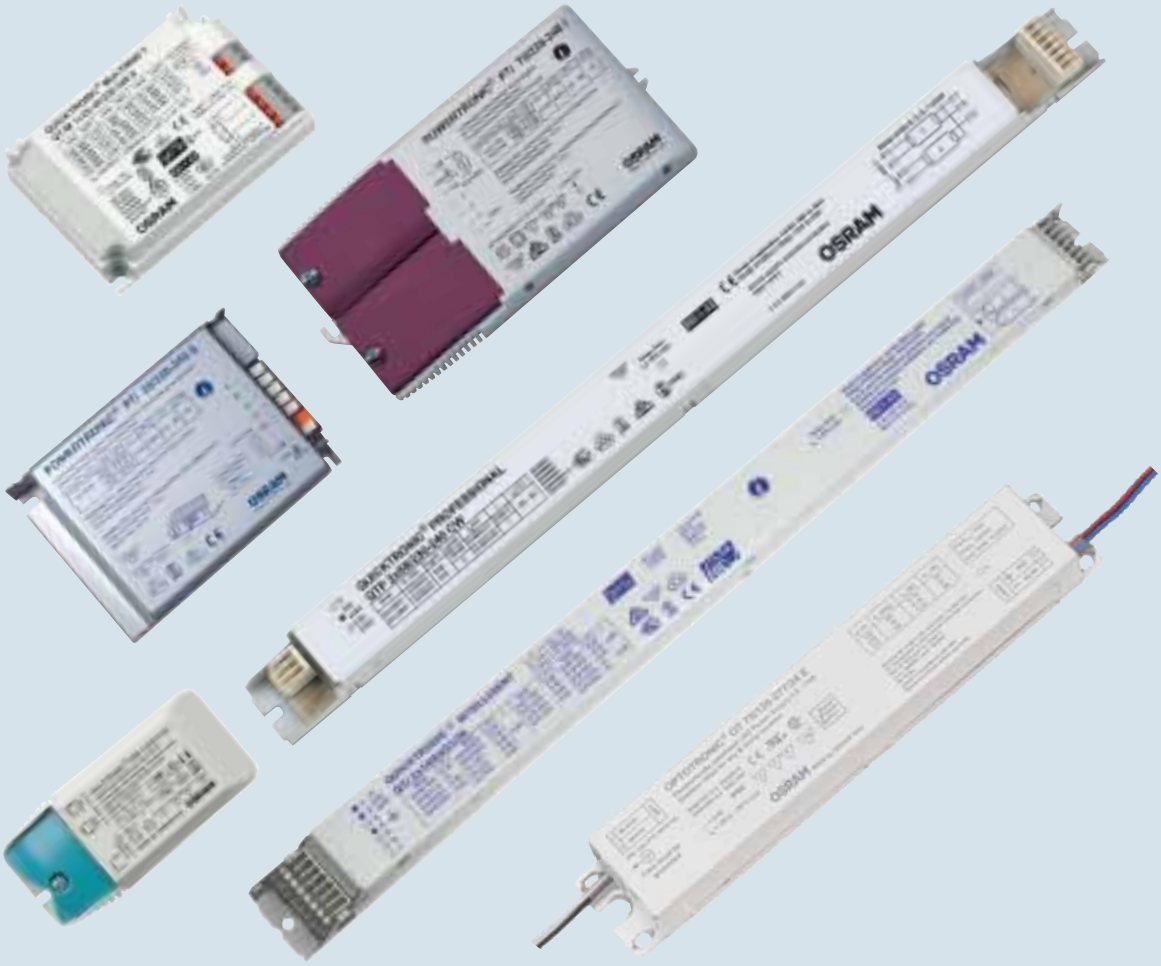


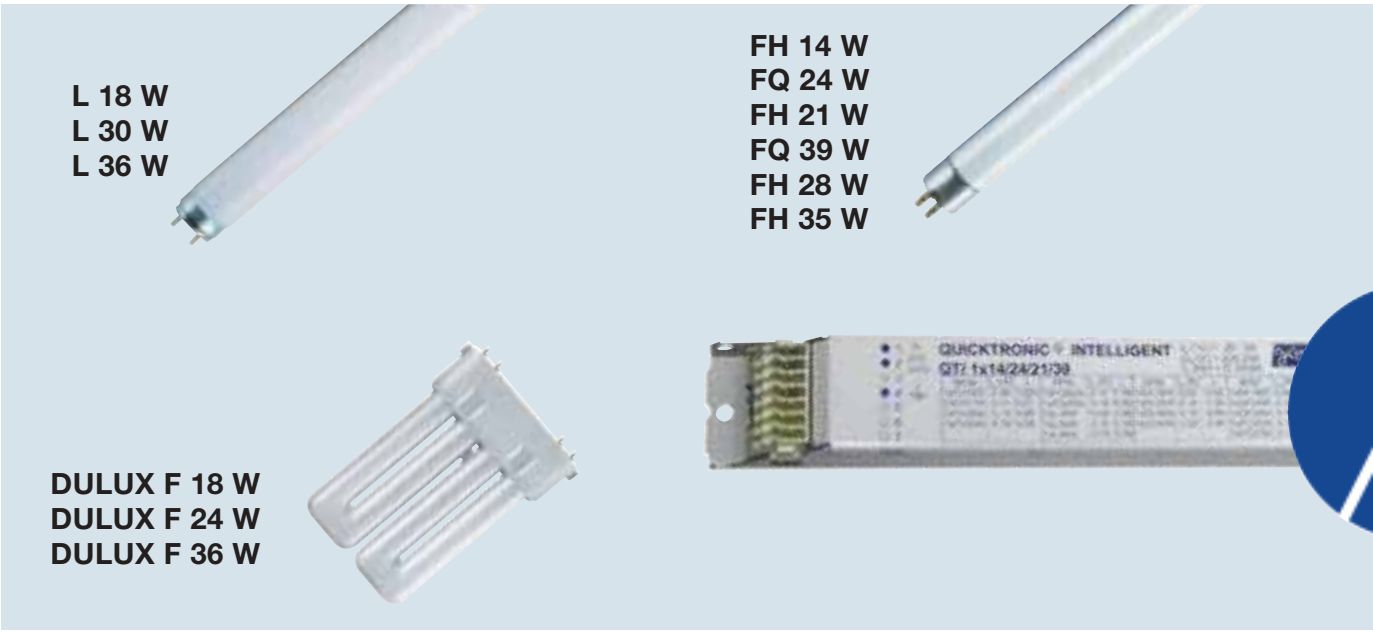
Electronic control gear in systems

The systematic way to get more light
In most cases, the lamp developments are effectively system developments as they also involve modern electronic control gear at every stage. This is the only way to achieve optimum operation of the lamp with maximum efficiency (e.g. cut-off technology for T5/16 mm lamps), perfect dimming with optimum lamp electrode heating and reliable shutdown, all essential particularly as light sources are smaller and hotter. There is therefore no chance of the system being incompatible, a problem that users have typically found annoying.

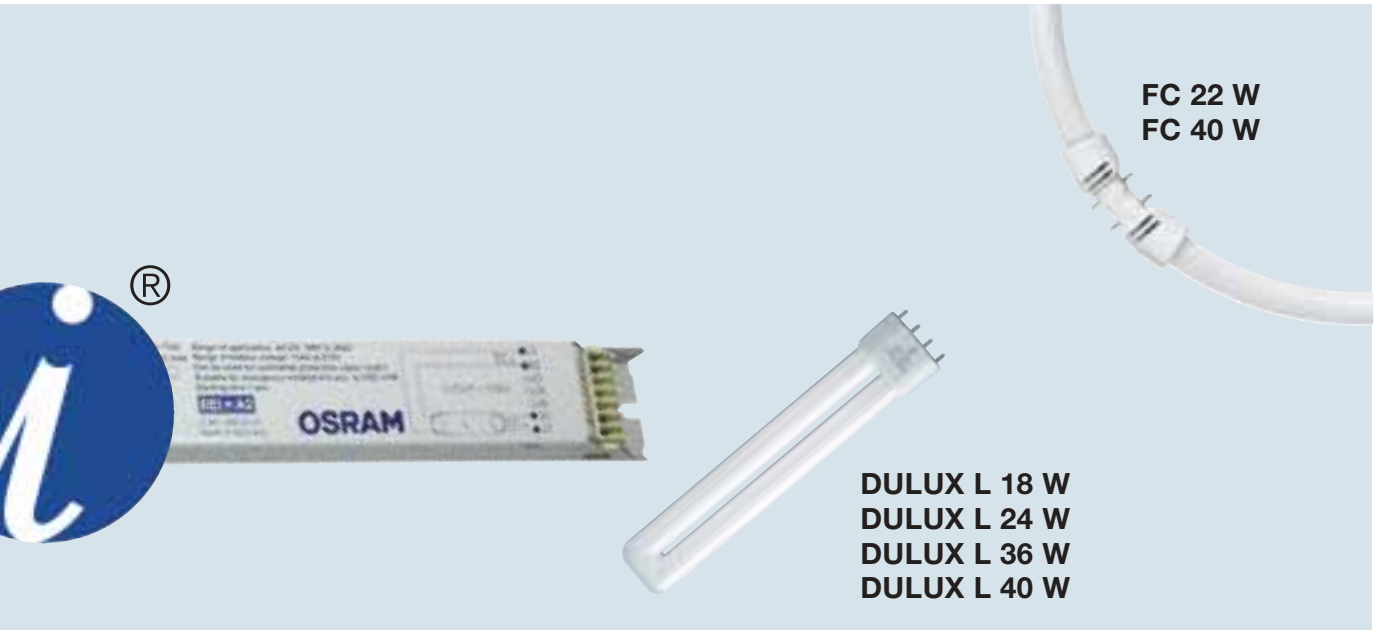
Intelligent electronics for greater simplicity
For OSRAM as a system manufacturer, it was essential – and still is – to develop control gear with an intelligent lamp detection function, such as QUICKTRONIC® INTELLIGENT. Intelligent ECGs have numerous benefits for OEMs, planners and end customers. They considerably reduce the number of different ECGs and at the same time increase the flexibility of the lighting systems for planners and end customers. Intelligent ECGs recognise the lamps and operate them under ideal conditions to ensure maximum possible service life. Hundreds of thousands of QUICKTRONIC® INTELLIGENT ECGs are now in use with great success.

