



Take a good look at energy savings.

Direct energy-saving alternatives for lamps in existing luminaires with ECGs or conventional ballasts and for conventional T5, T8 and compact fluorescent lamps.



SEE THE WORLD IN A NEW LIGHT

OSRAM



Simple direct lamp replacement: Energy savings even in existing lighting systems.

T5 LUMILUX® ES, T8 LUMILUX® ES and OSRAM DULUX® D ES lamps are instant energy-saving alternatives for existing systems with current-controlled electronic control gear (ECG) and conventional/low-loss control gear (CCG/LLG). They can save up to 10 % energy compared with corresponding conventional lamps.



Protecting the environment and saving energy and money.

T5 LUMILUX® ES, T8 LUMILUX® ES and OSRAM DULUX® D ES are instant cost-effect energy-saving alternatives for existing lighting systems. Energy savings start the moment the lamp is replaced. In new installations the savings start straight away. These innovative fluorescent and compact fluorescent lamps offer the following benefits with the appropriate combination of lamp and ballast (see table below):

- Up to 10 % lower power consumption
- Up to 10 % lower CO₂ emissions
- Direct relamping
- Payback time less than one year
- At least the same average life as corresponding conventional lamps



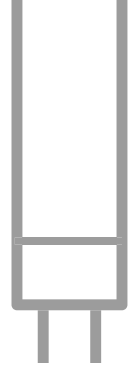
Combinations of lamps and ballasts.

	CCG/LLG	ECG
T5 LUMILUX® ES	No	Yes*
T8 LUMILUX® ES	Yes	Yes*
OSRAM DULUX® D ES	Yes	No

* T5 LUMILUX® ES lamps are operated exclusively on ECGs in contrast to T8 LUMILUX® ES lamps. For both types, energy savings are achieved only with current-controlled ECGs. Power-regulated ECGs have 10 % more luminous flux as a result.

Replacement table for ES energy-saving fluorescent lamps.

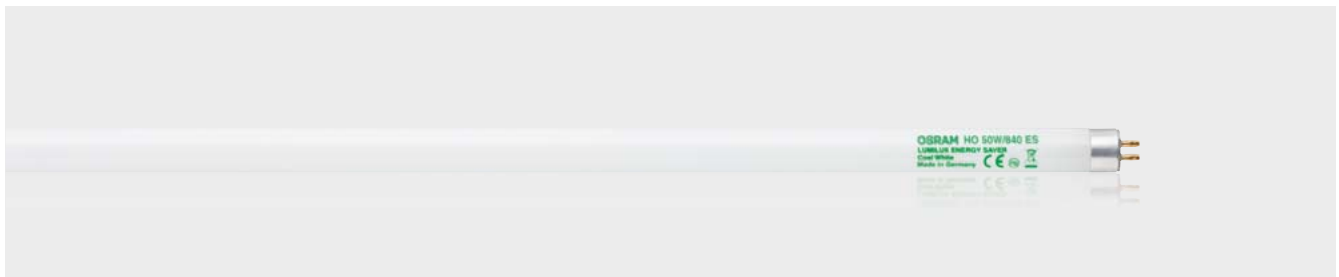
	Replaces	Application
T5 LUMILUX® ES	T5 LUMILUX®	Indoor lighting
T8 LUMILUX® ES	T8 BASIC	Indoor lighting
OSRAM DULUX® D ES	OSRAM DULUX® D	Indoor lighting



Direct lamp replacements for existing T5 systems with current-controlled ECGs.



T5 LUMILUX® ES lamps save up to 10 % energy with no loss of luminous flux compared with conventional LUMILUX® T5 fluorescent lamps operating on current-controlled ECGs.



High Efficiency ENERGY SAVER: T5 LUMILUX® HE ES.

