LED solutions

Tunable White technology made easy
Module, Driver and Controls
Tunable White

The sequence of daylight
Dynamic colour temperatures based on nature’s example

Studying nature illustrates how even the slightest changes in light can influence our moods and how we perceive objects. This notion is at the heart of Tunable White technology, which is based on the natural colour changes in the light over the course of the day.

As humans, it is not uncommon for us to spend most of our day in enclosed areas. Seamlessly adjustable colour temperatures – from cool white to warm white – bring natural lighting effects, with all of the associated advantages, from outside to inside, and make it possible to properly target individual needs and situations. As a result, Tunable White supports the concept of Human Centric Lighting (HCL), which puts people at the heart of lighting design. As well as perfect conditions for reading and working, HCL is primarily focused on the circadian rhythm, which controls, among other things, our body clocks. As studies have shown, cool white light with a high proportion of blue light has a stimulating effect and promotes concentration, whereas warm white light is calming. Therefore, Tunable White creates an environment that helps us in a natural way – just like daylight.
Light individualisation with Tunable White

Tunable White describes the variable colour temperature controls from warm white to cool white light. If the right colour temperature and illuminance are achieved, artificial light can promote human well-being in areas such as offices and educational institutions, as well as hospitals and care homes. As a pioneer in the area of Tunable White technology, Tridonic has consistently developed its opportunities and components since 2013.

Product portfolio

To simulate daylight in a manner that is as true to nature as possible, light from cool white and warm white LEDs covering the entire colour palette from 2,700 to 6,500 Kelvin is mixed together. A driver with intelligent technology and a wide dimming range of 3 % to 100 % are the basis of the Tunable White system. Pre-calibrated kits ensure that colour tolerances are balanced out and the colorimetric locus remains constant across all modules and dimming levels. Suitable control and operating elements from Tridonic, ranging from simple button controls through wireless control and all the way to integration in DALI systems, round off the system perfectly.
Tunable White

Typical applications

Tunable White for everyone
Natural daylight and its lighting dynamics lay the foundations for our well-being. However, we spend most of our lives in artificially lit rooms. A lack of daylight has been linked with causing a lack of information needed for the human rhythm to function properly. That is why we should not regard artificial light as a rigid and homogeneous installation, but rather as a “dynamic design of a visual indoor atmosphere”. Optimal lighting takes into account different situations in rooms, but considers our needs as humans as a priority. This requires a continuous adjustment to the individual's vision, work tasks and activities, as well as changes according to the weather situation and the time of day and year. Light that is intelligently controlled in this way increases motivation, concentration and quality of life in any office, production hall, public building or sports and leisure centre. In addition, Tunable White allows rooms to be lit properly at the press of a button and is therefore multifunctional.

Focus on personal needs:
Individualisation and concentration
In the Human Centric Lighting concept, the light is tuned to our individual needs as humans, which vary according to the time of day and year, age, activity and state of mind. For example, as age increases, the need for higher illuminance also rises. A favoured lighting set-up also depends on the task at hand. Whereas neutral white light promotes concentration, warm white light creates a calmer atmosphere for creative activities, brainstorming or relaxed breaks.

Promoting well-being and health
The health-enhancing properties of light have been a hot topic for years. Certain colour temperatures can have a positive effect on the recovery process and general well-being, which are particularly beneficial for hospitals and care institutions. In addition, colour temperatures are also essential for the subjective perception of rooms. Depending on whether the proportion of warm white or cool white light is predominant, the ambience is perceived as either cozy or cool. This can go so far that some people feel cold in cool white light.
Presenting objects authentically

Tunable White not only reproduces colours authentically, but its effects can be further amplified using the right colour temperature. For example, it can make food look more appetising and clothes look to be of a higher quality in shops. If the shop’s range changes, the right light spectrum is always available at the touch of a button, touch panel, smartphone or tablet. This flexible adjustment makes it easy to test how products look in different lighting moods. As a result, it is easier to see, for example, how articles of clothing appear in various environments – from a brightly lit gym to the park at sunset.
Tunable White

Intelligent technology

2-channel modules – wide range of colour temperatures
The 2-channel modules optimally cover the colour spectrum from 2,700 to 6,500 Kelvin. The different colour temperatures are generated using cool white and warm white LEDs, with two terminals available for each.