Modern lighting control for maximum comfort and dynamic colour
Carefully matched systems from a single source are essential for trouble-free operation of fluorescent lamps and compact fluorescent lamp systems. QUICKTRONIC® dimmable ECGs offer reliable service wherever they are used – in efficient office lighting, floor-standing luminaires for individual task lighting, static lighting scenes or dynamic lighting sequences.
With its dimmable systems OSRAM aims to provide users with controls that are easy to use and cost-effective so that dimmable lighting can achieve broad market penetration. OSRAM's digital addressable control gear (DALI ECGs) in particular have been well received – and have already overtaken 1-10 V systems in terms of quantity installed. DALI ECGs not only provide a convenient means of controlling the lighting in individual rooms, they are also the perfect addition to BUS systems in large installations.

DALI



Contents



OSRAM control gear – millions of successful applications

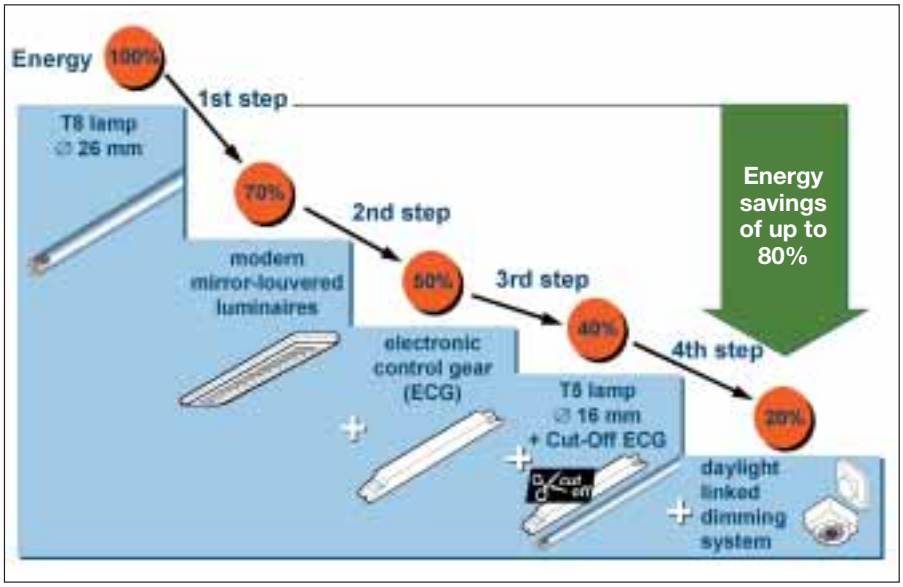
Reliable year in, year out

OSRAM ECGs have been successfully used for providing reliable energy-saving lighting for many many years in millions of applications in all the major sectors. OSRAM ECGs are the preferred choice of commercial users for permanent economical lighting in shops, offices and industry.

ECGs are setting new milestones in energy-efficient lighting

ECGs are making significant contributions to the energy efficiency of modern lighting systems because of their ability to operate lamps at high frequencies. T5 lamp technology in particular offers further considerable improvements in efficiency in all relevant applications. Dimmable QUICKTRONIC® INTELLIGENT ECGs with cut-off technology are setting new standards in energy efficiency and dimming quality.

The milestones of modern lighting.



ECGs have numerous benefits for users

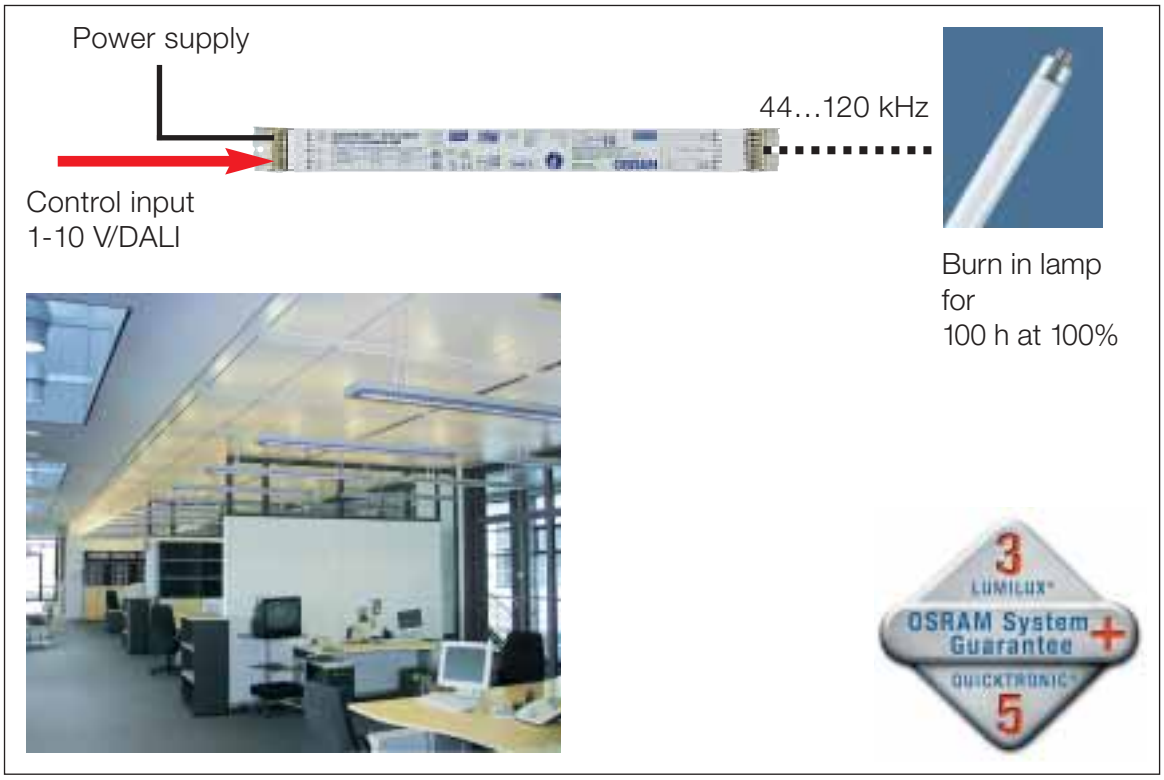
Low energy consumption is good not only for the economy of lighting systems but also for the environment. ECG operation extends lamp life, provides flicker-free light and flicker-free shutdown at end of life.

Reliability and trouble-free ECG operation

Compliance with relevant regulations is an important requirement for trouble-free ECG operation. OSRAM does more than the minimum requirement to ensure its ECGs have high pulse strength and that the ECG components have maximum durability. By erring on the side of caution in specifying the maximum permissible temperatures, OSRAM has built up an excellent reputation among luminaire manufacturers and users for quality. No wonder that the OSRAM System + Guarantee (3 years on selected OSRAM lamps and 5 years OSRAM ECGs) has met with such widespread approval.

QUICKTRONIC® INTELLIGENT dimmable QTi…DIM

The new generation of ECGs for intelligent flexible dimming applications



QTi dimmable – intelligent lamp detection and superior dimming technology in a 21 mm casing

Up to now, just about every fluorescent lamp needed its own dimmable ECG. Thanks to its intelligent lamp detection function for HE or HO lamps, QUICKTRONIC® INTELLIGENT can be used as the basis for versatile luminaire systems capable of operating HE or HO T5 lamps in one and the same luminaire. Other lamp types can be operated in addition to T5 lamps of the same length and wattage.

