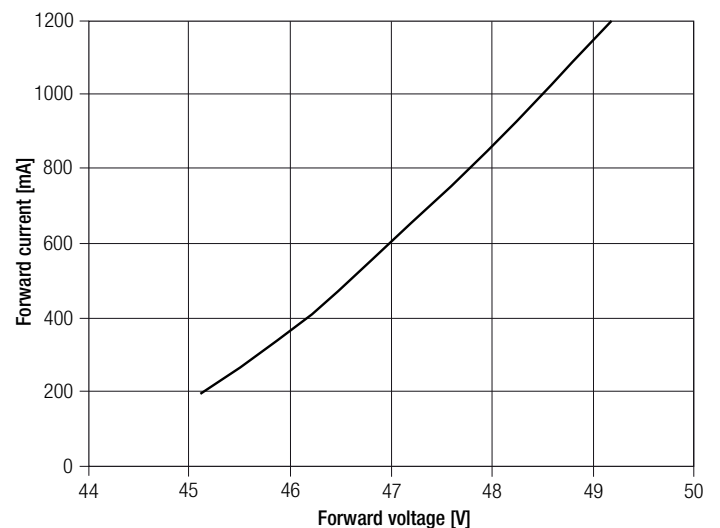
## 5. Electrical values

### 5.1 Typ. forward voltage vs. forward current

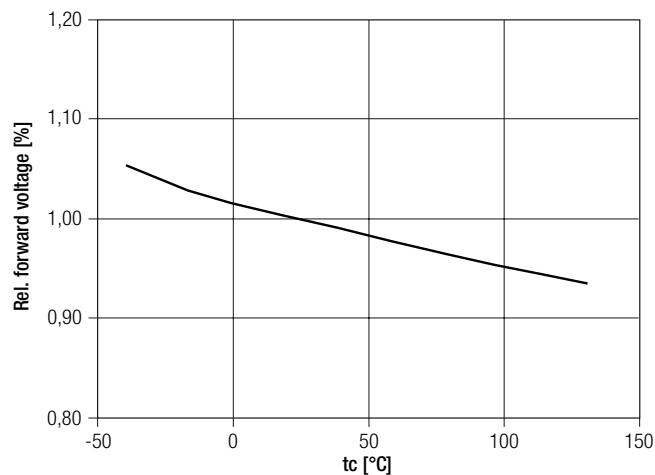
RLE G1 49x121mm 2000lm xxx EXC / RLE G1 49x133mm 2000lm xxx EXC



RLE G1 49x223mm 4000lm xxx EXC / RLE G1 49x245mm 4000lm xxx EXC



### 5.2 Forward voltage vs. tc 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

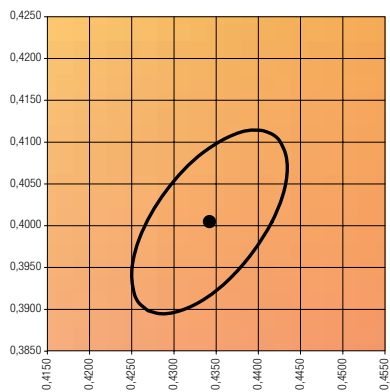
The specified colour coordinates are integral measured by current impulse of 700 mA and a duration of 100 ms.

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

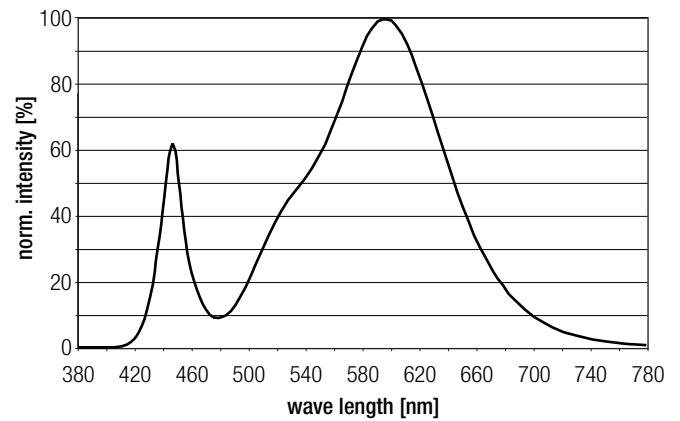
The measurement tolerance of the colour coordinates are  $\pm 0.01$ .

