

| Product name | GTIN (EAN) | W | R _a | Im 25 °C | | d1 [mm] | | | | No. |
|---------------------------|---------------|----|----------------|-------------|-----|------------|----|----|---|-----|
| FC 22 W/827 ¹⁾ | 4050300646237 | 22 | ≥80 | 1900 | 827 | 230 | A | 12 | 1 | |
| FC 22 W/830 ¹⁾ | 4050300528489 | 22 | ≥80 | 1900 | 830 | 230 | A | 12 | 1 | |
| FC 22 W/840 ¹⁾ | 4050300528465 | 22 | ≥80 | 1900 | 840 | 230 | A | 12 | 1 | |
| FC 22 W/865 ¹⁾ | 4050300528441 | 22 | ≥80 | 1800 | 865 | 230 | A | 12 | 1 | |
| FC 40 W/827 ¹⁾ | 4050300646251 | 40 | ≥80 | 3400 | 827 | 305 | A+ | 12 | 1 | |
| FC 40 W/830 ¹⁾ | 4050300528540 | 40 | ≥80 | 3400 | 830 | 305 | A+ | 12 | 1 | |
| FC 40 W/840 ¹⁾ | 4050300528526 | 40 | ≥80 | 3400 | 840 | 305 | A+ | 12 | 1 | |
| FC 40 W/865 ¹⁾ | 4050300528502 | 40 | ≥80 | 3300 | 865 | 305 | A+ | 12 | 1 | |
| FC 55 W/827 ¹⁾ | 4050300646275 | 55 | ≥80 | 4200 | 827 | 305 | A | 12 | 1 | |
| FC 55 W/830 ¹⁾ | 4050300528601 | 55 | ≥80 | 4200 | 830 | 305 | A | 12 | 1 | |
| FC 55 W/840 ¹⁾ | 4050300528588 | 55 | ≥80 | 4200 | 840 | 305 | A | 12 | 1 | |
| FC 55 W/865 ¹⁾ | 4050300528564 | 55 | ≥80 | 3990 | 865 | 305 | A | 12 | 1 | |

¹⁾ Suitable for ECG operation only

Product features

- Good color rendering group: 1B (R_a: 80...89)
- Dimmable (from 100...1 % with QT_i DALI/DIM ECG)
- Single-ended round fluorescent lamp
- Tube diameter: 16.0 mm

Product benefits

- Extremely economical
- Good quality of light
- Excellent luminous flux
- Excellent uniform illumination with no shadows
- Good average life (with OSRAM ECG)

Areas of application

- Public buildings
- Offices
- Restaurants
- Industry
- Shops
- Supermarkets and department stores
- Hotels

Equipment / Accessories

- Exclusively for operation on electronic control gears


References / Links

For more information on QUICKTRONIC® electronic control gears, go to www.ledvance.com/quicktronic

Safety advice

In case of lamp breakage:
www.ledvance.com/sustainability

Fluorescent lamps – which light color for which application?

| Application | SKY- WHITE® 880 | Cool Daylight | | Daylight | Cool White | | White | Warm White | | INTERNA® | Special light colors |
|--|-----------------------|---------------|---------|----------|------------|---------|---------|------------|---------|----------|-------------------------|
| | 8,000 K | 865 | 965 | 954 | 840 | 940 | 835 | 830 | 930 | 827 | |
| | 6,500 K | 6,500 K | 5,400 K | 4,000 K | 4,000 K | 3,500 K | 3,000 K | 3,000 K | 2,700 K | | |
|  Offices and administrative buildings | | | | | | | | | | | |
| | Offices, corridors | • | | | | • | | • | • | | |
| | Meeting rooms | • | | | | | | • | • | | • |
| Industry, trade and commerce | | | | | | | | | | | |
| Electrical industry | | • | | | • | | | | | | |
| Textile industry | | • | • | • | | | | | | | |
| Woodworking industry | | • | ⊙ | ⊙ | • | | | | | | |
| Graphics industry, laboratories | | ⊙ | • | • | ⊙ | | | | | | COLOR proof |
| Color matching | | | | • | | | | | | | COLOR proof |
| Warehouses, transport depots | | | | | • | | | | | | |
| Schools and lecture rooms | | | | | | | | | | | |
| Auditoriums, classrooms, kindergartens | • | | ⊙ | | • | | • | • | | • | |
| Libraries, reading rooms | | | | | ⊙ | | • | • | | • | |
| Retail outlets | | | | | | | | | | | |
| Food, general | | ⊙ | | | • | | • | • | | • | NATURA® |
| Bread and cakes | | | | | | | | | | • | NATURA® |
| Refrigerated counters and deep freezers | • | | | | | | | | | | NATURA® |
| Cheese, fruit, vegetables | | | | | | | | | | • | NATURA® |
| Fish | | | | | | | | | | • | NATURA® |
| Meat, sausages | | | ⊙ | | | | | | | | NATURA® |
| Textiles, leather goods | | • | • | • | ⊙ | • | ⊙ | • | • | • | |
| Furniture, carpets | | | | | | | • | • | • | • | |
| Sporting goods, toys, stationery | | | | | • | ⊙ | • | • | ⊙ | | |
| Photo, watches, jewellery | | ⊙ | ⊙ | ⊙ | • | ⊙ | • | • | ⊙ | | |
| Cosmetics, hairdressers | | | | | ⊙ | • | ⊙ | ⊙ | | ⊙ | |
| Flowers, greenhouse | | ⊙ | ⊙ | ⊙ | • | • | | | • | ⊙ | FLUORA® |
| Department stores, supermarkets | • | ⊙ | • | | ⊙ | • | | ⊙ | • | • | |
| Public buildings | | | | | | | | | | | |
| Restaurants, bars, hotels | | | | | • | | • | • | | • | |
| Theaters, concert halls, foyers | | | | | | | | | | • | |
| Event rooms | | | | | | | | | | | |
| Exhibition halls and trade fairs | • | | | | • | | | • | | | |
| Sports halls and multi-purpose halls | • | | | | • | | • | • | | | |
| Art galleries, museums | | ⊙ | | • | ⊙ | • | | | • | | |
| Hospitals and surgeries | | | | | | | | | | | |
| Consulting and treatment rooms | • | ⊙ | • | • | | • | | | | | |
| Hospital wards, waiting rooms | • | | • | | | • | | | • | | |
| Homes | | | | | | | | | | | |
| Living rooms | | | | | | | | | | • | |
| Kitchens, bathrooms, hobby rooms, cellars | • | | | • | | | | • | • | | |
| Outdoor lighting, streets, paths, pedestrian zones | | | | | • | | | • | | | |
| • Recommended ⊙ Optional as required | | | | | | | | | | | |