The following T5 lamp types can be operated on just one QTi DIM ECG in each case:

HE 14 W + HO 24 W	(549 mm)
HE 21 W + HO 39 W	(849 mm)
HE 28 W + HO 54 W	(1149 mm)
HE 35 W + HO 49 W + HO 80 W	(1449 mm)

QUICKTRONIC® INTELLIGENT QTi dimmable – DALI or 1-10 V interface

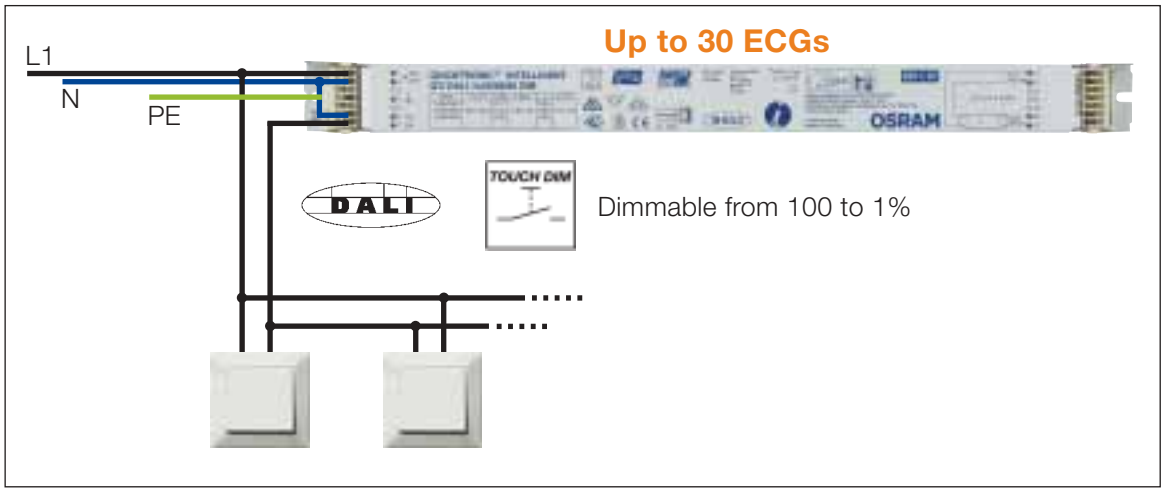
Dimmable QUICKTRONIC® INTELLIGENT ECGs are offered with a DALI or 1-10 V interface. Both versions ensure flicker-free operation of the lamps throughout the entire dimming range from 100 to 1%. The QTi DALI DIM units also feature the ***Touch DIM®*** function, which goes beyond the DALI standard and offers considerable benefits for a large number of dimming applications.

***Touch DIM®* – dimming without a dimmer**

The ***Touch DIM®*** functions on QTi DALI DIM ECGs enables dimming solutions to be created without the need for a dimmer switch or controller simply by connecting a conventional switch to the DALI interface. By double clicking it is even possible to store a brightness level for the lighting when it is next switched on.

Touch DIM® notes:[1)]

- Up to 30 ECGs can be controlled from one light switch
- Any number of control points (switches) can be provided
- The maximum overall control cable length is 25 m without protective circuits
- Cable lengths in excess of 25 m require a simple bell transformer
- Double-click for memory value
- Simple synchronisation by “long-short-long” switch activation



1) For detailed technical data please refer to the DALI Guide (order no. 130T011E)

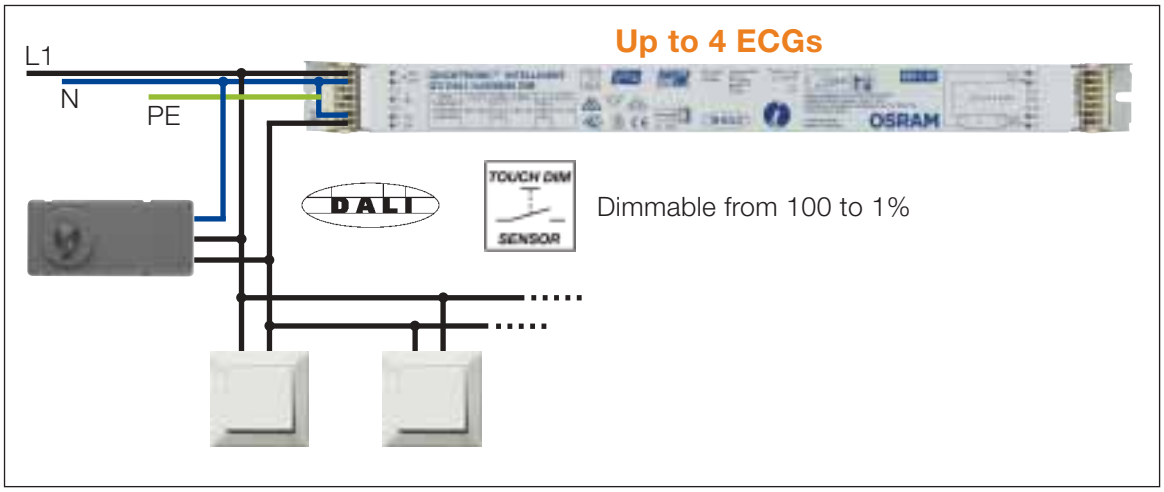
***Touch DIM® Sensor* – lighting management without a controller**

The ***Touch DIM® Sensor*** function enables a miniaturised combined light and motion sensor to be connected directly to QTi DALI ECGs.

This means that low-cost intelligent luminaires with daylight-dependent control and a presence function can be produced without the need for an additional controller.

Touch DIM® Sensor notes:

– Up to four QTi DALI or HTi DALI or OTi DALI ECGs can be connected to a ***Touch DIM® Sensor***
– The maximum overall control cable length is 10 m
– A setpoint for daylight-dependent control can be stored by double clicking



QTi 1-10 V and DALI DIM – superior ECG and dimming technology

Benefits at a glance

– Flicker-free lamp starting across the entire temperature range and at all dimmer settings
– Lamp start in 0.6 s
– Dimming range 100 to 1%
– Cut-off technology above 80% dimmer setting
– Gentle lamp starting → at least 250,000 lamp starts without any effect on lamp life
– Dimming has no effect on lamp life thanks to optimised control of filament preheating
– Safety shutdown of defective lamps thanks to End-of-Life detection (EOL, as per Test 2, asymmetrical power detection)
– Complies with valid European standards for safety, operation and electromagnetic compatibility (EMC)
– Suitable for use in emergency lighting systems with central batteries
– Suitable for rapid dimming in RGB applications with no adverse effect on lamp life

QTi DALI DIM – DALI or *Touch DIM*® in one unit

Additional benefits at a glance:

– Connection to lighting controllers/gateways with DALI interface or independent lighting management with ***Touch DIM***® function
– ***Touch DIM***® – dimming without a dimmers thanks to direct connection to conventional switches; double click to store the switch-on value
– ***Touch DIM***® ***Sensor*** – lighting management without a controller thanks to direct connection of a combined light and motion sensor

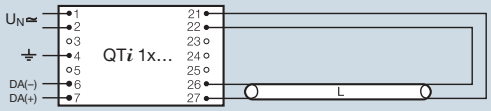
QTi 1-10 V and DALI DIM – superior ECG and dimming technology

Benefits for luminaire manufacturers at a glance:

– Intelligent lamp detection is the basis for intelligent versatile luminaires
– Intelligent lamp detection enables the number of ECG types needed to cover a wide range of different luminaires to be significantly reduced
– Uniform pin assignment for dimmable and non-dimmable ECGs and luminaire types
– Uniform casing geometry for 1-lamp and 2-lamp versions
– Super low-profile 21 mm casing for greater freedom in luminaire design
– Combined terminal for automatic or manual wiring
– Optimum energy balance in the luminaire thanks to cut-off technology
– Power regulation at excessive temperatures in the luminaire

Further product information is available on the internet at
www.osram.com/qti

QUICKTRONIC® INTELLIGENT DIMMABLE with DALI interface for HE and HO (T5/Ø 16 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for HE and HO lamps – single-lamp version						
QTi DALI 1x14/24/220-240 DIM	4050300**870380**	1xHE 14	198…264	154…276	53…120	0.07
		1xHO 24				0.11
		1xDL 24[4]				0.11
QTi DALI 1x21/39/220-240 DIM	4050300**870366**	1xHE 21	198…264	154…276	44…120	0.11
		1xHO 39				0.18
		1xDL 40				0.18
QTi DALI 1x28/54/220-240 DIM	4050300**870809**	1xHE 28	198…264	154…276	44…120	0.14
		1xHO 54				0.26
		1xDL 55				0.26
QTi DALI 1x35/49/80/220-240 DIM	4050300**870342**	1xHE 35	198…264	154…276	44…120	0.17
		1xHO 49				0.24
		1xHO 80				0.39
		1xDL 80				0.39