Drivers and modules are available as a pre-calibrated kit, which makes it considerably easier to implement Tunable White systems and also ensures perfect colour consistency between the modules, and therefore between all lights in a room.

2-channel driver DT8 – constant colorimetric locus across all dimming levels
The second generation drivers guarantee even greater room for manoeuvre in terms of design with the enhanced dimming range of 3% to 100%. Colour temperatures are controlled precisely and with infinite variability, while the drivers reliably maintain the selected range across all dimming levels. The colourSWITCH function makes it possible to select the colour temperature, while the light can be dimmed with the switchDIM function. With the premium (PRE) category drivers, the Tunable White solution can be controlled via DT8 using a push button or touch panel.

* Compact (C) and Independent (SR) Driver 1 to 100%
LED-Driver

**premium series (PRE)**

one4all multichannel DT6 driver

**Driver PRE | multichannel DT6**

Multiple channels in one driver are ideal for the efficient operation of pendants and floor stands with direct/indirect light or for simple Tunable White applications. The output currents can be set varied via I-SELECT 2 plugs or DALI for each channel. What’s more, proportionSWITCH provides the option of selecting from dimming scenes. The one4all interface, which covers DALI DT6, DSI, switchDIM and corridorFUNCTION V2, adds to this high level of flexibility.

<table>
<thead>
<tr>
<th>Type</th>
<th>Output current (mA)</th>
<th>Output voltage range (V)</th>
<th>Output power (W)</th>
<th>Input voltage (V)</th>
<th>Size (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCA 50W 350-1050mA 2xCH lp PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>50</td>
<td>220–240</td>
<td>360 x 30 x 21</td>
<td>28001910</td>
</tr>
<tr>
<td>LCA 85W 600-1800mA 2xCH lp PRE</td>
<td>600–1,800</td>
<td>20–50</td>
<td>85</td>
<td>220–240</td>
<td>360 x 30 x 21</td>
<td>28002829</td>
</tr>
<tr>
<td>LCA 100W 350-1050mA 4xCH lp PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>100</td>
<td>220–240</td>
<td>360 x 40 x 21</td>
<td>28001912</td>
</tr>
<tr>
<td>LCA 38W 350-1050mA 2xCH C PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>38</td>
<td>220–240</td>
<td>120 x 70 x 28.3</td>
<td>28002201</td>
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<td>LCA 38W 350-1050mA 2xCH SR PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>38</td>
<td>220–240</td>
<td>215 x 70 x 31</td>
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</tr>
</tbody>
</table>

**Operating window 350–1,050 mA lp**

* Compact (C) and Independent (SR) Driver 1 to 100 %
Driver PRE | Tunable White DT8

Combined with the Tunable White modules from Tridonic, the calibrated kits ensure that the colour locations remain constant throughout all dimming levels, as well as the light flow remains constant when color changes. Other advantages are provided by the extremely high efficiency of up to 90 percent and the significantly extended dimming range of 1 to 100 percent. Equipped with colourSWITCH and switchDIM, the drivers also combine continuously adjustable, predefined colours and simple control.

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### LED-Driver premium series (PRE)

**Tunable White DT8 driver**

<table>
<thead>
<tr>
<th>Type</th>
<th>Output current (mA)</th>
<th>Output voltage range (V)</th>
<th>Output power (W)</th>
<th>Input voltage (V)</th>
<th>Size (mm)</th>
<th>Order No.</th>
</tr>
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<tr>
<td>LCA 50W 350-1050mA DT8 lp PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>50</td>
<td>220–240</td>
<td>360 x 30 x 21</td>
<td>28001909</td>
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<tr>
<td>LCA 85W 600-1800mA DT8 lp PRE</td>
<td>600–1,800</td>
<td>20–50</td>
<td>85</td>
<td>220–240</td>
<td>360 x 30 x 21</td>
<td>28002830</td>
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<tr>
<td>LCA 100W 350-1050mA 2xDT8 lp PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>100</td>
<td>220–240</td>
<td>360 x 40 x 21</td>
<td>28001911</td>
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<tr>
<td>LCA 38W 350-1050mA DT8 C PRE</td>
<td>350–1,050</td>
<td>20–50</td>
<td>38</td>
<td>220–240</td>
<td>120 x 70 x 28.3</td>
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<td>20–50</td>
<td>38</td>
<td>220–240</td>
<td>215 x 70 x 31</td>
<td>28002202</td>
</tr>
</tbody>
</table>

Further details can be found in datasheet.
The advantages of drivers with integrated basicDIM Wireless technology
With premium (PRE) series drivers, just one device needs to be installed for each luminaire, saving a huge amount of space. Since no additional wiring is required, costs are reduced significantly, too.