• Recommended ⊙ Optional as required

Light colors and color rendering properties of fluorescent lamps according to EN 12464-1

| Kelvin | Name | R _a 60...69 | R _a 70...79 | R _a 80...89 | R _a 90...99 |
|---------|---------------|------------------------|------------------------|------------------------|------------------------|
| 2,700 K | INTERNA® | | | 827 | |
| 3,000 K | Warm White | | | 830 | 930 |
| 3,500 K | White | | | 835 | |
| 4,000 K | Cool White | 640 | | 840 | 940 |
| 5,400 K | Daylight | | | | 954/950 |
| 6,500 K | Cool Daylight | | 765 | 865 | 965 |
| 8,000 K | SKYWHITE® | | | 880 | |

Type designation

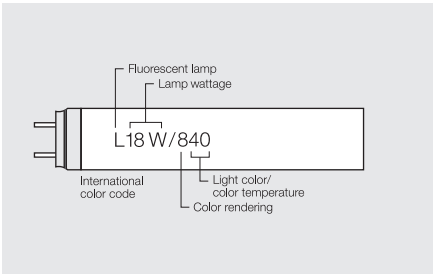
International color code:

The first digit stands for color rendering
9 = color rendering R_a 90 to 100
8 = color rendering R_a 80 to 89
7 = color rendering R_a 70 to 79
6 = color rendering R_a 60 to 69

The next digits stand for the light color/
color temperature, e.g. for LUMILUX®
27 = LUMILUX INTERNA® (2,700 K)
30 = LUMILUX® Warm White (3,000 K)
35 = LUMILUX® White (3,500 K)
40 = LUMILUX® Cool White (4,000 K)
54 = LUMILUX® Daylight (5,400 K)
65 = LUMILUX® Cool Daylight (6,500 K)
80 = LUMILUX SKYWHITE® (8,000 K)

“Old” light color codes in our range

| Old | | New | R _a | K |
|-----|---------------|-----|----------------|------|
| 10 | Cool Daylight | 765 | 70...79 | 6500 |
| 11 | Cool Daylight | 865 | 80...89 | 6500 |
| 12 | Daylight | 954 | 90...99 | 5400 |
| 20 | Cool White | 640 | 60...69 | 4000 |
| 21 | Cool White | 840 | 80...89 | 4000 |
| 22 | Cool White | 940 | 90...99 | 4000 |
| 26 | White | 835 | 80...89 | 3500 |
| 31 | Warm White | 830 | 80...89 | 3000 |
| 32 | Warm White | 930 | 90...99 | 3000 |
| 41 | INTERNA® | 827 | 80...89 | 2700 |



Light colors

The LUMILUX® lamps

In combination with OSRAM ECGs, LUMILUX® fluorescent lamps offer very high efficiency and long reliable life. They are also perfect for combining with daylight dimmer systems and motion sensors. This leads to even greater energy savings.

LUMILUX®

Color 880 LUMILUX SKYWHITE®

Color 865 LUMILUX® Cool Daylight

Color 840 LUMILUX® Cool White

Color 835 LUMILUX® White

Color 830 LUMILUX® Warm White

Color 827 LUMILUX INTERNA®

LUMILUX® colors combine good color rendering and high luminous efficacy in a single lamp.

Major benefits:

- Luminous efficacy of up to 116 lm/W (T5 HE ES)
- Good color rendering according to EN 12464 (R_a : 80...89)

For LUMILUX® light colors, it is best to use electronic control gears as this is the best way to make economic use of the minimal drop in luminous flux. This also applies to LUMILUX® DE LUXE.

LUMILUX® T5 HO, HE (including ES, XT, SPS, CHIP control® and NATURA®) and FC® lamps can only be operated on ECGs.

Color 880 SKYWHITE® contains an increased blue component which is particularly energizing. Ideal for offices and public buildings.