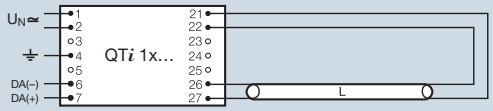
Product reference	λ	W SYSTEM [3]	lm [3][7]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 1x14/24/220-240 DIM	0.96	16	1x1200	+10…50	360	30	21	350	20	305
	0.98	26	1x1750							
	0.98	26	1x1800							
QTi DALI 1x21/39/220-240 DIM	0.96	24	1x1900	+10…50	360	30	21	350	20	305
	0.98	42	1x3100							
	0.98	42	1x3500							
QTi DALI 1x28/54/220-240 DIM	0.97	31	1x2600	+10…50	360	30	21	350	20	305
	0.99	59	1x4450							
	0.99	59	1x4800							
QTi DALI 1x35/49/80/220-240 DIM	0.96	38	1x3300	+10…50	360	30	21	350	20	305
	0.98	54	1x4300							
	0.99	88	1x6150							
	0.99	88	1x6000							

For general notes see page 11.09

For DALI product characteristics see page 11.09

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C
6) Lamp ignition only above 198 V
7) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® INTELLIGENT DIMMABLE with DALI interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for L lamps – single-lamp version						
QTi DALI 1x18/220-240 DIM	4050300**870403**	1xL 18	198…264	154…276	50…120	0.08
		1xDL 18[4]				
QTi DALI 1x36/220-240 DIM	4050300**870427**	1xL 36	198…264	154…276	50…120	0.16
		1xDL 36[4]				
QTi DALI 1x58/220-240 DIM	4050300**870823**	1xL 58	198…264	154…276	45…120	0.25

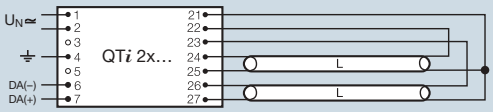
Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 1x18/220-240 DIM	0.97	18	1350	–20…+50	360	30	21	350	20	305
		18	1200	+10…50						
QTi DALI 1x36/220-240 DIM	0.97	36	3350	–20…+50	360	30	21	350	20	305
		36	2900	+10…50						
QTi DALI 1x58/220-240 DIM	0.99	56	5200	–20…+50	360	30	21	350	20	305

General:
- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Digitally controlled preheating
  - – Lamp start within 0.6 s
  - – Optimum preheating in any dimmer setting
  - – Cut-off above 80% luminous flux
- Dimming range 100 to 1%
- Automatic safety shutdown of lamps in the event of a defect or at end of life (EOL)
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A1
- Approval marks:
- Safety to IEC 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

DALI product features:
- Control via the DALI interface
- The control input of the DALI interface is protected against overvoltage and polarity reversal in all OSRAM ECGs
- ***Touch DIM®*** and ***Touch DIM® Sensor*** functions[7]

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V
7) ***Touch DIM®*** and ***Touch DIM® Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard

QUICKTRONIC® INTELLIGENT DIMMABLE with DALI interface for HE and HO (T5/Ø 16 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for HE and HO lamps – two-lamp version						
QTi DALI 2x14/24/220-240 DIM	4050300**870861**	2xHE 14	198…264	154…276	53…120	0.14
		2xHO 24				0.22
		2xDL 24[4]				0.22
QTi DALI 2x21/39/220-240 DIM	4050300**870489**	2xHE 21	198…264	154…276	44…120	0.21
		2xHO 39				0.36
		2xDL 40				0.36
QTi DALI 2x28/54/220-240 DIM	4050300**870502**	2xHE 28	198…264	154…276	44…120	0.27
		2xHO 54				0.51
		2xDL 55				0.51
QTi DALI 2x35/49/220-240 DIM	4050300**870465**	2xHE 35	198…264	154…276	44…120	0.33
		2xHO 49				0.45
QTi DALI 2x35/49/80/220-240 DIM[7]	4050300**870441**	2xHO 80	198…264	–	44…120	0.74
		2xDL 80				0.74
		2xHO 49				0.46
		2xHE 35				0.34

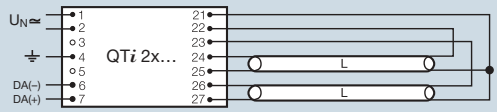
Product reference	λ	W SYSTEM [3]	lm [3][8]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 2x14/24/220-240 DIM	0.96	31	2x1200	+10…50	423	30	21	415	20	370
	0.96	50	2x1750							
	0.96	50	2x1800							
QTi DALI 2x21/39/220-240 DIM	0.96	45	2x1900	+10…50	423	30	21	415	20	370
	0.96	82	2x3100							
	0.97	82	2x3500							
QTi DALI 2x28/54/220-240 DIM	0.97	61	2x2600	+10…50	423	30	21	415	20	370
	0.98	115	2x4450							
	0.98	115	2x4800							
QTi DALI 2x35/49/220-240 DIM	0.95	75	2x3300	+10…50	423	30	21	415	20	370
	0.97	104	2x4300							
QTi DALI 2x35/49/80/220-240 DIM[7]	0.99	169	2x6150	+10…50	423	30	21	415	20	400
	0.99	169	2x6000							
	0.97	102	2x4300							
	0.95	74	2x3300							

For general notes see page 11.11

For DALI product characteristics see page 11.11

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C
6) Lamp ignition only above 198 V
7) Type with special thermal properties, available 3rd quarter of 2006
8) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® INTELLIGENT DIMMABLE with DALI interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for L lamps – two-lamp version						
QTi DALI 2x18/220-240 DIM	4050300**870526**	2xL 18	198…264	154…276	50…120	0.16
		2xDL 18[4]				0.16
QTi DALI 2x36/220-240 DIM	4050300**870885**	2xL 36	198…264	154…276	50…120	0.31
		2xDL 36[4]				0.31
QTi DALI 2x58/220-240 DIM	4050300**870847**	2xL 58	198…264	154…276	45…120	0.47

Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 2x18/220-240 DIM	0.97	37	2x1350	–20…+50	423	30	21	415	20	370
	0.97	37	2x1200	+10…50						
QTi DALI 2x36/220-240 DIM	0.98	69	2x3350	–20…+50	423	30	21	415	20	370
	0.98	69	2x2900	+10…50						
QTi DALI 2x58/220-240 DIM	0.99	108	2x5200	–20…+50	423	30	21	415	20	370

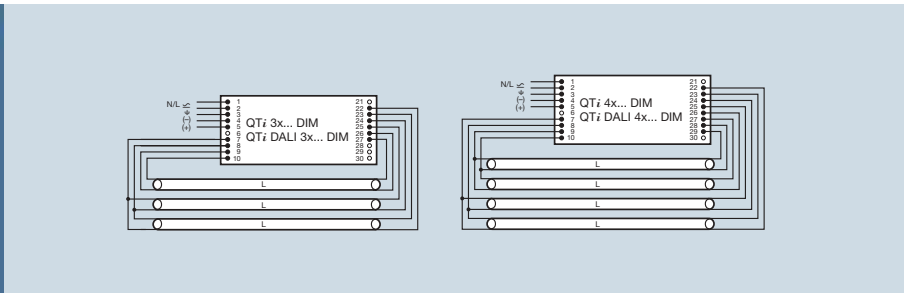
General:
- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Digitally controlled preheating
  - – Lamp start within 0.6 s
  - – Optimum preheating in any dimmer setting
  - – Cut-off above 80% luminous flux
- Dimming range 100 to 1% luminous flux
- Automatic safety shutdown of lamps in the event of a defect or at end of life (EOL)
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A1
- Approval marks:
- Safety to IEC 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

DALI product features:
- Control via the DALI interface
- The control input of the DALI interface is protected against overvoltage and polarity reversal in all OSRAM ECGs
- ***Touch DIM®*** and ***Touch DIM® Sensor*** functions[7]

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps

5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V
7) ***Touch DIM®*** and ***Touch DIM® Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard

QUICKTRONIC® INTELLIGENT DIMMABLE with DALI interface for HE and HO (T5/Ø 16 mm) and L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for HE and HO lamps – three and four-lamp versions						
QTi DALI 3x14/24/220-240 DIM	4008321**069955**	3xHE 14	198…264	154…276	40…100	0.20
		3xHO 24				0.32
		3xDL 24 [7]				0.32
QTi DALI 4x14/24/220-240 DIM	4008321**070036**	4xHE 14	198…264	154…276	40…100	0.27
		4xHO 24				0.43
		4xDL 24 [7]				0.43

Product reference	λ	W SYSTEM [3]	lm [4]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 3x14/24/220-240 DIM	0.97	46	3x1200	+10…50	360	40	21	350	20	420
	0.99	74	3x1750	+10…50						
	0.99	74	3x1800	+10…50						
QTi DALI 4x14/24/220-240 DIM	0.97	61	4x1200	+10…50	360	40	21	350	20	420
	0.99	98	4x1750	+10…50						
	0.99	98	4x1800	+10…50						

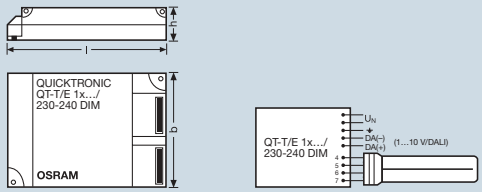
Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT DALI for L lamps – three and four-lamp versions						
QTi DALI 3x18/220-240 DIM	4008321**069979**	3xL 18	198…264	154…276	40…100	0.24
		3xDL 18 [7]				0.24
QTi DALI 4x18/220-240 DIM	4008321**070050**	4xL 18	198…264	154…276	40…100	0.31
		4xDL 18 [7]				0.31

Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi DALI 3x18/220-240 DIM	0.98	54	3x1350	–20…+50	360	40	21	350	20	420
	0.98	54	3x1200	+10…50						
QTi DALI 4x18/220-240 DIM	0.98	70	4x1350	–20…+50	360	40	21	350	20	420
	0.98	70	4x1200	+10…50						

For general notes see page 11.11
For DALI product characteristics see page 11.11

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V
7) For DL and DF lamps

QUICKTRONIC® DIMMABLE with DALI interface for T/E fluorescent lamps



Product reference	Product number			V min.-max.[1]	V min.-max.	kHz ECG[2]	A[3]
QUICKTRONIC® DALI for T/E (T4/Ø 12 mm) lamps – single-lamp version							
QT DALI-T/E 1x18/230-240 DIM	4050300**946849**	DT/E 18, DD/E 18		198…254	176…254	40…95	0.10
QT DALI-T/E 1x26-42/230-240 DIM	4050300**946887**	DD/E 26, DT/E 26		198…254	176…254	40…95	0.14
		DT/E 32					0.16
		DT/E 42					0.22

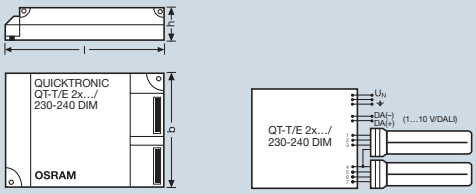
Product reference	λ	W SYSTEM[3]	lm[3]	°C min.-max.[4]	l [mm]	b [mm]	h [mm]	a mm		g
QT DALI-T/E 1x18/230-240 DIM	0.98	20	1150	+10…55	123	79	33	129.5	12	190
QT DALI-T/E 1x26-42/230-240 DIM	0.98	28	1750	+10…50	123	79	33	129.5	12	190
		36	2400							
		46	3200							

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: warm start within 2 s
- Dimmable from 100% to 3% luminous flux
- Lamp start from any dimmer setting throughout the temperature range
- Constant output during mains voltage fluctuations
- Same luminous flux with direct and alternating current
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

DALI product features:
- Control via DALI interface (Digital Addressable Lighting Interface)
- The control input of the DALI interface is protected against overvoltage and polarity reversal in all OSRAM ECGs
- With ***Touch DIM***® function[6]

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) System temperature (lamp and ECG) without any restriction on the dimming range
5) Not suitable for amalgam lamps
6) ***Touch DIM***® and ***Touch DIM® Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard

QUICKTRONIC® DIMMABLE with DALI interface for T/E fluorescent lamps



Product reference	Product number			V min.-max. 1)	V min.-max.	kHz ECG 2)	A 3)
QUICKTRONIC® DALI for T/E (T4/Ø 12 mm) lamps – two-lamp version							
QT DALI-T/E 2x18/230-240 DIM	4050300**666075**	2x DT/E 18, DD/E 18		198…254	176…254	40…95	0.17
QT DALI-T/E 2x26-42/230-240 DIM	4050300**666099**	2x DT/E 26, 2x DD/E 26		198…254	176…254	40…95	0.24
		2x DT/E 32					0.32
		2x DT/E 42					0.40

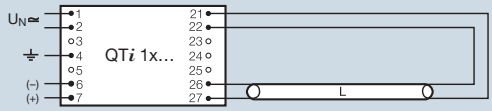
Product reference	λ	W SYSTEM 3)	lm 3)	°C min.-max. 4)	l [mm]	b [mm]	h [mm]	a mm		g
QT DALI-T/E 2x18/230-240 DIM	0.98	37	2x1200	+10…55	158	102	38	171	9	280
QT DALI-T/E 2x26-42/230-240 DIM	0.98	53	2x1800	+10…50	158	102	38	171	9	320
		72	2x2400							
		91	2x3200							

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: warm start within 2 s
- Dimmable from 100% to 3% luminous flux
- Lamp start from any dimmer setting throughout the temperature range
- Constant output during mains voltage fluctuations
- Same luminous flux with direct and alternating current
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

DALI product features:
- Control via DALI interface (Digital Addressable Lighting Interface)
- The control input of the DALI interface is protected against overvoltage and polarity reversal in all OSRAM ECGs
- With ***Touch DIM***® function[6]

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) System temperature (lamp and ECG) without any restriction on the dimming range
5) Not suitable for amalgam lamps
6) ***Touch DIM***® and ***Touch DIM® Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard

QUICKTRONIC® INTELLIGENT DIMMABLE with 1-10 V interface for HE and HO (T5/Ø 16 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for HE and HO lamps – single-lamp version						
QTi 1x14/24/220-240 DIM	4050300**870922**	1xHE 14	198…264	154…276	53…120	0.07
		1xHO 24				0.11
		1xDL 24[4]				0.11
QTi 1x21/39/220-240 DIM	4050300**870564**	1xHE 21	198…264	154…276	44…120	0.11
		1xHO 39				0.18
		1xDL 40				0.18
QTi 1x28/54/220-240 DIM	4050300**870588**	1xHE 28	198…264	154…276	44…120	0.14
		1xHO 54				0.26
		1xDL 55				0.26
QTi 1x35/49/80/220-240 DIM	4050300**870540**	1xHE 35	198…264	154…276	44…120	0.17
		1xHO 49				0.24
		1xHO 80				0.39
		1xDL 80				0.39

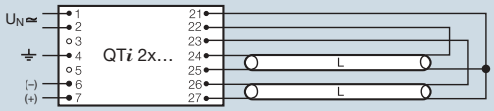
Product reference	λ	W SYSTEM [3]	lm [3][7]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 1x14/24/220-240 DIM	0.96	16	1x1200	+10…50	360	30	21	350	20	305
	0.98	26	1x1750							
	0.98	26	1x1800							
QTi 1x21/39/220-240 DIM	0.96	24	1x1900	+10…50	360	30	21	350	20	305
	0.98	42	1x3100							
	0.98	42	1x3500							
QTi 1x28/54/220-240 DIM	0.97	31	1x2600	+10…50	360	30	21	350	20	305
	0.99	59	1x4450							
	0.99	59	1x4800							
QTi 1x35/49/80/220-240 DIM	0.96	38	1x3300	+10…50	360	30	21	350	20	305
	0.98	54	1x4300							
	0.99	88	1x6150							
	0.99	88	1x6000							

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Digitally controlled preheating
  - Lamp start within 0.6 s
  - Optimum preheating in any dimmer setting
  - Cut-off above 80% luminous flux
- Dimming range 100 to 1% luminous flux
- Automatic safety shutdown of lamps in the event of a defect or at end of life (EOL)
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A1
- Approval marks:
- Safety to IEC 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Control via the 1-10 V interface

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C
6) Lamp ignition only above 198 V
7) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® INTELLIGENT DIMMABLE with 1-10 V interface for HE and HO (T5/Ø 16 mm) fluorescent lamps



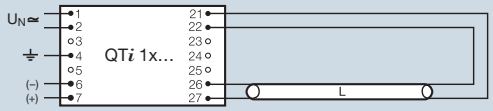
Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for HE and HO lamps – two-lamp version						
QTi 2x14/24/220-240 DIM	4050300**870946**	2xHE 14	198…264	154…276	53…120	0.14
		2xHO 24				0.22
		2xDL 24[4]				0.22
QTi 2x21/39/220-240 DIM	4050300**870694**	2xHE 21	198…264	154…276	44…120	0.21
		2xHO 39				0.36
		2xDL 40				0.36
QTi 2x28/54/220-240 DIM	4050300**870717**	2xHE 28	198…264	154…276	44…120	0.27
		2xHO 54				0.51
		2xDL 55				0.51
QTi 2x35/49/220-240 DIM	4050300**870670**	2xHE 35	198…264	154…276	44…120	0.33
		2xHO 49				0.45
QTi 2x35/49/80/220-240 DIM[8]	4050300**870984**	2xHO 80	198…264	–	44…120	0.74
		2xDL 80				0.74
		2xHO 49				0.46
		2xHE 35				0.34

Product reference	λ	W SYSTEM [3]	lm [3][7]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 2x14/24/220-240 DIM	0.96	31	2x1200	+10…50	423	30	21	415	20	370
	0.96	50	2x1750							
	0.96	50	2x1800							
QTi 2x21/39/220-240 DIM	0.96	45	2x1900	+10…50	423	30	21	415	20	370
	0.96	82	2x3100							
	0.97	82	2x3500							
QTi 2x28/54/220-240 DIM	0.97	61	2x2600	+10…50	423	30	21	415	20	370
	0.98	115	2x4450							
	0.98	115	2x4800							
QTi 2x35/49/220-240 DIM	0.95	75	2x3300	+10…50	423	30	21	415	20	370
	0.97	104	2x4300							
QTi 2x35/49/80/220-240 DIM[8]	0.99	169	2x6150	+10…50	423	30	21	415	20	400
	0.99	169	2x6000							
	0.97	102	2x4300							
	0.95	74	2x3300							