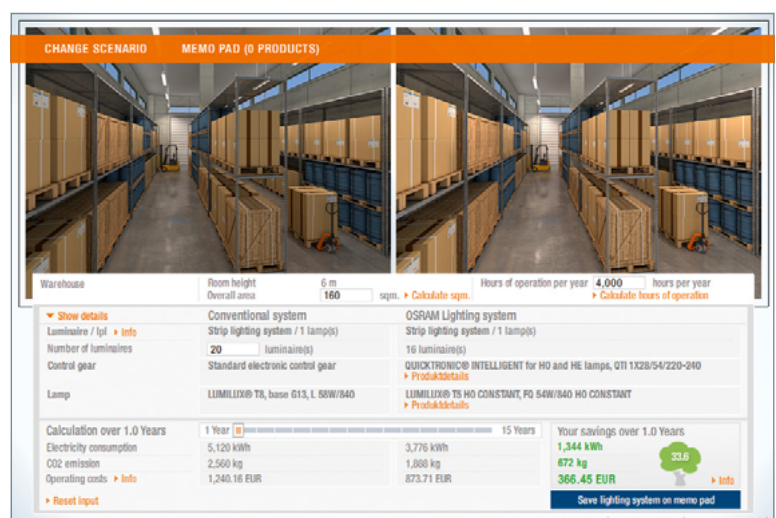
- T5 LUMILUX® HE 25 W/32 W ES lamps replace T5 LUMILUX® HE 28 W/35 W lamps
- Average life of 20,000 hours
- Ideal for indoor lighting, e. g. for offices and shopping centers, and general illumination

High Output ENERGY SAVER: T5 LUMILUX® HO ES.

- T5 LUMILUX® HO 45 W/50 W/73 W ES lamps replace T5 LUMILUX® HO 49 W/54 W/80 W lamps
- Average life of 24,000 hours
- Ideal for indoor lighting, e. g. for factories, warehouses and other rooms with high ceilings, and for outdoor lighting, e. g. in tunnels (in appropriate luminaires)

Replacement table and lamp/ECG combinations.

T5 LUMILUX® HO	T5 LUMILUX® HO ES	QTi 1x28/54/35/49 GII, QTi 2x28/54/35/49 GII	QTi 1x35/49/80 GII, QTi 2x35/49/80	QTP5 1x49, QTP5 2x49	QTP5 1x54, QTP5 2x54	QTP5 1x80, QTP5 2x80
49 W → 45 W		X	X	X		
54 W → 50 W		X			X	
80 W → 73 W			X			X



Direct lamp replacements for existing T8 systems with CCG/LLG or current-controlled ECGs.

T8 LUMILUX® ES lamps with CCG and LLG save up to 10 % energy compared with conventional T8 BASIC fluorescent lamps with CCG/LLG or current-controlled ECGs which have been banned in the EU since April 2010.



ENERGY SAVER: T8 LUMILUX® ES.

- T8 LUMILUX® ES 16 W/32 W/51 W lamps replace T8 BASIC 18 W/36 W/58 W lamps
- Better lumen maintenance during the life of the lamp compared with T8 BASIC
- Longer service life: approx. 2.4 times that of T8 BASIC
- Pay-back time less than 1 year

- You can save energy in new installations with OSRAM QT-FIT8 ECGs right from the start
- Note: T8 LUMILUX® ES lamps achieve their maximum luminous flux at around 30 °C
- Ideal for indoor lighting, e.g. schools, shopping malls, general indoor illumination; for details see "Stop and Go card"
- Depending on the control gear, energy savings of up to 14 % are possible