**LED Driver**

**premium series (PRE2) basicDIM Wireless integrated Casambi Ready driver**

**At a glance:**
- **basicDIM Wireless Driver**
  - Dimmable built-in constant current LED Driver
  - Can be either used build-in or independent with clip-on strain-relief
  - Adjustable output current via ready2mains Programmer, basicDIM Wireless or I-SELECT 2 Plugs
  - Nominal life-time up to 100,000 h
  - 5-year guarantee

**Dimmable constant current Driver PRE configurable via companionSUITE | Streched Compact**

<table>
<thead>
<tr>
<th>Type</th>
<th>Output current (mA)</th>
<th>Output voltage range (V)</th>
<th>Output power (W)</th>
<th>Efficiency</th>
<th>Input voltage (V)</th>
<th>Size (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC 30/150-400/40 bDW SC PRE2</td>
<td>150–400</td>
<td>15–40</td>
<td>10</td>
<td>82</td>
<td>220–240</td>
<td>130 x 43 x 30</td>
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<tr>
<td>LC 17/250-700/50 bDW SC PRE2</td>
<td>250–700</td>
<td>15–50</td>
<td>17</td>
<td>86</td>
<td>220–240</td>
<td>130 x 43 x 30</td>
<td>28002412</td>
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<tr>
<td>LC 25/350-1050/50 bDW SC PRE2</td>
<td>350–1,050</td>
<td>20–50</td>
<td>25</td>
<td>90</td>
<td>220–240</td>
<td>130 x 43 x 30</td>
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<tr>
<td>LC 45/500-1,050/50 bDW SC PRE2</td>
<td>500–1,400</td>
<td>25–50</td>
<td>45</td>
<td>91</td>
<td>220–240</td>
<td>150 x 43 x 30</td>
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</table>

Further details can be found in datasheet.

**Dimmable constant voltage Driver PRE configurable via companionSUITE | Streched Compact**

<table>
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<tr>
<th>Type</th>
<th>Output current (mA)</th>
<th>Output voltage range (V)</th>
<th>Output power (W)</th>
<th>Efficiency</th>
<th>Input voltage (V)</th>
<th>Size (mm)</th>
<th>Order No.</th>
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<tr>
<td>LC 35/24V bDW SC PRE2</td>
<td>146–1,453</td>
<td>24</td>
<td>35</td>
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<td>220–240</td>
<td>195 x 43 x 30.2</td>
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<tr>
<td>LC 60/24V bDW SC PRE2</td>
<td>250–2,500</td>
<td>24</td>
<td>60</td>
<td>93</td>
<td>220–240</td>
<td>225 x 43 x 30.2</td>
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<tr>
<td>LC 100/24V bDW SC PRE2</td>
<td>417–4,167</td>
<td>24</td>
<td>100</td>
<td>93</td>
<td>220–240</td>
<td>295 x 43 x 29.8</td>
<td>28002417</td>
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<tr>
<td>LC 150/24V bDW SC PRE2</td>
<td>625–6,250</td>
<td>24</td>
<td>150</td>
<td>94</td>
<td>220–240</td>
<td>325 x 43 x 29.8</td>
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Further details can be found in datasheet.

**Dimmable Tunable White Driver PRE configurable via companionSUITE | Independent Compact (SR) (C)**

<table>
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<th>Type</th>
<th>Output current (mA)</th>
<th>Output voltage range (V)</th>
<th>Output power (W)</th>
<th>Efficiency</th>
<th>Input voltage (V)</th>
<th>Size (mm)</th>
<th>Order No.</th>
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<td>LC 38W 350-1,050 mA bDW TW SR PRE2</td>
<td>350–1,050</td>
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<td>87</td>
<td>220–240</td>
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<td>87</td>
<td>220–240</td>
<td>120 x 70 x 28.3</td>
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Further details can be found in datasheet.