#### 3,000 K, CRI 70

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.4345 | 0.4007 |

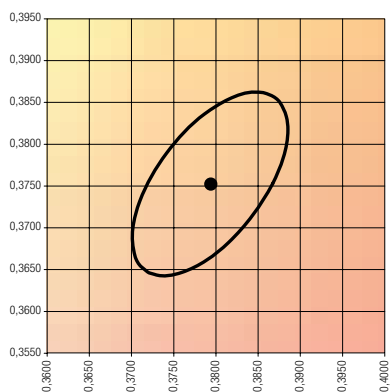


— MacAdam Ellipse: 4SDCM

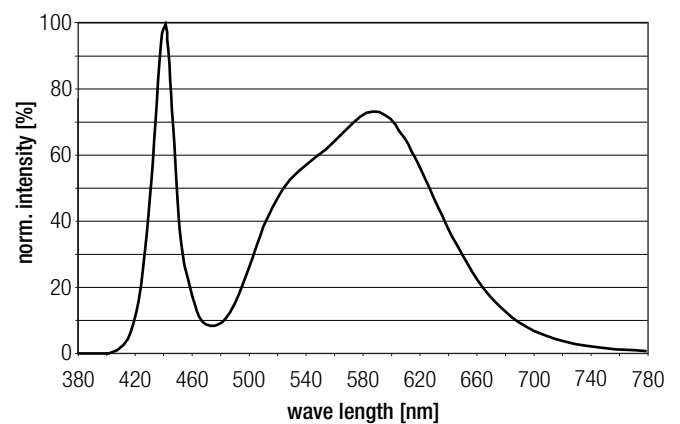


#### 4,000 K, CRI 70

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3791 | 0.3754 |

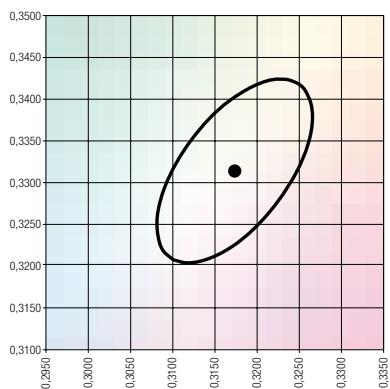


— MacAdam Ellipse: 4SDCM

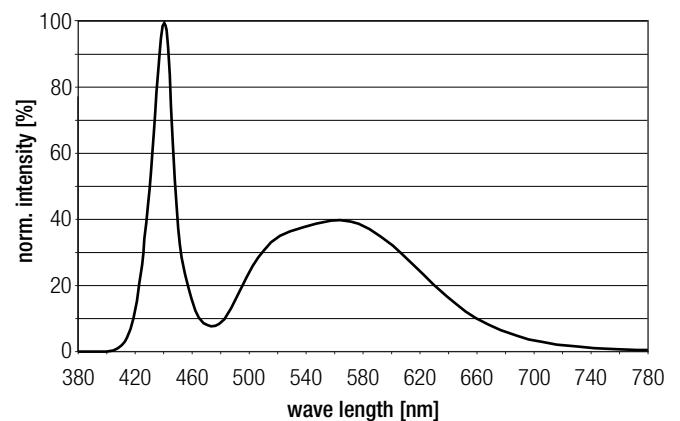


#### 6,500 K, CRI 70

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3182 | 0.3315 |



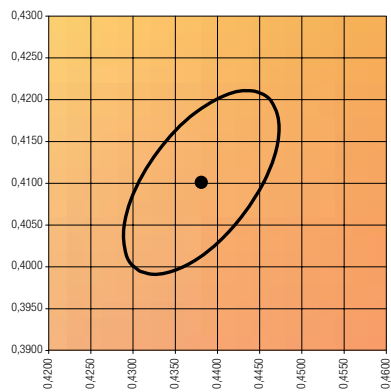
— MacAdam Ellipse: 4SDCM





