



T8 Watt-Miser™

Linear Fluorescent Lamps

16W, 32W and 51W

DATA SHEET

Product information

T8 Watt-Miser™ lamps are triphosphor fluorescent lamps with 26mm outer diameter for indoor applications. These new lamps offer significant energy savings versus standard T8 linear fluorescent lamps.



Features

T8 Watt-Miser™ lamps consume up to 10% less energy compared with today's standard T8 lamps, while having 15,000 hours life on standard gear and excellent colour rendering index of CRI 80+. Lamps are optimised for 30°C ambient temperature, offering up to 90lm/W luminous efficacy. The elevated optimum temperature results in additional energy saving versus standard T8 lamps in typical indoor lighting applications.

Standard T8 lamps can be easily replaced with the new T8 Watt-Miser™ lamps in the existing lighting applications, since new electronic control gears are not required. These new lamps from GE enable even less than 12 months payback time.

GE is committed to fight against climate change. The T8 Watt-Miser™ lamps will contribute to the global effort to reduce CO₂ emission. One lamp can save up to 12.0 kg CO₂ per year. So in addition to the lower energy bill, millions of tons of CO₂ could potentially be saved with this new lamp technology.

Application areas

T8 Watt-Miser™ lamps are mostly recommended for general indoor applications, such as:

- Retail
- Offices
- Schools
- Commercial

Product range

GE T8 Watt-Miser™ lamps are available in 3 wattages: 16W, 32W and 51W. The available colour temperatures are:

- 3000K warm white
- 4000K cool white
- 6400K daylight

Compliance

The T8 Watt-Miser™ linear fluorescent lamps comply with IEC/EN 60061 and IEC/EN 61195.

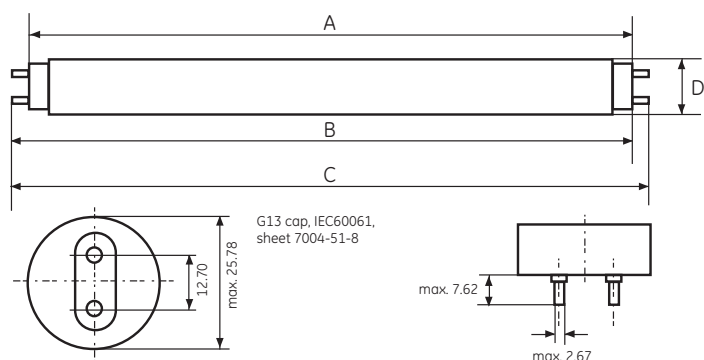


Basic data

| Lamp type | 16W | 32W | 51W |
|-----------------------------------------------------------|-----------------|-----------------|-----------------|
| General | | | |
| Nominal Wattage [W] | 16 | 32 | 51 |
| Cap | G13 | G13 | G13 |
| Operation | EM 50Hz | EM 50Hz | EM 50Hz |
| Cathode | preheated | preheated | preheated |
| Design Temperature [°C] | 30 | 30 | 30 |
| Recommended Burning Position | horizontal | horizontal | horizontal |
| Energy Efficiency Class | A | A | A |
| Mercury Content [mg] | <3.5 | <3.5 | <3.5 |
| Ordering Information (sleeved in boxes of 25) | | | |
| 830 – CCT 3000K – Warm White | 73605 | 96748 | 73609 |
| 840 – CCT 4000K – Cool White | 73607 | 96750 | 73611 |
| 860 – CCT 6400K – Daylight | 73608 | 96747 | 73613 |
| Electrical and Photometric Characteristics at 25°C | | | |
| Rated Wattage [W] | 16.4 | 32 | 51.4 |
| Rated Lamp Voltage [V] | 52.5 | 94 | 100 |
| Rated Lamp Current [A] | 0.380 | 0.450 | 0.700 |
| Operating Frequency [Hz] | 50 | 50 | 50 |
| Rated Luminous Flux [lm] | 1300 | 2750 | 4320 |
| Nominal Luminous Flux [lm] | 1300 | 2750 | 4320 |
| Rated Luminous Flux for 860 [lm] | 1230 | 2600 | 4120 |
| Nominal Luminous Flux for 860 [lm] | 1230 | 2600 | 4120 |
| Rated Efficacy [lm/W] | 79.5 | 86 | 84 |
| Rated Efficacy for 860 [lm/W] | 75 | 81.5 | 80 |
| Colour Rendering Index [Ra] | 80+ | 80+ | 80+ |
| Optical Radiation Safety Class | Exempt | Exempt | Exempt |
| Electrical and Photometric Characteristics at 30°C | | | |
| Rated Wattage [W] | 16.6 | 33 | 52.3 |
| Rated Lamp Voltage [V] | 52.5 | 94 | 99 |
| Rated Lamp Current [A] | 0.380 | 0.450 | 0.700 |
| Rated Luminous Flux [lm] | 1320 | 2930 | 4600 |
| Nominal Luminous Flux [lm] | 1320 | 2930 | 4600 |
| Rated Luminous Flux for 860 [lm] | 1250 | 2770 | 4420 |
| Nominal Luminous Flux for 860 [lm] | 1250 | 2770 | 4420 |
| Rated Efficacy [lm/W] | 79.5 | 89 | 88 |
| Rated Efficacy for 860 [lm/W] | 75 | 84 | 85 |
| Lifetime performance | | | |
| Rated Median Life – EM, preheat, 3 Hours Cycle [h] | 20,000 | 20,000 | 20,000 |
| Median Life – EM 50Hz, preheat, 12 Hours Cycle [h] | 23,000 | 23,000 | 23,000 |
| Operating Mode for LSF and LLMF Data | EL HF, 3h cycle | EL HF, 3h cycle | EL HF, 3h cycle |
| Lamp Survival Factor | | | |
| LSF 2,000 Hours | 99% | 99% | 99% |
| LSF 4,000 Hours | 99% | 99% | 99% |
| LSF 8,000 Hours | 98% | 98% | 98% |
| LSF 16,000 Hours | 90% | 90% | 90% |
| Lamp Lumen Maintenance | | | |
| LLMF 2,000 Hours | 96% | 96% | 96% |
| LLMF 4,000 Hours | 92% | 92% | 92% |
| LLMF 8,000 Hours | 91% | 91% | 91% |
| LLMF 16,000 Hours | 90% | 90% | 90% |
| Service Life – HF, Preheat, 3 Hours Cycle [h] | 16,000 | 16,000 | 16,000 |
| Service Life – HF, Preheat, 12 Hours Cycle [h] | 18,000 | 18,000 | 18,000 |