Further informations in the Brochure basicDIM Wireless.
Engine LLE
For Linear and Wide Area Lighting

Typical applications

At a glance:

Engine LLE premium (PRE)

- LED modules also available individually
- Linear Tunable White system with infinitely adjustable colour temperature between 2,700 K and 6,500 K
- Available in CRI > 90
- Sets calibrated at the factory to ensure high quality of light and colour consistency (SDCM 3) across the entire adjustable range
- Dimming range of 100 % to 1 % without changing the colour temperature
- Low-profile LED Drivers with digital interface (DALI DT8, DSI, switchDIM, colourSWITCH) and very low standby power
- Linear LED modules with 700 lm and 1,500 lm
- Long lifetime of 50,000 hours
- System guarantee: 5 years
Tunable White

Engine LLE
For Linear and Wide Area Lighting

LLE G2 premium system (calibrated kit)

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour temperature (K)</th>
<th>Typ. luminous flux(^\circ) (lm)</th>
<th>CRI</th>
<th>Mac Adam</th>
<th>Typ. power consumption(^\circ) (W)</th>
<th>System efficacy tp = 65 °C (^\circ) (lm/W)</th>
<th>Size per module (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLE G2 24x280mm 3x700lm 927-965 LV PRE (1 LED-Treiber 50 W + 3 LED-Module à 700lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>2.100</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>19.3</td>
<td>bis zu 117</td>
<td>24 x 280</td>
<td>89602931</td>
</tr>
<tr>
<td>LLE G2 24x280mm 4x700lm 927-965 LV PRE (1 LED-Treiber 50 W + 4 LED-Module à 700lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>2.800</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>24.8</td>
<td>bis zu 121</td>
<td>24 x 280</td>
<td>89602932</td>
</tr>
<tr>
<td>LLE G2 24x280mm 5x700lm 927-965 LV PRE (1 LED-Treiber 50 W + 5 LED-Module à 700lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>3.500</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>30.1</td>
<td>bis zu 124</td>
<td>24 x 280</td>
<td>89602933</td>
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<tr>
<td>LLE G2 24x280mm 6x700lm 927-965 LV PRE (1 LED-Treiber 50 W + 6 LED-Module à 700lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>4.200</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>36.1</td>
<td>bis zu 125</td>
<td>24 x 280</td>
<td>89602934</td>
</tr>
<tr>
<td>LLE G2 24x280mm 2x1500lm 927-965 LV PRE (1 LED-Treiber 50 W + 2 LED-Module à 1.500lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>3.000</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>26.9</td>
<td>bis zu 120</td>
<td>24 x 280</td>
<td>89602935</td>
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<tr>
<td>LLE G2 24x280mm 3x1500lm 927-965 LV PRE (1 LED-Treiber 50 W + 3 LED-Module à 1.500lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>4.500</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>38.6</td>
<td>bis zu 125</td>
<td>24 x 280</td>
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<tr>
<td>LLE G2 24x280mm 4x1500lm 927-965 LV PRE (1 LED-Treiber 85 W + 4 LED-Module à 1.500lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>6.000</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>48.1</td>
<td>bis zu 134</td>
<td>24 x 280</td>
<td>28003303</td>
</tr>
<tr>
<td>LLE G2 24x280mm 5x1500lm 927-965 LV PRE (1 LED-Treiber 85 W + 5 LED-Module à 1.500lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>7.500</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>59.7</td>
<td>bis zu 136</td>
<td>24 x 280</td>
<td>28003304</td>
</tr>
<tr>
<td>LLE G2 24x280mm 6x1500lm 927-965 LV PRE (1 LED-Treiber 100 W + 6 LED-Module à 1.500lm)</td>
<td>2.700–6.500 Tunable White</td>
<td>9.000</td>
<td>&gt;90</td>
<td>SDCM 3</td>
<td>77.1</td>
<td>bis zu 126</td>
<td>24 x 280</td>
<td>89602939</td>
</tr>
</tbody>
</table>

\(^\circ\) Tolerance range photometric data over the entire CCT range: ±5 %; \(^\circ\) Tolerance range electrical data: ±5 %; \(^\circ\) Measured at 4,000 K

LLE G2 premium (module)