For general notes see page 11.17

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C
6) Lamp ignition only above 198 V
7) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
8) Type with special thermal properties, available 3rd quarter of 2006

QUICKTRONIC® INTELLIGENT DIMMABLE with 1-10 V interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for L lamps – single-lamp version						
QTi 1x18/220-240 DIM	4050300**870601**	1xL 18	198…264	154…276	50…120	0.08
		1xDL 18[4]				
QTi 1x36/220-240 DIM	4050300**870625**	1xL 36	198…264	154…276	50…120	0.16
		1xDL 36[4]				
QTi 1x58/220-240 DIM	4050300**870908**	1xL 58	198…264	154…276	45…120	0.25

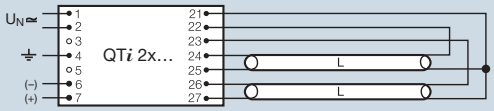
Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 1x18/220-240 DIM	0.97	18	1350	–20…+50	360	30	21	350	20	305
		18	1200	+10…50						
QTi 1x36/220-240 DIM	0.97	36	3350	–20…+50	360	30	21	350	20	305
		36	2900	+10…50						
QTi 1x58/220-240 DIM	0.99	56	5200	–20…+50	360	30	21	350	20	305

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Digitally controlled preheating
  - Lamp start within 0.6 s
  - Optimum preheating in any dimmer setting
  - Cut-off above 80% luminous flux
- Dimming range 100 to 1% luminous flux
- Automatic safety shutdown of lamps in the event of a defect or at end of life (EOL)
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A1
- Approval marks:
- Safety to IEC 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Control via the 1-10 V interface

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V

QUICKTRONIC® INTELLIGENT DIMMABLE with 1-10 V interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for L lamps – two-lamp version						
QTi 2x18/220-240 DIM	4050300**870960**	2xL 18	198…264	154…276	50…120	0.16
		2xDL 18[4]				0.16
QTi 2x36/220-240 DIM	4050300**870755**	2xL 36	198…264	154…276	50…120	0.31
		2xDL 36[4]				0.31
QTi 2x58/220-240 DIM	4050300**870731**	2xL 58	198…264	154…276	45…120	0.47

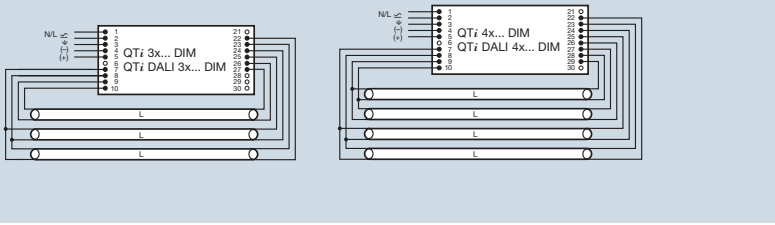
Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 2x18/220-240 DIM	0.97	37	2x1350	–20…+50	423	30	21	415	20	370
	0.97	37	2x1200	+10…50						
QTi 2x36/220-240 DIM	0.98	69	2x3350	–20…+50	423	30	21	415	20	370
	0.98	69	2x2900	+10…50						
QTi 2x58/220-240 DIM	0.99	108	2x5200	–20…+50	423	30	21	415	20	370

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Digitally controlled preheating
  - – Lamp start within 0.6 s
  - – Optimum preheating in any dimmer setting
  - – Cut-off above 80% luminous flux
- Dimming range 100 to 1% luminous flux
- Automatic safety shutdown of lamps in the event of a defect or at end of life (EOL)
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A1
- Approval marks:
- Safety to IEC 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Control via the 1-10 V interface

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) For DL and DF lamps
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V

QUICKTRONIC® INTELLIGENT DIMMABLE with 1-10 V interface for HE and HO (T5/Ø 16 mm) and L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for HE and HO lamps – three and four-lamp versions						
QTi 3x14/24/220-240 DIM	4008321**069719**	3xHE 14	198…264	154…276	40…100	0.20
		3xHO 24				0.32
		3xDL 24[7]				0.32
QTi 4x14/24/220-240 DIM	4008321**069993**	4xHE 14	198…264	154…276	40…100	0.27
		4xHO 24				0.43
		4xDL 24[7]				0.43

Product reference	λ	W SYSTEM [3]	lm [3][4]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 3x14/24/220-240 DIM	0.97	46	3x1200	+10…50	360	40	21	350	20	420
	0.99	74	3x1750	+10…50						
	0.99	74	3x1800	+10…50						
QTi 4x14/24/220-240 DIM	0.97	61	4x1200	+10…50	360	40	21	350	20	420
	0.99	98	4x1750	+10…50						
	0.99	98	4x1800	+10…50						

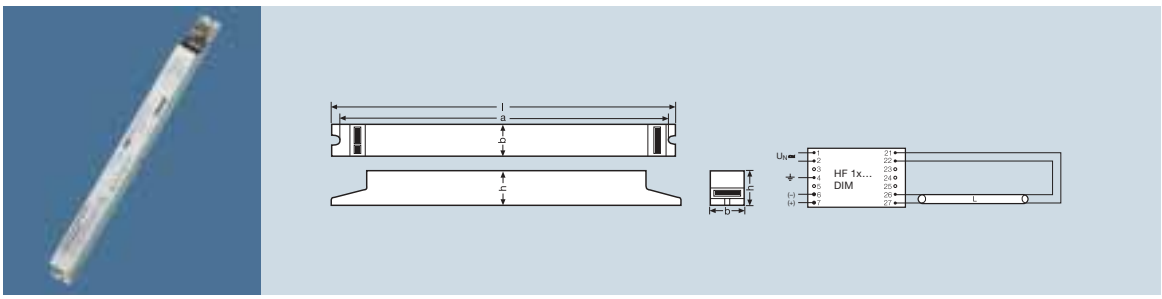
Product reference	Product number		V min.-max. [1]	V min.-max. [6]	kHz ECG [2]	A [3]
QUICKTRONIC® INTELLIGENT for L lamps – three and four-lamp versions						
QTi 3x18/220-240 DIM	4008321**069931**	3xL 18	198…264	154…276	40…100	0.24
		3xDL 18[7]				0.24
QTi 4x18/220-240 DIM	4008321**070012**	4xL 18	198…264	154…276	40…100	0.31
		4xDL 18[7]				0.31

Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [5]	l [mm]	b [mm]	h [mm]	a mm		g
QTi 3x18/220-240 DIM	0.98	54	3x1350	–20…+50	360	40	21	350	20	420
	0.98	54	3x1200	+10…50						
QTi 4x18/220-240 DIM	0.98	70	4x1350	–20…+50	360	40	21	350	20	420
	0.98	70	4x1200	+10…50						

For general notes see page 11.18

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
5) System temperature (lamp and ECG) without any restriction on the dimming range. Undimmed system temperature –20 °C to +50 °C for T5 lamps and –25 °C to +50 °C for T8 lamps
6) Lamp ignition only above 198 V
7) For DL and DF lamps

QUICKTRONIC® DIMMABLE with 1-10 V interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max. [3]	V min.-max.	kHz ECG	A [1]
QUICKTRONIC® DE LUXE DIMMABLE – single-lamp version						
HF 1x18/230-240 DIM	4050300**319254**	L 18	198…264	154…276	40…100	0.09
HF 1x36/230-240 DIM	4050300**297705**	L 36	198…264	154…276	40…100	0.17
		DL 36[2]				
HF 1x58/230-240 DIM	4050300**297729**	L 58	198…264	154…276	40…100	0.25
		DL 55				

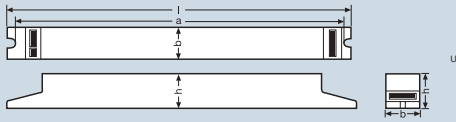
Product reference	λ	W SYSTEM [1]	lm [1]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
HF 1x18/230-240 DIM	0.95	19	1300	0…50	360	30	30	350	20	300
HF 1x36/230-240 DIM	0.97	36	3200	0…50	360	30	30	350	20	300
			2800	+15…50						
HF 1x58/230-240 DIM	0.98	56	5000	0…50	360	30	30	350	20	300
			4800	+15…50						

General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: warm start within 0.6 s
- Dimming range: 100 to 1% luminous flux
- Lamp start from any dimmer setting
- Same luminous flux with direct and alternating current
- The battery voltage may drop to 154 V. The lamps must be ignited at over 198 V
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) At 100% luminous flux
2) For DL and DF lamps
3) Sinusoidal supply voltage

QUICKTRONIC® DIMMABLE with 1-10 V interface for L (T8/Ø 26 mm) fluorescent lamps



Product reference	Product number		V min.-max.[4]	V min.-max.	kHz ECG	A[1]
QUICKTRONIC® DE LUXE DIMMABLE – two-lamp version						
HF 2x18/230-240 DIM[2]	4050300**350950**	2xL 18	198…264	154…276	40…100	0.17
HF 2x36/230-240 DIM[2]	4050300**350974**	2xL 36	198…264	154…276	40…100	0.31
		2xDL 36[3]				
HF 2x58/230-240 DIM[2]	4050300**350998**	2xL 58	198…264	154…276	40…100	0.48
		2xDL 55				