LUMILUX® DE LUXE

Color 965 LUMILUX® DE LUXE Cool Daylight

Color 954 LUMILUX® DE LUXE Daylight

Color 940 LUMILUX® DE LUXE Cool White

Color 930 LUMILUX® DE LUXE Warm White

The LUMILUX® DE LUXE light colors meet the highest demands with regard to very good color rendering (R_a : 90...99) and offer good luminous efficacy at the same time. The daylight color 954 is ideal for print shops, dental surgeries, dental laboratories, slide presentations and clothing stores.

Special light colors

The red component of 76 OSRAM NATURA® is closely matched to other color components. This results in natural color rendering and makes items such as meat, sausages, delicatessen products, vegetables and flowers appear fresh and natural, without being unduly "beautified".

77 FLUORA® has been specially designed for plants and aquariums. Its light has an emphasis at the blue and red ends of the spectrum. It is therefore particularly good at promoting photobiological processes. The result is healthier plants.

965 BIOLUX®

Because of its spectral distribution, the light from OSRAM BIOLUX® lamps is also excellent for raising small animals (birds, fish, reptiles etc.).

Colors 60 Red, 66 Green and 67 Blue are ideal for creating decorative effects and special moods.

62 Yellow contains only a very small proportion of UV-A radiation. This light color is therefore suitable for clean-room production facilities, chip fabrication and lighting with minimal UV.

For spectral power distributions, see pages 9.50 and 9.51.

COLOR proof

For museums and art galleries, dental laboratories, graphic workshops, photographic laboratories, and industrial testing and color matching facilities, light color 950 offers optimum color characteristics. It has a color rendering index of $R_a=98$ at a color temperature of 5,300 K.

Technical data

How fluorescent lamps work

Fluorescent lamps are low-pressure gas discharge lamps. The glass tube is filled with an inert gas at low pressure and a small quantity of mercury. The glass wall is coated with a phosphor. At the ends of the glass tube are pasted electrodes. When an electrical charge is passed between them, the mercury vapor emits UV radiation. When the UV radiation hits the phosphor, the phosphor emits visible light. The color can be varied for different applications by selecting different phosphor mixes.

Luminous flux and power consumption according to IEC 60081 and EN 50285

The minimum luminous flux of a single lamp is 92 % of the rated luminous flux at 25 °C; the average is 95 % of the rated luminous flux.

B10: B10 is defined as the time when 10 % of the lamps have failed (in standardized operation).

B50: Average life (B50) is defined as the time when 50 % of the lamps have failed (in standardized operation).

Service lifetime: Service lifetime is the mathematical lifetime (maintenance multiplied with the % of failed lamps, e.g. B10) for lamps in an installation after which the installation luminous flux (100 h value) for indoor lighting decreased with 20 % (decrease in luminous flux and failed lamps).

Lamp life. The average life and service life of LUMILUX® fluorescent lamps are listed in the table below. Operating the lamps above or below their rated power will reduce their service life.

Burning position. Universal for 26 and 38 mm diameters. When T5 HE and T5 HO lamps are installed in the vertical burning positions, the stamp must be at the bottom; when T5 FC® lamps are installed in the vertical position, the 2GX13 base must be at the bottom. In multi-lamp luminaires, T5 HE or T5 HO lamps must be positioned with the stamps next to one another. The recommended minimum spacing between two T5 lamps is 32 mm for optimum operation (maintenance of the luminous flux/temperature curve).

Lamp life in accordance with IEC 60081

| (IEC switching cycle 165 min on, 15 min off) | T8 LUMILUX® special length | T8 LUMILUX® standard length* | T8 LLX DE LUXE | T5 HE | T5 HO | T5 FC LUMILUX® | T5 LLX DE LUXE |
|--|-------------------------------------|---------------------------------------|-------------------|----------|----------|-------------------|-------------------|
| Service life on preheat ECG | 16,000 | 18,000 | 16,000 | 19,000 | 19,000 | 8,000 | 19,000 |
| Average life on preheat ECG | 20,000 | 20,000 | 20,000 | 24,000 | 24,000 | 12,000 | 24,000 |

* (18 W, 36 W, 58 W and ES 16 W, 32 W and 51 W) Service life is defined as the time when 80 % of the system luminous flux (relative to the 100 h value) is available.

Technical data

Luminous fluxes of T5 fluorescent lamps (16 mm), HE and HO fluorescent lamps

| | 880 | 865 | 840 | 830 | 827 |
|-----------|------|------|------|------|------|
| HE 14W | 1150 | 1300 | 1350 | 1350 | 1350 |
| HE 21W | 1850 | 2000 | 2100 | 2100 | 2100 |
| HE 28W | 2690 | 2750 | 2900 | 2900 | 2900 |
| HE 35W | 3450 | 3500 | 3650 | 3650 | 3650 |
| HE 13W ES | - | 1300 | 1350 | 1350 | 1350 |
| HE 19W ES | - | 2000 | 2100 | 2100 | 2100 |
| HE 25W ES | - | 2750 | 2900 | 2900 | 2900 |
| HE 32W ES | - | 3500 | 3650 | 3650 | 3650 |
| HO 24W | 1750 | 1900 | 2000 | 2000 | 2000 |
| HO 39W | 3150 | 3325 | 3500 | 3500 | 3500 |
| HO 49W | 4610 | 4600 | 4900 | 4900 | 4900 |
| HO 54W | 4500 | 4750 | 5000 | 5000 | 5000 |
| HO 80W | 6400 | 6650 | 7000 | 7000 | 7000 |
| HO 20W ES | - | 1900 | 2000 | 2000 | 2000 |
| HO 34W ES | - | 3325 | 3500 | 3500 | 3500 |
| HO 45W ES | - | 4600 | 4900 | 4900 | 4900 |
| HO 50W ES | - | 4750 | 5000 | 5000 | 5000 |
| HO 73W ES | - | 6650 | 7000 | 7000 | 7000 |