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour temperature (K)</th>
<th>Typ. luminous flux(^\circ) (lm)</th>
<th>Mac Adam</th>
<th>Size (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLE G2 24x280mm 700lm 927-965 PRE (1 LED-module)</td>
<td>2.700</td>
<td>670</td>
<td>SDCM 3</td>
<td>24 x 280</td>
<td>89602922</td>
</tr>
<tr>
<td>LLE G2 24x280mm 1400lm 927-965 LV PRE (1 LED-module)</td>
<td>2.700</td>
<td>1.340</td>
<td>SDCM 3</td>
<td>24 x 560</td>
<td>28003303</td>
</tr>
<tr>
<td>LLE G2 24x280mm 750lm 927-965 LV PRE (1 LED-module)</td>
<td>2.700</td>
<td>720</td>
<td>SDCM 3</td>
<td>24 x 140</td>
<td>28003304</td>
</tr>
<tr>
<td>LLE G2 24x280mm 1500lm 927-965 LV PRE (1 LED-module)</td>
<td>2.700</td>
<td>1.470</td>
<td>SDCM 3</td>
<td>24 x 140</td>
<td>28003305</td>
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<tr>
<td>LLE G2 24x280mm 700lm 927-965 PRE (1 LED-module)</td>
<td>2.700</td>
<td>2.930</td>
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<td>24 x 560</td>
<td>28003306</td>
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<tr>
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<td>1.610</td>
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<td>24 x 560</td>
<td>28003307</td>
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<td>LLE G2 24x280mm 750lm 927-965 LV PRE (1 LED-module)</td>
<td>2.700</td>
<td>3.220</td>
<td>SDCM 3</td>
<td>24 x 560</td>
<td>28003308</td>
</tr>
</tbody>
</table>

\(^\circ\) Available on request; \(^\circ\) Tolerance range for optical data over the CCT range: ±5 %

Matching Driver (in each kit included)

- **Driver LCA 50W 350–1050mA DT8 lp PRE**
- **Driver LCA 85W 600–1800mA DT8 lp PRE**
- **Driver LCA 100W 350–1050mA 2xDT8 lp PRE**

Size: 360 x 30 x 21 mm
3–6 LLE Module à 700lm
2–3 LLE Module à 1.500lm

Size: 360 x 30 x 21 mm
4–5 LLE Module à 1.500lm

Size: 360 x 40 x 21 mm
6 LLE Module à 1.500lm
Engine QLE premium (PRE)

- Quadratic Tunable White system with adjustable colour temperature between 2,700K and 6,500K at constant luminous flux
- Available in CRI > 80 and CRI > 90
- Precalibrated set for optimum quality of light and colour consistency (SDCM 3), consisting of an LED driver and 2–6 quadratic LED modules
- LED modules are also available individually
- Dimming range of 100–3% with no change in colour temperature
- Low-profile LED drivers with digital interface (DALI DT8, DSI, switchDIM, colourSWITCH)
- Long lifetime of 50,000 hours with 5-year system guarantee
## Tunable White

### Engine QLE
For Wide Area Lighting

### Engine, Module QLE PRE2, CRI > 90

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour temperature (K)</th>
<th>Typ. luminous fluxa (lm)</th>
<th>CRI</th>
<th>MacAdam</th>
<th>Typ. power consumptionb (W)</th>
<th>System efficacyc (lm/W)d</th>
<th>Size per module (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QLE G2 270x270mm 2x1250lm 927-965 LV PRE (1 LED Driver 50 W + 2 LED module à 1,250lm)</td>
<td>2,700 – 6,500 Tunable White</td>
<td>2,500</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>19.8</td>
<td>up to 126</td>
<td>270 x 270</td>
<td>89602940</td>
</tr>
<tr>
<td>QLE G2 270x270mm 3x1250lm 927-965 LV PRE (1 LED Driver 50 W + 3 LED module à 1,250lm)</td>
<td>2,700 – 6,500 Tunable White</td>
<td>3,750</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>28.4</td>
<td>up to 132</td>
<td>270 x 270</td>
<td>89602941</td>
</tr>
<tr>
<td>QLE G2 270x270mm 4x1250lm 927-965 LV PRE (1 LED Driver 50 W + 4 LED module à 1,250lm)</td>
<td>2,700 – 6,500 Tunable White</td>
<td>5,000</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>36.9</td>
<td>up to 135</td>
<td>270 x 270</td>
<td>89602942</td>
</tr>
<tr>
<td>QLE G2 270x270mm 5x1250lm 927-965 LV PRE2</td>
<td>2,700 – 6,500 Tunable White</td>
<td>6,250</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>42.5</td>
<td>up to 147</td>
<td>270 x 270</td>
<td>28003305</td>
</tr>
<tr>
<td>QLE G2 270x270mm 6x1250lm 927-965 LV PRE2 (1 LED Driver 85 W + 4 LED module à 1,250lm)</td>
<td>2,700 – 6,500 Tunable White</td>
<td>7,500</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>52.2</td>
<td>up to 142</td>
<td>270 x 270</td>
<td>28003306</td>
</tr>
</tbody>
</table>