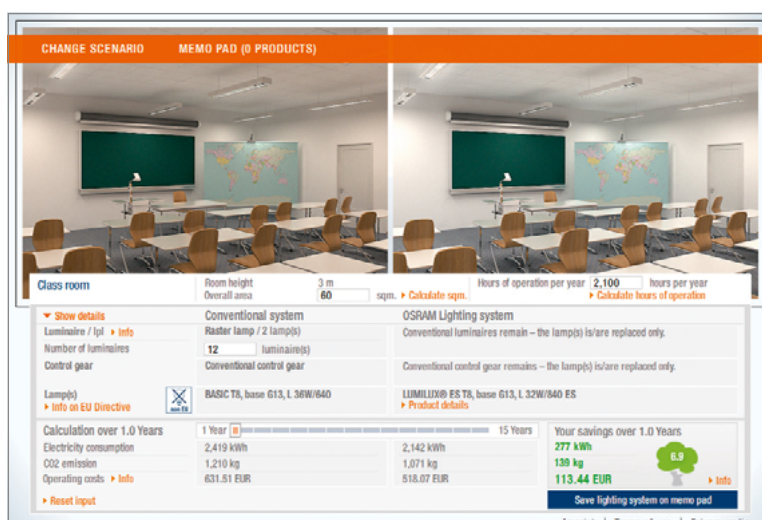
This is how the Lighting Consultant works.

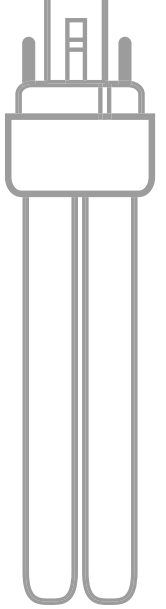
By selecting a scenario and entering a few parameters you can calculate how quickly a good lighting system with cost-effective products from OSRAM will pay for itself and how much energy you can save.

You can reckon on 10 % energy savings:

www.osram.com/light-consultant

With the Lighting Consultant you can quickly and easily calculate how much you can save: e.g. electricity consumption, CO₂ emissions, operating costs, in one year, over the life of the lamp and much more.





Direct lamp replacements for existing compact fluorescent lamp systems with CCGs.

OSRAM DULUX® D ES lamps have a power consumption which is up to 10 % lower than that of conventional OSRAM DULUX® D compact fluorescent lamps with CCGs.



ENERGY SAVER: OSRAM DULUX® D ES.

- OSRAM DULUX® D 16W/23W ES lamps replace OSRAM DULUX® D 18W/26W lamps
- Not suitable for ambient temperatures below 15 °C or outdoor lighting
- Available only from OSRAM: OSRAM DULUX® D 16W and 23W ES
- Ideal for indoor lighting, e.g. for miniaturized luminaires and downlights with low mounting depths in offices, shopping malls, hotels, factories, foyers and entrance halls

Lighting Consultant for OSRAM DULUX® D ES.

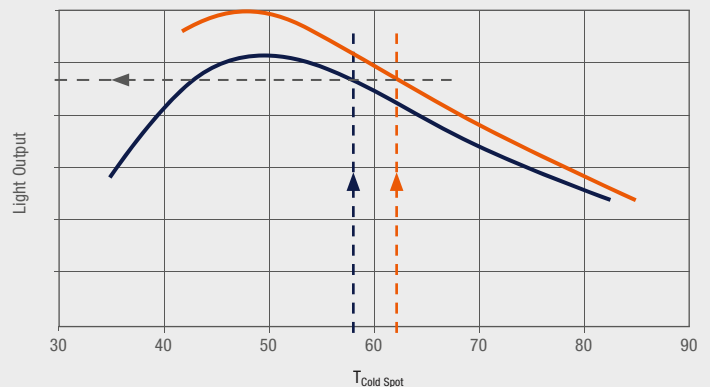
The OSRAM Lighting Consultant helps you plan economical energy-saving lighting. See for yourself. Get the Lighting Consultant to match your individual requirements.