All values for HE and HO at 35 °C

As with all fluorescent lamps, the luminaire efficiency of T5 (16 mm) lamps is calculated at an ambient temperature of 25 °C. In other words, the luminous flux of the lamp measured at 25 °C and the luminous flux of the luminaire measured at 25 °C are used as the basis for calculating the luminaire efficiency. Note that if measurements are taken with gonio-photometers with moving lamps, the high-speed air currents may cause the cool

spot to shift from the stamp end of the lamp. Before the illuminance levels from T5 HE, T5 HO and especially FC® lamps are measured in lighting systems, these lamps must be allowed to stabilize for at least 100 hours. If two lamps are to be operated next to one another, make sure that the stamped ends are on the same side so that the cold spot is not heated.



Technical data

Temperature dependence

As with fluorescent lamps in general, the rated luminous flux for T5 HE and TE HO fluorescent lamps is specified at 25 °C, and T5 HE and T5 HO achieve their maximum luminous flux at temperatures between 34 and 38 °C. One of the advantages of T5 lamps is therefore an increased luminaire efficiency. T5 FC® circular fluorescent lamps achieve their maximum luminous flux between 25 and 30 °C.

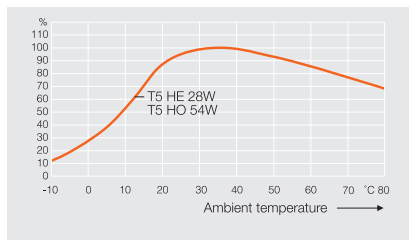
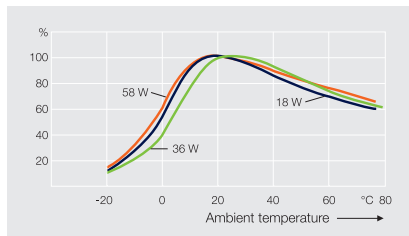
Control gear. In order to operate, each lamp needs a control gear appropriate to its wattage. The control gear not only starts the lamp but also limits the current in the discharge phase. Please note: Fluorescent lamps are guaranteed only if they are operated with approved control gears or with control gears declared to be suitable. Control gears must comply with EN standards. Modern control gears, such as QUICKTRONIC®, enable energy-saving fluorescent lamps to be operated with optimum economy and lighting comfort, see Section 16. Control gears for sale in the European Union must carry the ENEC mark (tested according to IEC 60081). This safeguards the warranty for the lamps under normal conditions.

Circuits. See circuit diagrams on page 9.49 and Section 16.

Power supply. Generally 230 V AC. The permissible voltage fluctuations for AC voltage is $\pm 10\%$, i.e. 207 V to 253 V. Electronic control gears are considerably less affected by fluctuations in the supply voltage than conventional control gears.

DC operation for emergency lighting systems in accordance with DIN EN 50172 is indicated in the specifications for the electronic control gears.

Accessories. Control gears and holders are available from electrical suppliers. OSRAM compact fluorescent lamps and fluorescent lamps are cadmium-free.



Technical data

| Fluorescent lamp | Ø | Rated lamp current (CCG operation) uncompensated | Lamp voltage UL after ignition (± 10 %) | Resistance/impedance Z (on CCG) | Preheating current IEC 60081 | Luminance LF 840, 830, 827 | Compensation capacitor ¹⁾ Power factor ≈ 1 for CCG operation | Series capacitor for CCG Lead-lag circuit ²⁾ |
|------------------|------|--|---|---------------------------------|------------------------------|----------------------------|---|---|
| (Wattage) | (mm) | (A) | (V) | (Ω) | (mA) ⁴⁾ | (cd/cm ²) | (μF) | (μF/Vc) |
| 4 | 16 | 0.17 | 29 | 700 | 205 | 0.85 | 2.0 | — |
| 6 | 16 | 0.16 | 42 | 700 | 205 | 0.95 | 2.0 | — |
| 8 | 16 | 0.145 | 56 | 700 | 205 | 0.9 | 2.0 | — |
| 10 | 26 | 0.17 | 64 | 375 | 220 | — | 2.0 | — |
| 13 | 16 | 0.165 | 95 | 1070 | 225 | 0.8 | 2.0 | — |
| 15 | 26 | 0.33 | 55 | 165 | 440 | 1.0 | 4.5 | — |
| 16 | 26 | 0.20 | 90 | 450 | 260 | 0.8 | 2.5 | — |
| 18 | 26 | 0.37 | 57 | 155 | 550 | 1.0 | 4.5 | 2.7/480 |
| 18/... U | 26 | 0.37 | 60 | 165 | 550 | — | — | — |
| 20/... SA | 38 | 0.37 | 57 | 270 | 550 | — | — | — |
| 20/... XL | 38 | 0.38 | 58 | 270 | — | — | 4.5 | — |
| 22 C | 29 | 0.37 | 62 | 165 | 600 | — | 5.0 | 3.0/480 |
| 30 | 26 | 0.365 | 96 | 265 | 550 | 1.2 | 4.5 | 2.9/450 |
| 32 C | 29 | 0.425 | 81 | 190 | 675 | 0.9 | 5.0 | 3.4/450 |
| 36 | 26 | 0.43 | 103 | 240 | 650 | 1.2 | 4.5 | 3.4/450 |
| 36/... U | 26 | 0.43 | 108 | 250 | 650 | — | — | — |
| 36-1 | 26 | 0.556 | 81 | 145 | 730 | 1.3 | 6.0 | 4.3/480 |
| 38 ³⁾ | 26 | 0.43 | 104 | 240 | 650 | — | 4.5 | 3.4/450 |
| 40 C | 29 | 0.415 | 108 | 260 | 630 | — | — | — |
| 40/... SA | 38 | 0.43 | 103 | 390 | 650 | — | — | — |
| 40/... XL | 38 | 0.425 | 109 | 390 | — | — | 4.5 | — |
| 40/... K | 38 | 0.88 | 52 | — | — | — | — | — |
| 58 | 26 | 0.67 | 110 | 165 | 1000 | 1.5 | 7.0 | 5.3/450 |
| 58/... U | 26 | 0.67 | 115 | 170 | 1000 | — | — | — |
| 65/... SA | 38 | 0.67 | 110 | 240 | 1000 | — | — | — |
| 65/... XL | 38 | 0.67 | 110 | 240 | — | — | — | — |