1) Tolerance range for optical data: ±5 %; Tolerance range for electrical data: ±15 %; 2) tp = 45 °C

### Matching Driver (in each KIT included)

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour temperature (K)</th>
<th>Typ. luminous fluxa (lm)</th>
<th>CRI</th>
<th>MacAdam</th>
<th>Typ. power consumptionb (W)</th>
<th>Module efficaci (lm/W)d</th>
<th>Size per module (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TW QLE G2 270x270mm 1250lm 927-965 PRE (LED module)</td>
<td>2,700</td>
<td>1.250</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>8.1</td>
<td>up to 154</td>
<td>270 x 270</td>
<td>89602924</td>
</tr>
<tr>
<td>6,500</td>
<td>1.360</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>8.1</td>
<td>up to 167</td>
<td>270 x 270</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Tolerance range for optical data: ±5 %; Tolerance range for electrical data: ±15 %; 2) tp = 45 °C

Driver LCA 50W 350–1050mA DT8 Ip PRE  
Driver LC 85W 600–1800mA DT8 Ip PRE  
Driver LCA 100W 350–1050mA 2xDT8 Ip PRE
Tunable White

**Engine CLE PRE2**

For decorative pendant and surfacemounted ceiling luminaires

**Typical applications**

At a glance:

**Engine CLE premium (PRE)**

- Circular Tunable White system with adjustable colour temperature from 2,700 to 6,500 K at constant luminous flux
- High colour rendering index CRI > 90
- Precalibrated set to ensure light quality and high colour consistency, consisting of linear low-profile LED Driver and LED modules CLE
- Dimming range 3 – 100 % without change of colour temperature
- Low-profile LED-Driver with digital interface (DALI Device Type 8, DSI, switchDIM, colourSWITCH)
- Long life-time of 50,000 h
- 5-year system guarantee
**Tunable White**

**Engine CLE PRE2**

For decorative pendant and surfacemounted ceiling luminaires

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour-temperature (K)</th>
<th>Typ. luminous flux (lm)</th>
<th>CRI</th>
<th>Mac Adam</th>
<th>Typ. power draw (W)</th>
<th>System efficacy (lm/W)</th>
<th>Size per module (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TW CLE 261/4600 927-965 SELV PRE2 KIT (1 LED-Driver + 4 LED-Module)</td>
<td>2,700–6,500</td>
<td>4,650</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>29.9</td>
<td>up to 160</td>
<td>diam. 261</td>
<td>89603436</td>
</tr>
<tr>
<td>TW CLE 401/9800 927-965 SELV PRE2 KIT (1 LED-Driver + 4 LED-Module)</td>
<td>2,700–6,500</td>
<td>9,610</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>59.9</td>
<td>up to 165</td>
<td>diam. 401</td>
<td>89603437</td>
</tr>
<tr>
<td>TW CLE 541/7200 927-965 SELV PRE2 KIT (1 LED-Driver + 8 LED-Module)</td>
<td>2,700–6,500</td>
<td>7,410</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>47.3</td>
<td>up to 161</td>
<td>541 x 35</td>
<td>89603438</td>
</tr>
</tbody>
</table>

1) Tolerance range for electrical data: ±10 %; Tolerance range for optical data: ±5 %

**Matching Driver** (in each KIT included)

- **Driver LCA 50W 350–1050mA DT8 lp PRE**
  - Size: 360 x 30 x 21 mm
  - 4 CLE Module à 1,150 lm

- **Driver LCA 85W 600–1800mA DT8 lp PRE**
  - Size: 360 x 30 x 21 mm
  - 4 CLE Module à 2,450 lm

- **Driver LCA 100W 350–1050mA 2xDT8 lp PRE**
  - Size: 360 x 40 x 21 mm
  - 8 CLE Module à 600 lm
Tunable White