You can reckon on 10 % energy savings:

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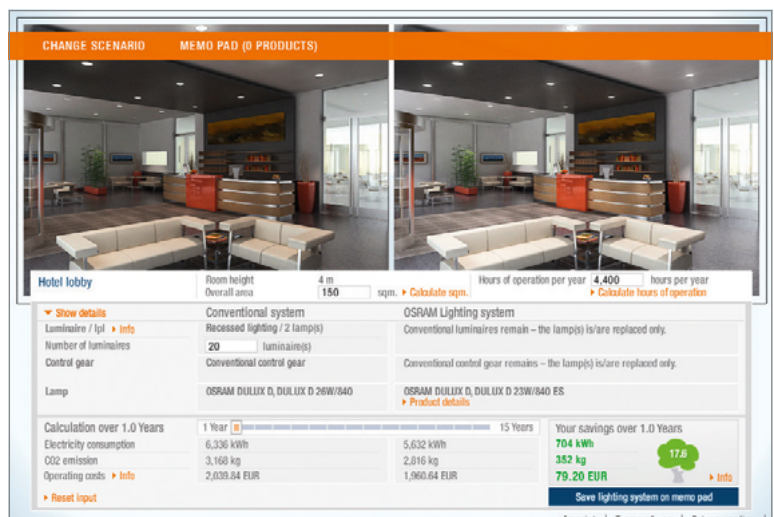
With the Lighting Consultant you can quickly and easily calculate how much you can save: e.g. electricity consumption, CO₂ emissions, operating costs, in one year, over the life of the lamp and much more.

The same light but a lower temperature.



OSRAM DULUX® D 23W ES versus OSRAM DULUX® D 26W (horizontal lamp position)

- OSRAM DULUX® D 23W ES
- OSRAM DULUX® D 26W
- - - Cold Spot 23W in luminaire [°C]
- - - Cold Spot 26W in luminaire [°C]



Sustainable and eco-friendly: a complete change of system.

T8 LUMILUX® ES lamps in existing conventional systems can be used as an immediate and profitable solution for special applications. They will save energy instantly without the need for major investment. T8 LUMILUX® ES and OSRAM QT-FIT 8 are a low-cost alternative electronic system. Instant energy savings can be achieved in existing T5 lighting systems with current-controlled ECGs by simply changing the lamps to T5 LUMILUX® ES.







The greatest potential energy savings and cost savings are possible with innovative T5 systems with motion/presence sensors and daylight-dependent lighting control. Energy savings of up to 80 % can be achieved, with a reduction in CO₂ emissions also of up to 80 %.



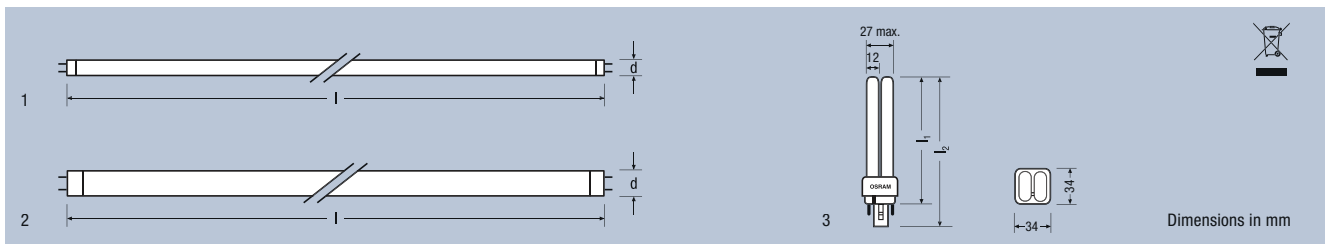
Stop and Go: When is it right to fit T8 LUMILUX® ES?

Our Stop and Go card provides you with basic data, facts and possible applications for T8 LUMILUX® ES in a compact format. Just get out the card and all the important information and arguments for you and your customers are at your fingertips.