For information on ECGs, see Section 16 (ECGs)

1) For parallel compensation in circuits 1 and 2 see page 9.49
2) Lead-lag circuit as per circuit diagram 3 on page 9.49

3) With 40 W control gear
4) Preheating currents are maximum values for a preheat time of 2 s

Technical data

| Fluorescent lamp | Ø | Rated lamp current (ECG operation) ¹⁾ | Lamp voltage UL after ignition ¹⁾ | System wattage with control gear | Pre-heating current IEC 60081 | Luminance |
|---|------|--|--|----------------------------------|-------------------------------|-----------------------|
| | (mm) | (mA) | (V) | (W) | (mA) | (cd/cm ²) |
| 14 (HE) | 16 | 165 | 86 | 16.0 ⁴⁾ | 210 | 1.7 |
| 21 (HE) | 16 | 165 | 126 | 24.0 ⁴⁾ | 210 | 1.7 |
| 28 (HE), SPS, CHIP control® | 16 | 170 | 166 | 32.0 ⁴⁾ | 210 | 1.7 |
| 35 (HE) | 16 | 175 | 205 | 39.0 ⁴⁾ | 210 | 1.7 |
| 13 (HE) ES | 16 | 185 | 69 | 15.0 ⁴⁾ | 210 | 1.7 |
| 19 (HE) ES | 16 | 185 | 104 | 22.0 ⁴⁾ | 210 | 1.7 |
| 25 (HE) ES | 16 | 180 | 143 | 29.0 ⁴⁾ | 210 | 1.7 |
| 32 (HE) ES | 16 | 175 | 184 | 36.0 ⁴⁾ | 210 | 1.7 |
| 24 (HO) | 16 | 295 | 77 | 26.0 ⁴⁾ | 440 | 2.5 |
| 39 (HO) | 16 | 325 | 118 | 41.0 ⁴⁾ | 440 | 2.8 |
| 49 (HO) and 49 (HO) XT | 16 | 255 | 195 | 53.0 ⁴⁾ | 330 | 2.3 |
| 54 (HO), 54 (HO) XT, SPS, CHIP control® | 16 | 455 | 120 | 58.0 ⁴⁾ | 720 | 2.9 |
| 80 (HO) and 80 (HO) XT | 16 | 530 | 152 | 85.0 ⁴⁾ | 765 | 3.2 |
| 20 (HO) ES | 16 | 300 | 64 | 23.0 ⁴⁾ | 440 | 2.5 |
| 34 (HO) ES | 16 | 340 | 99 | 37.0 ⁴⁾ | 440 | 2.8 |
| 45 (HO) ES | 16 | 265 | 169 | 45.0 ⁴⁾ | 330 | 2.3 |
| 50 (HO) ES | 16 | 485 | 101 | 54.0 ⁴⁾ | 720 | 3.0 |
| 73 /HO) ES | 16 | 555 | 133 | 79.0 ⁴⁾ | 765 | 3.3 |
| 24 (HO CONSTANT) | 16 | 295 | 77 | 26.0 ⁴⁾ | 440 | 2.7 |
| 39 (HO CONSTANT) | 16 | 325 | 118 | 41.0 ⁴⁾ | 440 | 3.1 |
| 49 (HO CONSTANT) | 16 | 255 | 195 | 53.0 ⁴⁾ | 330 | 2.4 |
| 54 (HO CONSTANT) | 16 | 455 | 120 | 58.0 ⁴⁾ | 720 | 3.3 |
| 80 (HO CONSTANT) | 16 | 530 | 152 | 88.5 ⁴⁾ | 765 | 3.6 |
| 22 (FC) | 16 | 0.30 | 70 | 25.0 ⁵⁾ | 440 | 1.7 |
| 40 (FC) | 16 | 0.32 | 126 | 43.0 ⁵⁾ | 440 | 2.1 |
| 55 (FC) | 16 | 0.55 | 101 | 59.0 ⁵⁾ | 765 | 2.6 |
| 6 (FM) | 7 | 0.10 | 51 | 7.5 ²⁾ | 120 ⁴⁾ | 2.5 |
| 8 (FM) | 7 | 0.10 | 79 | 11.0 ²⁾ | 120 ⁴⁾ | 2.5 |
| 11 (FM) | 7 | 0.10 | 110 | 13.0 ³⁾ | 120 ⁴⁾ | 2.5 |
| 13 (FM) | 7 | 0.10 | 136 | 16.0 ³⁾ | 120 ⁴⁾ | 2.5 |