**Engine DLE**
For Downlights

**Typical applications**

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**At a glance:**

**Engine DLE PRE**

- Tunable White system for Downlights with adjustable colour temperature from 2,700 to 6,500 K at constant luminous flux
- High colour rendering index CRI > 90
- Sets calibrated at the factory to ensure high quality of light and colour consistency (SDCM 3) across the entire adjustable range
- Dimming range 1–100 % without change of colour temperature
- Independent (SR) LED-Driver with digital interface (DALI DT8/DSI, switchDIM, colourSWITCH) and very low standby power
- Power-up fading and fade to zero
- Suitable for emergency lighting acc. to EN 50172
- Long lifetime of 50,000 hours
- System guarantee: 5 years guarantee

**DLE PRE KIT**
2,700 – 6,500 K / 2,000 – 3,000 lm
with Independent (SR) Driver
Engine DLE PRE CRI > 90

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour-temperature (K)</th>
<th>Typ. luminous flux (lm)</th>
<th>CRI</th>
<th>Mac Adam</th>
<th>Typ. power draw (W)</th>
<th>System efficacy* tp = 65°C (lm/W)</th>
<th>Size per module (mm)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLE G2 60mm 2000lm 927–965 SR PRE KIT (1 LED-Treiber 38 W + 1 LED-Module 3,000 lm)</td>
<td>2,700–6,500 Tunable White</td>
<td>2,000</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>20.1</td>
<td>bis zu 100</td>
<td>81.5 x 81.5</td>
<td>89603257</td>
</tr>
<tr>
<td>DLE G2 60mm 3000lm 927–965 SR PRE KIT (1 LED-Treiber 38 W + 1 LED-Module 3,000 lm)</td>
<td>2,700–6,500 Tunable White</td>
<td>3,000</td>
<td>&gt; 90</td>
<td>SDCM 3</td>
<td>31.2</td>
<td>bis zu 97</td>
<td>81.5 x 81.5</td>
<td>89603258</td>
</tr>
</tbody>
</table>

* Tolerance range for electrical data: ±5 %; tolerance range for optical data: ±15 %.

Matching Driver DLE G2 (PRE) (in each KIT included)

LCA 38W 350-1050mA DT8 SR PRE (Order No. 28002202)

Size: 215 x 70 x 31 mm
Tunable White

Tunable White made easy
The right control for any needs

Tunable White's entire repertoire can be chosen from and operated easily with the right controls. This is where Tridonic weighs in with a wide range of options, from simple button operation through to wireless app control via the basicDIM Wireless module. It can also be integrated in DALI systems, which in future will be controlled via a web-based platform. The wiring is just as easy as the controls and can be carried out with minimal effort.

Buttons

The combination of switchDIM and colourSWITCH buttons makes it easy to adjust the illuminance and colour temperature. While the light can be dimmed using switchDIM, the proportion of cool white and warm white light can be mixed and customised with colourSWITCH.

Wireless control via basicDIM Wireless

The wireless module does not need a control line. The light is controlled conveniently on a smartphone or tablet using the 4remote BT app.
**Integration in DALI systems**

DALI systems like sceneCOM XL make it easy to implement and control complex lighting solutions. Built-in components can be controlled and adjusted directly.

**Additional controls hardware**

**DALI x/e-touchPANEL 02**

**Touch panel**

With the DALI x/e-touchPANEL 02 you can program lighting scenes and RGB colour mixes and call them up them via the graphical user interface as well. The panel also includes a sequencer which is used to automate calendar-controlled sequences.

**DALI TOUCHPANEL 02**

**Touch panel**

Setting up and operating DALI systems – Tridonic touch panels enable you to accomplish this conveniently via a graphical user interface. DALI TOUCHPANEL 02 has a keypad with user-selectable key functions for manually controlling lighting groups and lighting scenes. It is programmed by using masterCONFIGURATOR software, which is available free of charge.

**DALI XC**

**comfortDIM momentary-action switch module**

Conventional momentary-action switches can be connected quickly and easily to the DALI XC module. This gives you the opportunity to custom design your lighting. These momentary-action switch modules are used to group luminaires together, define scenes and program macros. Tunable White also allows colour temperature variations.
Close light

We attach great importance to a strong international presence – this allows us to stay sufficiently close to our customers.