**3,000 K, CRI 80**

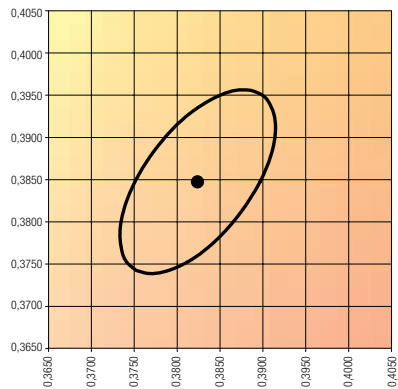
|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.4378 | 0.4102 |



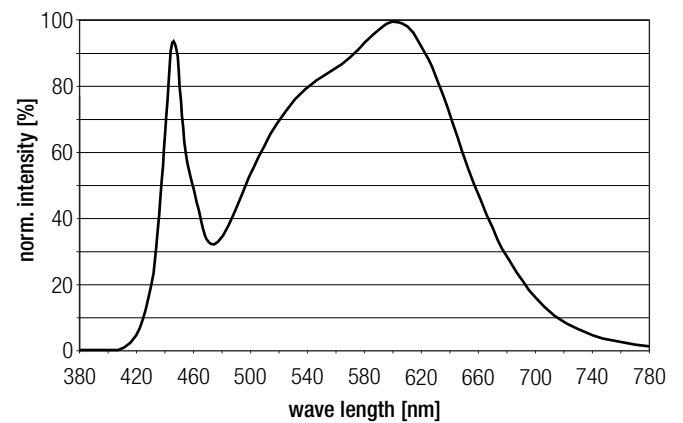
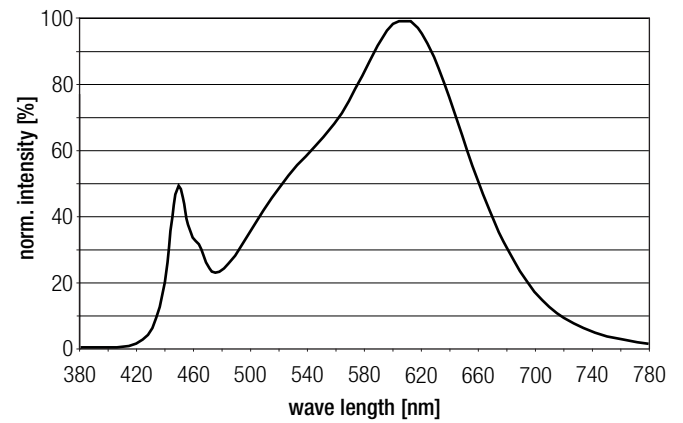
— MacAdam Ellipse: 4SDCM

**4,000 K, CRI 80**

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3824 | 0.3849 |

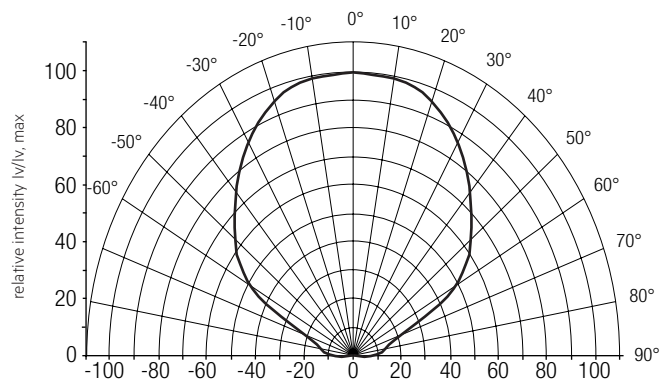


— MacAdam Ellipse: 4SDCM



## 6.2 Light distribution

RLE G1 OTD modules are designed to be compatible with 50 x 50 mm lense arrays with 25.4 mm pitch distance. This allows multiple light distributions.