Note for lamp power and lamp luminous efficacy values: power dissipated by auxiliary equipment (such as reference or commercial ballast) is not included.

Dimensions

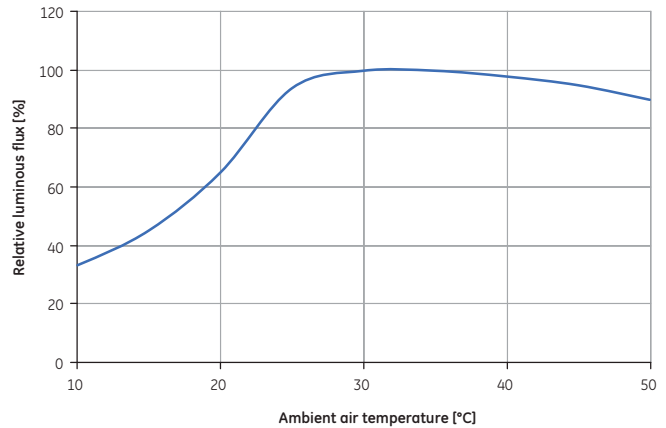


| Lamp type | A Max. [mm] | B [mm] | | C Max. [mm] | D Max. [mm] |
|------------------------|-------------|--------|--------|-------------|-------------|
| | | Min. | Max. | | |
| F18/T8 16W Watt-Miser™ | 589.8 | 594.5 | 596.9 | 604.0 | 28 |
| F36/T8 32W Watt-Miser™ | 1199.4 | 1204.1 | 1206.5 | 1213.6 | 28 |
| F58/T8 51W Watt-Miser™ | 1500.0 | 1504.7 | 1507.1 | 1514.2 | 28 |

Influence of ambient air temperature on light output

Lamp performance parameters, such as luminous output, lamp voltage and power depend on the mercury vapour pressure in the discharge tube. The mercury vapour pressure is affected by the thermal conditions determined by factors such as burning position, air flow, radiating heat sources, etc. T8 Watt-Miser™ lamps are optimised for 30°C ambient air temperature.

| Ambient air temperature [°C] | Relative luminous flux [%] |
|------------------------------|----------------------------|
| 0 | 17 |
| 5 | 24 |
| 10 | 33 |
| 15 | 45 |
| 20 | 65 |
| 25 | 94 |
| 30 | 100 |
| 35 | 100 |
| 40 | 98 |
| 45 | 95 |
| 50 | 90 |