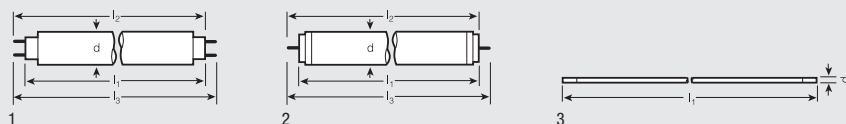
1) Values at 25 °C on the reference control gear

2) For system wattage with QT-ECO FM 1x6-8/220-240, see Section 16

3) For system wattage with QT-ECO FM 1x11-13/220-240, see Section 16

4) System wattage on QTI GII

5) System wattage on QTP-M or QTP-FC



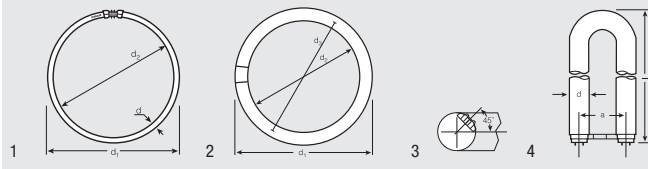
Tubular fluorescent lamps

7, 16, 26 and 38 mm Ø, G5 base, G13 base, W4.3x8.5d base

| | | | | | | |
|------------------------------------|-----------|------------|-------------|--------|-----------|---|
| 6 (FM) | W4.3x8.5d | 218.3 ±1.0 | — | — | max. 7 | 3 |
| 8 (FM) | W4.3x8.5d | 319.9 ±1.0 | — | — | max. 7 | 3 |
| 11 (FM) | W4.3x8.5d | 421.5 ±1.0 | — | — | max. 7 | 3 |
| 13 (FM) | W4.3x8.5d | 523.1 ±1.0 | — | — | max. 7 | 3 |
| 4 | G5 | 135.9 | 141.8 ±1.2 | 150.1 | max. 16 | 1 |
| 6 | G5 | 212.1 | 218 ±1.2 | 226.3 | max. 16 | 1 |
| 8 | G5 | 288.3 | 294.2 ±1.2 | 302.5 | max. 16 | 1 |
| 13 | G5 | 516.9 | 522.8 ±1.2 | 531.1 | max. 16 | 1 |
| 14 (HE) | G5 | 549 | 554.9 ±1.2 | 563.2 | max. 17 | 1 |
| 21 (HE) | G5 | 849 | 854.9 ±1.2 | 863.2 | max. 17 | 1 |
| 24 (HO) | G5 | 549 | 554.9 ±1.2 | 563.2 | max. 17 | 1 |
| 28 (HE), 25 (ES) | G5 | 1149 | 1154.9 ±1.2 | 1163.2 | max. 17 | 1 |
| 35 (HE), 32 (ES) | G5 | 1449 | 1454.9 ±1.2 | 1463.2 | max. 17 | 1 |
| 39 (HO) | G5 | 849 | 854.9 ±1.2 | 863.2 | max. 17 | 1 |
| 49 (HO), 49 (HO) XT and 45 (HO) ES | G5 | 1449 | 1454.9 ±1.2 | 1463.2 | max. 17 | 1 |
| 54 (HO), 54 (HO) XT and 50 (HO) ES | G5 | 1149 | 1154.9 ±1.2 | 1163.2 | max. 17 | 1 |
| 80 (HO), 80 (HO) XT and 73 (HO) ES | G5 | 1449 | 1454.9 ±1.2 | 1463.2 | max. 17 | 1 |
| 10 | G13 | 470 | 475.9 ±1.2 | 484.2 | max. 28 | 1 |
| 15 | G13 | 437.4 | 443.3 ±1.2 | 451.6 | max. 28 | 1 |
| 16 | G13 | 720 | 725.9 ±1.2 | 734.2 | max. 28 | 1 |
| 18, 16 (ES) | G13 | 589.8 | 595.7 ±1.2 | 604 | max. 28 | 1 |
| 23 | G13 | 970 | 975.9 ±1.2 | 984.2 | max. 28 | 1 |
| 30 | G13 | 894.6 | 900.5 ±1.2 | 908.8 | max. 28 | 1 |
| 36, 32 (ES) | G13 | 1199.4 | 1205.3 ±1.2 | 1213.6 | max. 28 | 1 |
| 36-1 | G13 | 970 | 975.9 ±1.2 | 984.2 | max. 28 | 1 |
| 38 | G13 | 1047 | 1052.8 ±1.2 | 1061.2 | max. 28 | 1 |
| 58, 51 (ES) | G13 | 1500 | 1505.9 ±1.2 | 1514.2 | max. 28 | 1 |
| 70 | G13 | 1763.8 | 1769.7 ±1.2 | 1778 | max. 28 | 1 |
| 20/... SA | G13 | 589.8 | 595.7 ±1.2 | 604 | max. 40.5 | 1 |
| 40/... SA | G13 | 1199.4 | 1205.3 ±1.2 | 1213.6 | max. 40.5 | 1 |
| 40 K | G13 | 589.8 | 595.7 ±1.2 | 604 | max. 40.5 | 1 |
| 65/... SA | G13 | 1500 | 1505.9 ±1.2 | 1514.2 | max. 40.5 | 1 |
| 80 | G13 | 1500 | 1505.9 ±1.2 | 1514.2 | max. 40.5 | 1 |
| 100 | G13 | 1763.8 | 1769.7 ±1.2 | 1778 | max. 40.5 | 1 |