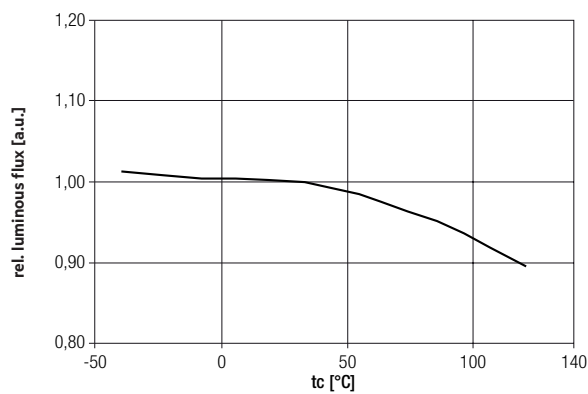


The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 4.

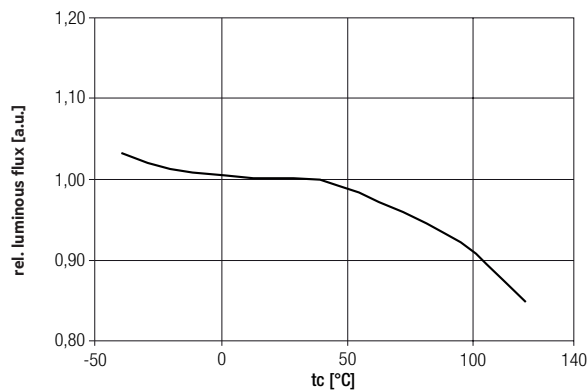
For further information see Design-in Guide, 3D data and photometric data on [www.tridonic.com](http://www.tridonic.com) or on request.

## 6.3 Relative luminous flux vs. tc temperature

CRI 70

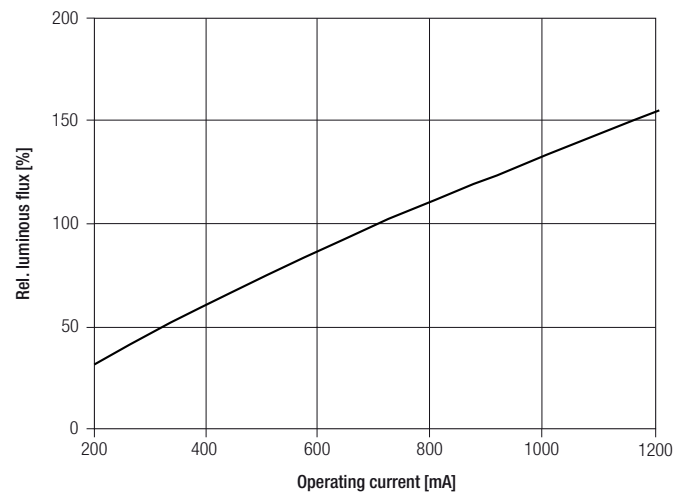


CRI 80

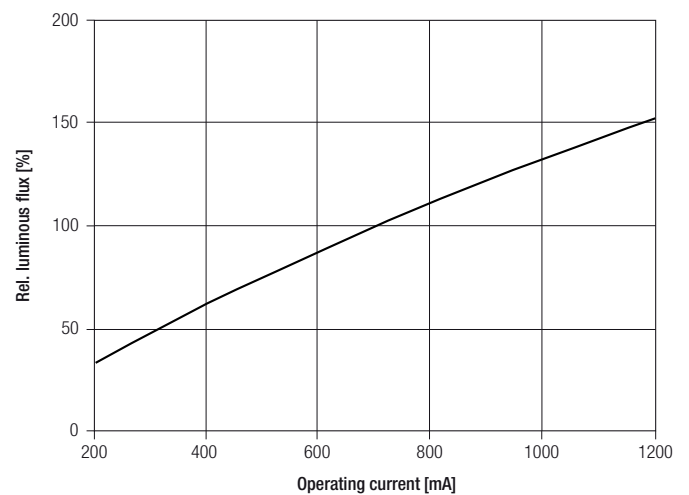


## 6.4 Relative luminous flux vs. operating current

CRI 70



CRI 80



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