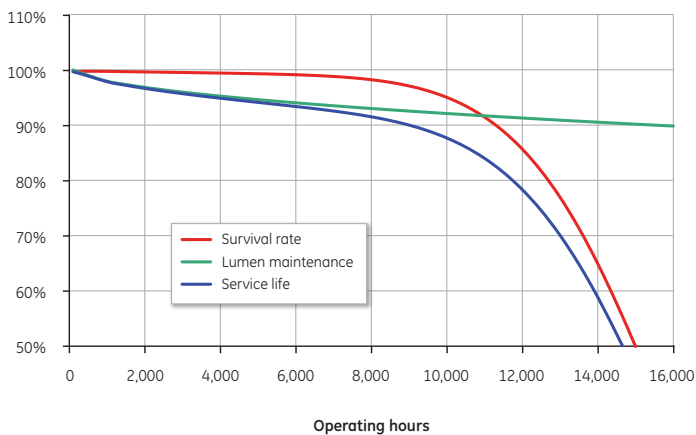


Lamp life and lumen maintenance

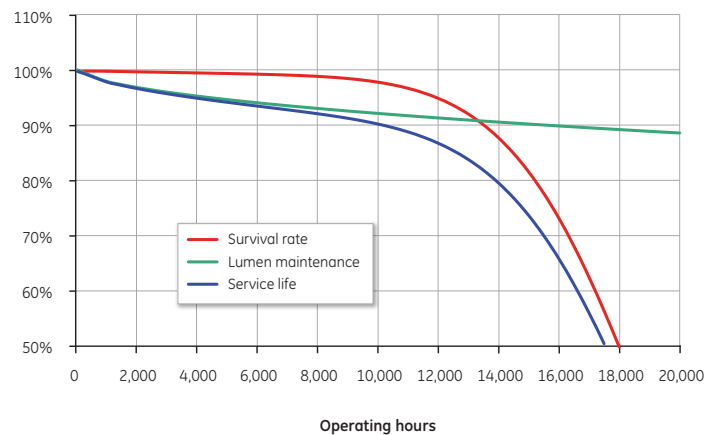
The quoted lamp life is the “average rated lamp life” which is the average value obtained on a three hour switching cycle (15 minute OFF period following 2 hours 45 minutes running time) using control gear meeting IEC specification. This will be the point in time at which 50% of the lamps originally installed are still operating.

Given this definition, in an installation using T8 Watt-Miser™ lamps and glow starters, 50% of the lamps will still be burning after 15,000 hours; for an installation using suitable pre-heat electronic ballasts the life will increase to 20,000-23,000 hours depending on the switching cycle. Service life curve is defined as the product of the survival rate and the lumen maintenance. The rated value is at 80%.

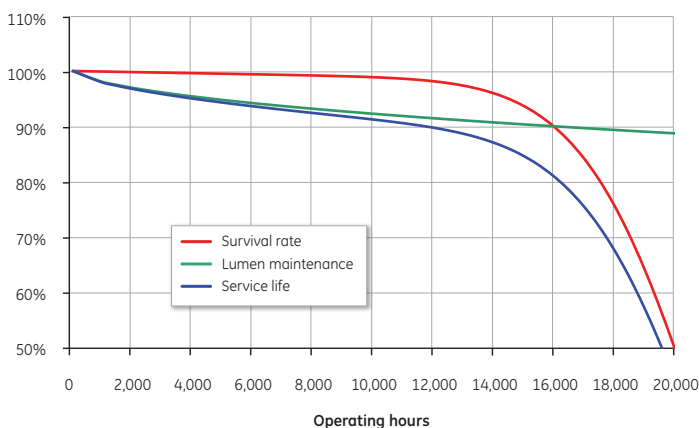
3 hours switching cycle, standard ballast



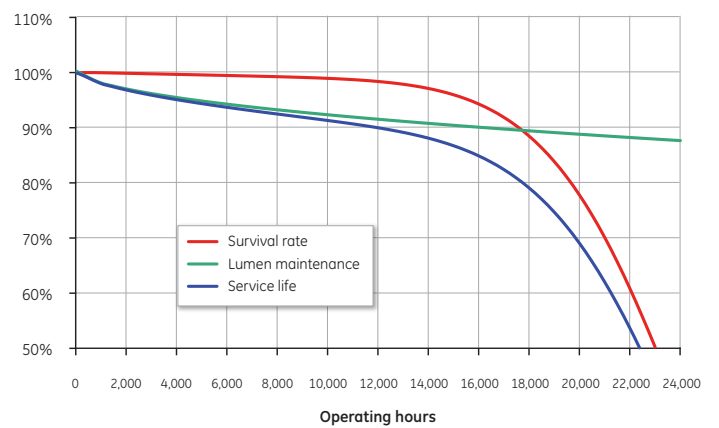
12 hours switching cycle, standard ballast