T8 LUMILUX® ES 16 W	replaces	T8 BASIC 18 W
T8 LUMILUX® ES 32 W	replaces	T8 BASIC 36 W
T8 LUMILUX® ES 51 W	replaces	T8 BASIC 58 W

	Suitable for ECG operation and emergency lighting systems 	<ul style="list-style-type: none"> • According to the VDE the existing approval for the luminaire (ENEC 10-VDE) does not cover operation with a T8 energy-saving lamp. • Not suitable for emergency lighting systems. • Different versions of ECGs are available on the market. In many cases there are no energy savings but there is a loss of light.
	Low ambient temperature (< 20 °C in the luminaire) 	<ul style="list-style-type: none"> • Cold lamps flicker whenever they are started and operate fitfully. • In this temperature range all the T8 energy-saving lamps available on the market provide about 50 % less light than standard T8 lamps because maximum luminous flux is provided at a temperature of around 30 °C.
	High ambient temperature (> 30 °C in the luminaire) and operation on QT-FIT8 and conventional control gear 	<ul style="list-style-type: none"> • Similar luminous flux as for BASIC lamps. • Up to 14 % lower energy consumption. • Flickerfree operation. • In accordance with a safety risk analysis (EN 61347), operation with QT-FIT8 has been approved.

TECHNICAL DATA



Dimensions in mm

Product reference	Fig. no.	Product number	W	lm	lm ³		R _a	TUBE d [mm]	L [mm]	
OSRAM T5 LUMILUX® ES										
HO 45W/827 ES	1	4008321958129	45	4900 ¹	4310	LUMILUX INTERNA	80...89	16	1449	40
HO 45W/830 ES	1	4008321958136	45	4900 ¹	4310	LUMILUX Warm White	80...89	16	1449	40
HO 45W/840 ES	1	4008321958143	45	4900 ¹	4310	LUMILUX Cool White	80...89	16	1449	40
HO 45W/865 ES	1	4008321958150	45	4700 ¹	4100	LUMILUX Cool Daylight	80...89	16	1449	40
HO 50W/827 ES	1	4008321958167	50	5000 ¹	4450	LUMILUX INTERNA	80...89	16	1149	40
HO 50W/830 ES	1	4008321958174	50	5000 ¹	4450	LUMILUX Warm White	80...89	16	1149	40
HO 50W/840 ES	1	4008321958181	50	5000 ¹	4450	LUMILUX Cool White	80...89	16	1149	40
HO 50W/865 ES	1	4008321958198	50	4750 ¹	4100	LUMILUX Cool Daylight	80...89	16	1149	40
HO 73W/827 ES	1	4008321958204	73	7000 ¹	6150	LUMILUX INTERNA	80...89	16	1449	40
HO 73W/830 ES	1	4008321958211	73	7000 ¹	6150	LUMILUX Warm White	80...89	16	1449	40
HO 73W/840 ES	1	4008321958228	73	7000 ¹	6150	LUMILUX Cool White	80...89	16	1449	40
HO 73W/865 ES	1	4008321958235	73	6650 ¹	5700	LUMILUX Cool Daylight	80...89	16	1449	40
OSRAM T8 LUMILUX® ES										
T8 LUMILUX ES 16W/830	2	4008321955791	16	1300 ²	1100	LUMILUX Warm White	80...89	26	590	25
T8 LUMILUX ES 16W/840	2	4008321955777	16	1300 ²	1100	LUMILUX Cool White	80...89	26	590	25
T8 LUMILUX ES 32W/830	2	4008321339652	32	3000 ²	2500	LUMILUX Warm White	80...89	26	1200	25
T8 LUMILUX ES 32W/840	2	4008321339676	32	3000 ²	2500	LUMILUX Cool White	80...89	26	1200	25
T8 LUMILUX ES 51W/830	2	4008321339713	51	4800 ²	4200	LUMILUX Warm White	80...89	26	1500	25
T8 LUMILUX ES 51W/840	2	4008321339690	51	4800 ²	4200	LUMILUX Cool White	80...89	26	1500	25