Fluorescent lamps for starterless operation, 38 mm tube diameter X lamps, Fa6 base

| | | | | | | |
|-----------|-----|--------|---------------|--------|-----------|---|
| 20/... XL | Fa6 | 574 | 590.75 ±1.75 | 611 | max. 40.5 | 2 |
| 40/... XL | Fa6 | 1183.5 | 1200.25 ±1.75 | 1220.5 | max. 40.5 | 2 |
| 65/... XL | Fa6 | 1484 | 1500.85 ±1.75 | 1521.1 | max. 40.5 | 2 |



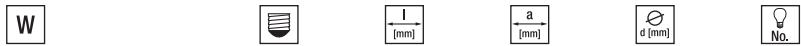
Circular T5 FC® fluorescent lamps with 16 mm tube diameter

| | | | | | |
|------------|-------|--------|--------|------|---|
| 2GX13 base | | | | | |
| 22 | 2GX13 | 225 ±5 | 192 ±5 | 16.0 | 1 |
| 40 | 2GX13 | 299 ±6 | 266 ±6 | 16.0 | 1 |
| 55 | 2GX13 | 299 ±6 | 266 ±6 | 16.0 | 1 |



Ring-shaped fluorescent lamps

| | | | | | | |
|-----------|------|-------|-------|-------|-------|------|
| G10q base | | | | | | |
| 22 | G10q | 215.9 | 155.6 | 157.2 | 29 ±2 | 2, 3 |
| 32 | G10q | 304.8 | 246.1 | 246.1 | 29 ±2 | 2, 3 |
| 40 | G10q | 406.4 | 347.7 | 347.7 | 29 ±2 | 2, 3 |



U-shaped fluorescent lamps

| | | | | | |
|--------------|---------|-----|---------|-------|---|
| 2G13-92 base | | | | | |
| 18 U | 2G13-92 | 310 | 92.0 ±2 | 26 ±1 | 4 |
| 36 U | 2G13-92 | 607 | 92.0 ±2 | 26 ±1 | 4 |
| 58 U | 2G13-92 | 765 | 92.0 ±2 | 26 ±1 | 4 |
| 36 UK | 2G13-92 | 570 | 92.0 ±2 | 26 ±1 | 4 |

CIRCUIT DIAGRAMS, STARTER OPERATION

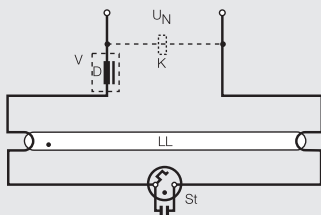


Fig. 1
Single lamp

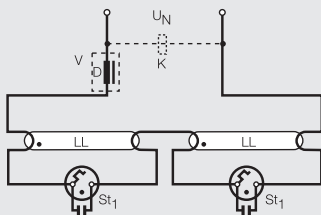


Fig. 2
Series circuit for two lamps
4 W, 6 W, 8 W, 15 W, 18 W, 20 W
and 22 W on 220 V_{AC} only with starters
ST 151 + ST 172 (see page 9.38)

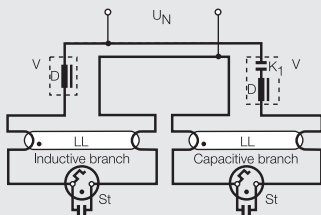


Fig. 3
Lead-lag circuit

STARTERLESS OPERATION

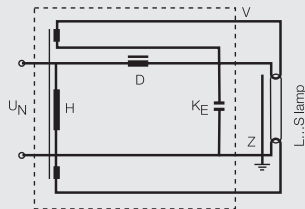


Fig. 4
Quick-start circuit, inductive

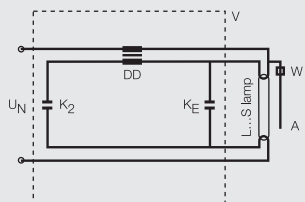


Fig. 5
Semi-resonant circuit

- A = External starting strip
- D = Choke
- DD = Double choke
- H = Heating transformer
- K = Compensation capacitor (if required)
- K₁ = Series capacitor
- K₂ = Capacitor
- K_E = Radio interference capacitor 10 nF
- LL = Fluorescent lamp
- St = Starter
- St₁ = Starter¹⁾
- U_N = Line voltage
- V = Control gear
- W = High ohmic resistor (built into lamp base)
- Z = Capacitor starting aid

¹⁾ Prolonged ignition times, especially at low voltage, can be shortened by rotating one of the starters through 180°