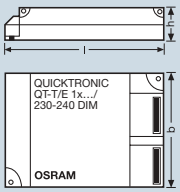
Product reference	λ	W SYSTEM[1]	lm[1]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
HF 2x18/230-240 DIM[2]	0.97	36	2x1300	0…50	423	30	30	415	20	430
HF 2x36/230-240 DIM[2]	0.99	71	2x3200	0…50	423	30	30	415	20	430
			2x2800	+15…50						
HF 2x58/230-240 DIM[2]	0.99	111	2x5000	0…50	423	30	30	415	20	430
			2x4800	+15…50						

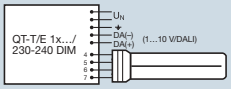
General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: warm start within 0.6 s
- Dimming range: 100 to 1% luminous flux
- Lamp start from any dimmer setting
- Same luminous flux with direct and alternating current
- The battery voltage may drop to 154 V. The lamps must be ignited at over 198 V
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) At 100% luminous flux
2) Connections 24–27 must be the same length (max. difference of 5 cm), otherwise there may be differences in brightness
3) For DL and DF lamps
4) Sinusoidal supply voltage

QUICKTRONIC® DIMMABLE with 1-10 V interface for OSRAM DULUX® D/E and T/E fluorescent lamps





Product reference	Product number	[5]	V min.-max. [1]	V min.-max.	kHz ECG [2]	A [3]
QT-T/E 1x18/230-240 DIM	4008321**124722**	1xDD/E 18, DT/E 18	198…254	176…254	40…95	0.10
QT-T/E 1x26-42/230-240 DIM	4008321**124746**	1xDD/E 26, DT/E 26	198…254	176…254	40…95	0.14
		1xDT/E 32				0.16
		1xDT/E 42				0.22

Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [4]	l [mm]	b [mm]	h [mm]	a mm		g
QT-T/E 1x18/230-240 DIM	0.98	20	1x1150	+10…55	123	79	33	129.5	12	190
QT-T/E 1x26-42/230-240 DIM	0.98	28	1x1750	+10…50	123	79	33	129.5	12	190
		36	1x2400							
		46	1x3200							

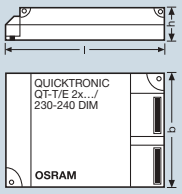
Maximum cable cross-section at the terminals: 1.5 mm²
Max. 0.6 mA at the 1-10 V interface

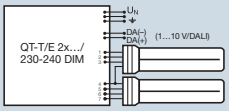
General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 2 s with optimum electrode preheating
- Dimming range 100 to 3%
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V however
- Lamp start from any dimmer setting
- Same luminous flux with direct and alternating current
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) System temperature (lamp and ECG) without any restriction on the dimming range
5) Not suitable for amalgam lamps

QUICKTRONIC® DIMMABLE with 1-10 V interface for OSRAM DULUX® D/E and T/E fluorescent lamps





Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG [2]	A [3]
QT-T/E 2x18/230-240 DIM	4050300**665443**	2xDD/E 18, DT/E 18	198…254	176…254	40…95	0.17
QT-T/E 2x26-42/230-240 DIM	4050300**666112**	2xDD/E 26, DT/E 26	198…254	176…254	40…95	0.23
		2xDT/E 32				0.30
		2xDT/E 42				0.38

Product reference	λ	W SYSTEM [3]	lm [3]	°C min.-max. [4]	l [mm]	b [mm]	h [mm]	a mm		g
QT-T/E 2x18/230-240 DIM	0.98	37	2x1200	+10…55	158	102	38	171	9	280
QT-T/E 2x26-42/230-240 DIM	0.98	53	2x1800	+10…50	158	102	38	171	9	320
		72	2x2400							
		91	2x3200							

General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 2 s with optimum electrode preheating
- Dimming range 100 to 3%
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V however
- Lamp start from any dimmer setting
- Same luminous flux with direct and alternating current
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Depending on the lamp used
3) At 100% luminous flux
4) System temperature (lamp and ECG) without any restriction on the dimming range

The right control gear for every application

Users will be looking more and more to electronic control gear particular since the ban on conventional control gear that came into force in November 2005. OSRAM can offer the right electronic control gear whatever the application and whatever the requirements.

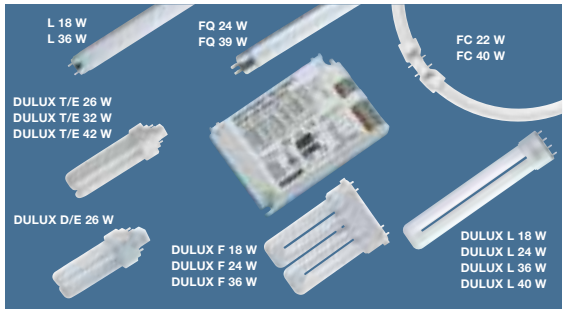
For tubular fluorescent lamps T5/16 mm:

– QUICKTRONIC® INTELLIGENT QTi, over 50% fewer ECG types but greater flexibility in lighting systems thanks to intelligent lamp detection. Up to three lighting levels can be provided from a single luminaire.
– QUICKTRONIC® PROFESSIONAL T5 QTP5, the new long-life hot restart ECG family
– QUICKTRONIC® QT-FC and QT-M, the compact control gear for small T5 circular lamps (FC)

For tubular fluorescent lamps T8/26 mm:

– QUICKTRONIC® PROFESSIONAL T8 QTP8, the incredibly successful hot restart ECG
– QUICKTRONIC® INSTANT START QTIS e, the cost-effective energy-saving ECG for applications in which lamps are switched on and off only infrequently

– QUICKTRONIC® ECONOMIC, the electronic alternative to CCGs. With hot restart and CCG geometry as a direct replacement for conventional control gear in luminaires.



For tubular fluorescent lamps T2/7 mm:

– QUICKTRONIC® QT-FM, the reliable slim low-profile ECG in casing and board versions for reliable operation of FM-T2 miniature fluorescent lamps

– QUICKTRONIC® ECONOMIC, the economical alternative in short higher design for new FM-T2 lamps

For compact fluorescent lamps:

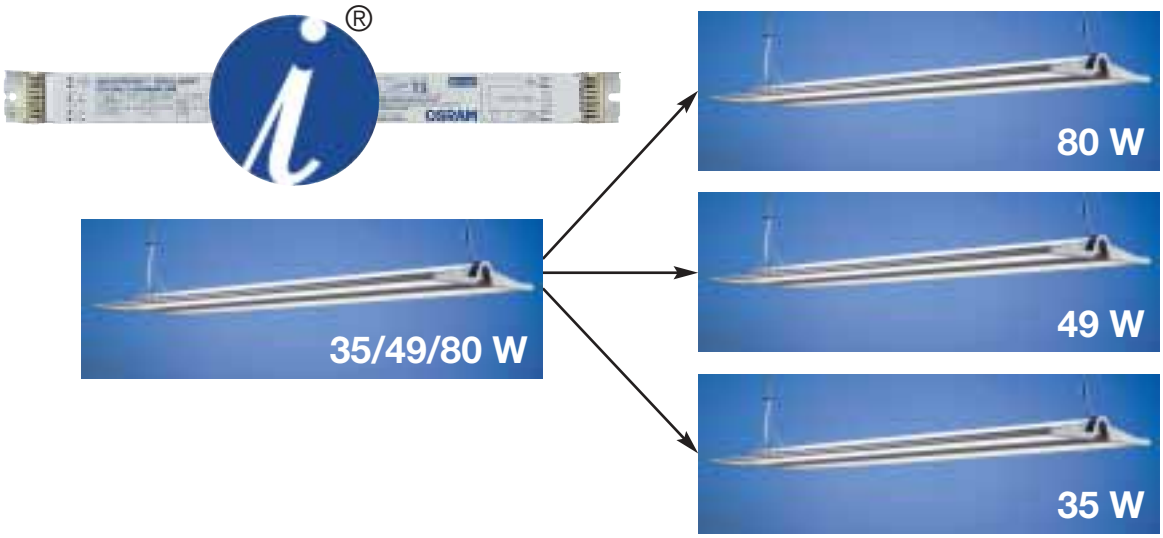
– QUICKTRONIC® INTELLIGENT QTi, one ECG covering 26 to 120 W thanks to intelligent lamp detection

– QUICKTRONIC® MULTIWATT QT-M, the universal hot restart ECG for up to 17 department lamp types

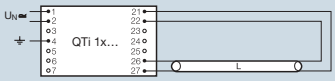
– QUICKTRONIC® ECONOMIC, the electronic alternative to CCGs. With hot restart and CCG geometry as a direct replacement for conventional control gear in luminaires.
With QUICKTRONIC® ECONOMIC it is possible to upgrade a large number of luminaires to energy-efficient operation quickly, easily and economically.