Product reference	Fig. no.	Product number	W	lm ³		R _a	TUBE d [mm]	h max. [mm]	h2 max. [mm]	IEC h [mm]	
OSRAM DULUX® D ES											
DULUX D 16W/827 ES	3	4008321940773	16	1150	LUMILUX INTERNA	80...89	12	130	153	140	10
DULUX D 16W/830 ES	3	4008321940797	16	1150	LUMILUX Warm White	80...89	12	130	153	140	10
DULUX D 16W/840 ES	3	4008321940810	16	1150	LUMILUX Cool White	80...89	12	130	153	140	10
DULUX D 23W/827 ES	3	4008321940759	23	1750	LUMILUX INTERNA	80...89	12	149	172	160	10
DULUX D 23W/830 ES	3	4008321940711	23	1750	LUMILUX Warm White	80...89	12	149	172	160	10
DULUX D 23W/840 ES	3	4008321940735	23	1750	LUMILUX Cool White	80...89	12	149	172	160	10

	Switching cycle (on/off)	Average life ⁴ (ECG)	Service life (EVG)
All T5 LUMILUX HE ES	165'/15' (as per IEC)	20000 h	16000 h
All T5 LUMILUX HO ES	165'/15' (as per IEC)	24000 h	18000 h
	Switching cycle (on/off)	Average life ⁴ (CCG, LLG inductive)	Service life (CCG, LLG inductive)
All T8 LUMILUX ES	165'/15' (as per IEC)	15000 h	12000 h ⁵
All DULUX D ES	165'/15' (as per IEC)	10000 h	7500 h

¹ Maximum luminous flux at 35 °C

² Maximum luminous flux at 30 °C

³ Maximum luminous flux at 25 °C

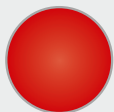
⁴ to EN 50285

⁵ Because of the low loss of light the service life of OSRAM LUMILUX® ES lamps is defined as the time when 10 % of the lamps have failed

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Suitable for ECG operation and emergency lighting systems



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- Not suitable for emergency lighting systems.
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Low ambient temperature (< 20 °C in the luminaire)



- Cold lamps flicker whenever they are started and operate fitfully.
- In this temperature range all the T8 energy-saving lamps available on the market provide about 50 % less light than standard T8 lamps because maximum luminous flux is provided at a temperature of around 30 °C.



High ambient temperature (> 30 °C in the luminaire) and operation on QT-FIT8 and conventional control gear



- Similar luminous flux as for BASIC lamps.
- Up to 14 % lower energy consumption.
- Flickerfree operation.
- In accordance with a safety risk analysis (EN 61347), operation with QT-FIT8 has been approved.

Product reference**Product number****OSRAM T8 LUMILUX® ES**

T8 LUMILUX ES 16W/830	4008321 955791	16	1300	1100	LUMILUX Warm White	80...89	26	590	25
T8 LUMILUX ES 16W/840	4008321 955777	16	1300	1100	LUMILUX Cool White	80...89	26	590	25
T8 LUMILUX ES 32W/830	4008321 339652	32	3000	2500	LUMILUX Warm White	80...89	26	1200	25
T8 LUMILUX ES 32W/840	4008321 339676	32	3000	2500	LUMILUX Cool White	80...89	26	1200	25
T8 LUMILUX ES 51W/830	4008321 339713	51	4800	4200	LUMILUX Warm White	80...89	26	1500	25
T8 LUMILUX ES 51W/840	4008321 339690	51	4800	4200	LUMILUX Cool White	80...89	26	1500	25

Switching cycle**Average life³
(CCG, LLG inductive)****Service life⁴
(CCG, LLG inductive)**

All T8 LUMILUX ES

165'/15' (as per IEC)

15000 h

12000 h

Product reference**Product number****OSRAM QT-FIT8**

QT-FIT8 1x18	4008321 294180
QT-FIT8 1x36	4008321 294203
QT-FIT8 1x58-70	4008321 294227
QT-FIT8 2x18	4008321 294241
QT-FIT8 2x36	4008321 294265
QT-FIT8 2x58-70	4008321 294289
QT-FIT8 3x18, 4x18	4008321 294302

¹ Maximum luminous flux at 35 °C² Maximum luminous flux at 25 °C³ to EN 50285⁴ Because of the low loss of light the service life of OSRAM LUMILUX® ES lamps is defined as the time when 10 % of the lamps have failed