3 hours switching cycle, electronic ballast



12 hours switching cycle, electronic ballast



Operation with electronic control gears

Electronic control gears for T8 lamps that comply with the relevant IEC standards can be considered suitable to operate the T8 Watt-Miser™ lamps. Please note that energy saving compared to the use of standard-wattage T8 lamps can only be achieved with current-controlled ballasts. Power controlled ballasts designed for standard-wattage T8 lamps will force the lamp to operate at elevated power but it will produce more light. It has no negative impact on lamp life. Exact energy saving is application-dependant: may vary by control gear type and luminaire design. List of ballasts tested and approved by GE is available upon request

Recommendation for measuring T8 Watt-Miser™ lamps

Before measuring the lamps should be seasoned for approximately 100 hours. During testing, the luminous flux of the lamp should be stabilized by operating it at $25 \pm 1^\circ\text{C}$ for 30 minutes. Please be aware that the precise temperature control is very important, since the lamp lumen output is very sensitive to the temperature variation operating on conventional 50Hz electromagnetic gear. The measured luminous flux may be considered stable if the relative change in light output is less than 0.5% over a 5 minute period.

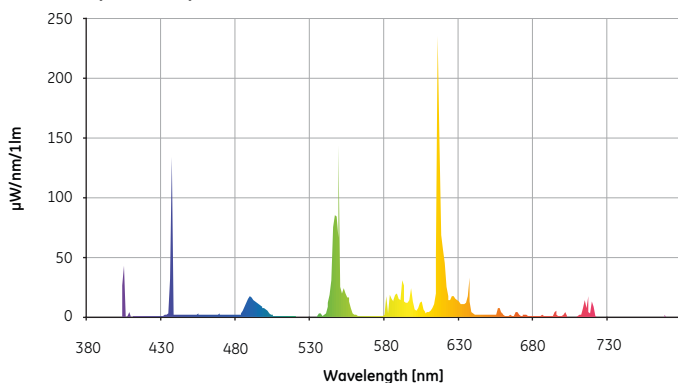
Special product features

To create this premium energy efficient T8 product, new base fill gas has been applied. The fill gas has a beneficial influence on decreasing power and increasing optimum temperature. Lamp warm-up time (i.e. when the lumen output reaches 90% of its maximum) is on average 2 minutes.

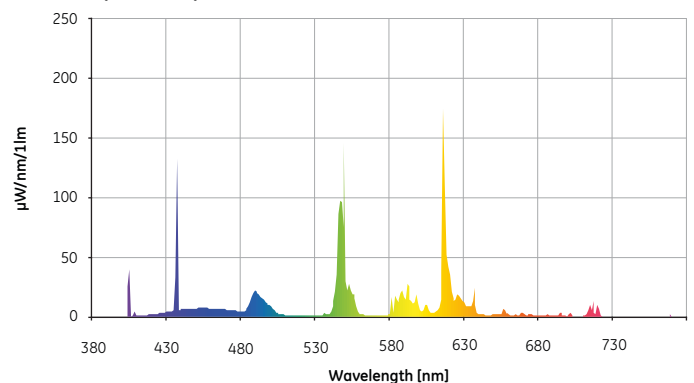
After start-up for a maximum 2 minutes on conventional gear, flickering may be present. On HF electronic ballast moving stripes can appear on the lamp in room temperatures, these effects completely disappear in stationary state of lamp operation. This phenomenon directly comes from the application of Xenon, thus their presence on lamp after startup is not a malfunction. Similar products containing Xenon will perform in the same way, this can also have impact on dimming and emergency operation.

Spectral power distribution

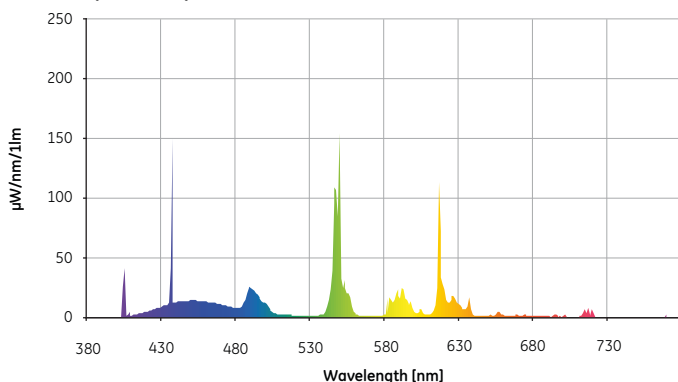
Spectral power distribution 3000K



Spectral power distribution 4000K



Spectral power distribution 6500K



Colour specification according to CIE 1931

| CCT [K] | | X | Y | CRI [Ra] |
|---------|-------|-------|-------|----------|
| Nominal | Rated | | | |
| 3000 | 2940 | 0.440 | 0.402 | 80+ |
| 4000 | 4040 | 0.380 | 0.377 | 80+ |
| 6400 | 6400 | 0.316 | 0.336 | 80+ |