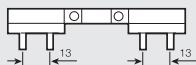
BASES IEC/EN 60061-1



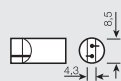
Fa6
Sheet 7004-55



G13
Sheet 7004-51



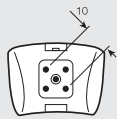
2G13
Sheet 7004-33



W4.3x8.5d
Sheet 7004-115



G5
Sheet 7004-52



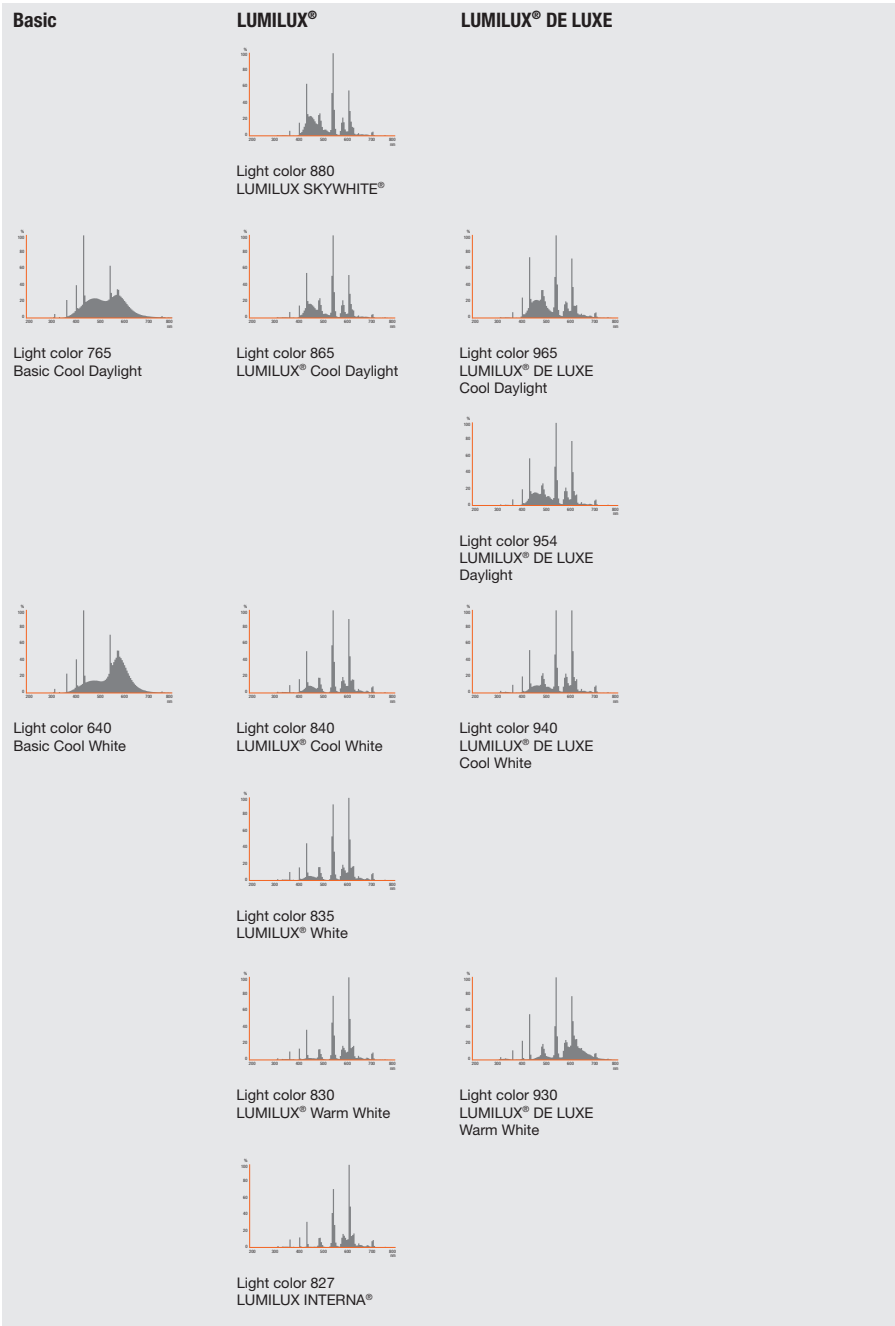
G10q
Sheet 7004-54



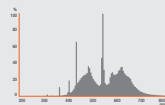
2GX13
Sheet 7004-125

Spectral power distribution of fluorescent lamps (white light)

Visible range from 380 to 780 nm, relative spectral emission per 5 nm.

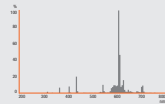


Spectral power distribution of fluorescent lamps (COLOR proof)

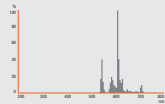


Light color 950 COLOR proof

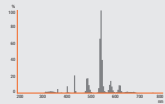
Spectral power distribution of fluorescent lamps (other colors)



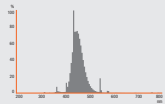
Light color 60
Red



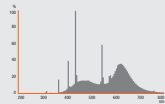
Light color 62
Yellow



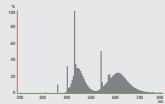
Light color 66
Green



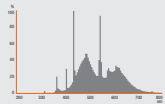
Light color 67
Blue



Light color 76 NATURA®



Light color 77 FLUORA®



Light color BIOLUX®