– QUICKTRONIC® PROFESSIONAL for OSRAM DULUX® L and F from 18 to 55 W, QUICKTRONIC® for OSRAM DULUX® T/E, D/E and S/E from 5 to 70 W.

1 luminaire type with QTi



QUICKTRONIC® INTELLIGENT QTi for HE and HO (T5/Ø 16 mm) fluorescent lamps



Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® INTELLIGENT for HE and HO lamps – single-lamp version						
QTi 1x14/24/21/39	4050300**796871**	1xHE 14	198…264	176…264	45…70	0.09
		1xHO 24				0.13
		1xHE 21				0.12
		1xHO 39				0.19
QTi 1x28/54	4050300**796857**	1xHE 28	198…264	176…264	45…70	0.15
		1xHO 54				0.27
QTi 1x35/49/80	4050300**796833**	1xHE 35	198…264	176…264	45…70	0.16
		1xHO 49				0.25
		1xHO 80				0.40
		1xDL 80				0.40

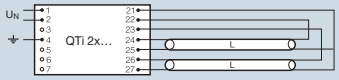
Product reference	λ	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTi 1x14/24/21/39	0.97	16	1200	–20…+50	360	30	21	350	20	310
	0.98	27	1600							
	0.98	25	1900							
	0.98	43	3100							
QTi 1x28/54	0.98	32	2600	–20…+50	360	30	21	350	20	310
	0.99	61	4450							
QTi 1x35/49/80	0.97	39	3300	–20…+50	360	30	21	350	20	310
	0.98	55	4300							
	0.98	91	6150							
	0.98	91	6000							

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 1 s with optimum electrode preheating
- Same luminous flux with direct and alternating current; the battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for luminaires of protection classes I and II
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32



Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® INTELLIGENT for HE and HO lamps – two-lamp version						
QTi 2x14/24/21/39	4050300**797090**	2xHE 14	198…264	176…264	45…70	0.15
		2xHO 24				0.24
		2xHE 21				0.21
		2xHO 39				0.39
QTi 2x28/54	4050300**797076**	2xHE 28	198…264	176…264	45…70	0.29
		2xHO 54				0.53
QTi 2x35/49	4050300**796895**	2xHE 35	198…264	176…264	45…70	0.35
		2xHO 49				0.48

Product reference	λ	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTi 2x14/24/21/39	0.97	32	2x1200	–20…+50	423	30	21	415	20	390
	0.98	54	2x1750							
	0.98	47	2x1900							
	0.98	88	2x3100							
QTi 2x28/54	0.98	63	2x2600	–20…+50	423	30	21	415	20	390
	0.99	119	2x4450							
QTi 2x35/49	0.97	79	2x3300	–20…+50	423	30	21	415	20	390
	0.98	110	2x4300							

General:

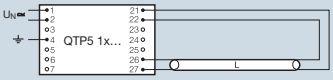
- Supply voltage: 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 1 s with optimum electrode preheating
- Same luminous flux with direct and alternating current; the battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for luminaires of protection classes I and II
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015, EN 55022
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

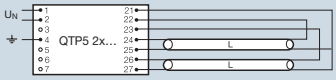
1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® PROFESSIONAL T5 for HE (T5/Ø 16 mm) fluorescent lamps

NEW





Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL T5 for HE lamps – single-lamp version						
QTP5 1x14-35	4008321**061515**	1xHE 14	198…254	176…254	45…50	0.08
		1xHE 21				0.10
		1xHE 28				0.13
		1xHE 35				0.16

Product reference	λ	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP5 1x14-35	0.94	16	1200	–20…+50	360	30	21	350	20	280
	0.94	24	1900							
	0.99	31	2600							
	0.99	38	3300							

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL T5 for HE lamps – two-lamp version						
QTP5 2x14-35	4008321**061539**	2xHE 14	198…254	176…254	40…50	0.15
		2xHE 21				0.20
		2xHE 28				0.26
		2xHE 35				0.33

Product reference	λ	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP5 2x14-35	0.98	31	2x1200	–20…+50	423	30	21	415	20	400
	0.98	46	2x1900							
	0.99	61	2x2600							
	0.99	77	2x3300							

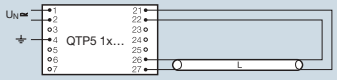
General:

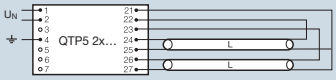
- Supply voltage: 220 to 240 V
- Mains frequency: 50 to 60 Hz
- Suitable for emergency lighting (DC operation)
- Lamp start: lamp start within 1 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current; the battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® PROFESSIONAL T5 for HO (T5/Ø 16 mm) fluorescent lamps





NEW

Product reference	Product number		V min.-max. 1)	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL T5 for HO lamps – single-lamp version						
QTP5 1x24-39	4008321**123190**	1xHO 24	198…254	176…254	40…50	0.12
		1xHO 39				0.18
QTP5 1x49	4008321**061614**	1xHO 49	198…254	176…254	40…50	0.25
QTP5 1x54	4008321**061553**	1xHO 54	198…254	176…254	40…50	0.28
QTP5 1x80	4008321**061591**	1xHO 80	198…254	176…254	40…50	0.41

Product reference	λ	W SYSTEM	lm 2)	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP5 1x24-39	0.99	27	1750	–20…+50	360	30	21	350	20	280
	0.99	41	3100							
QTP5 1x49	0.99	54	4300	–20…+50	360	30	21	350	20	280
QTP5 1x54	0.99	61	4450	–20…+50	360	30	21	350	20	280
QTP5 1x80	0.98	86	6150	–20…+50	360	30	21	350	20	280

Product reference	Product number		V min.-max. 1)	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL T5 for HO lamps – two-lamp version						
QTP5 2x24-39	4008321**123671**	2xHO 24	198…254	176…254	40…50	0.22
		2xHO 39				0.36
QTP5 2x49	4008321**123831**	2xHO 49	198…254	176…254	40…50	0.48
QTP5 2x54	4008321**061577**	2xHO 54	198…254	176…254	40…50	0.52

Product reference	λ	W SYSTEM	lm 2)	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP5 2x24-39	0.99	51	2x1750	–20…+50	423	30	21	415	20	415
	0.99	84	2x3100							
QTP5 2x49	0.99	110	2x4300	–20…+50	423	30	21	415	20	415
QTP5 2x54	0.98	118	2x4450	–20…+50	423	30	21	415	20	415

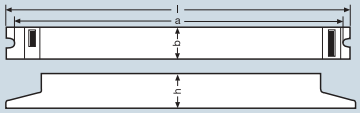
General:

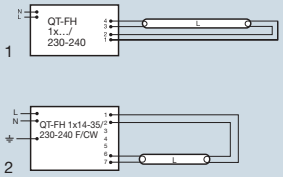
- Supply voltage: 220 to 240 V
- Mains frequency: 50 to 60 Hz
- Suitable for emergency lighting (DC operation)
- Lamp start: lamp start within 1 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current; the battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® for HE fluorescent lamps (T5/Ø 16 mm)





For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: Connection of a function earth required.

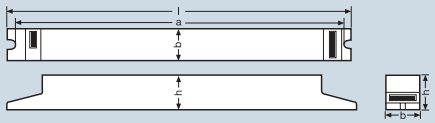
Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A	λ
QUICKTRONIC® for HE lamps – single-lamp version							
QT-FH 1x14/230-240 [5]	4050300**434681**	1xHE 14	198…254	176…254	ap. 40	0.07	0.97
QT-FH 1x14-35/230-240 CW [2][5]	4050300**823089**	1xHE 14	198…254	176…254	ap. 45…50	0.08	0.94
		1xHE 21				0.10	0.94
		1xHE 28				0.13	0.99
		1xHE 35				0.16	0.99
QT-FH 1x14-35/230-240 F/CW [4]	4050300**642437**	1xHE 14	198…254		ap. 45…50	0.08	0.97
		1xHE 21				0.10	0.97
		1xHE 28				0.14	0.99
		1xHE 35				0.17	0.99
QT-FH 1x21/230-240 [5]	4050300**434704**	1xHE 21	198…254	176…254	ap. 40	0.11	0.97

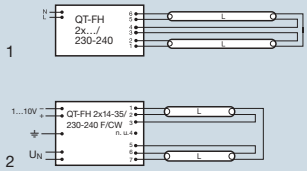
Product reference	W SYSTEM	lm [3]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FH 1x14/230-240 [5]	16	1200	–15…+50	237	30	30	220	20	180	1
QT-FH 1x14-35/230-240 CW [2][5]	16	1200	–20…+50	360	30	30	350	20	280	1
	24	1900								
	31	2600								
	38	3300								
QT-FH 1x14-35/230-240 F/CW [4]	17	1200	–20…+50	360	30	21	350	20	350	2
	23	1900								
	31	2600								
	38	3300								
QT-FH 1x21/230-240 [5]	23.5	1900	–15…+50	237	30	30	220	20	180	1

General:
- Supply voltage: 230 to 240 V
- Lamp start: lamp start within 1 s with optimum filament preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current
- The battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

For changes in the product family from July 2006 see page 11.31

1) Sinusoidal mains voltage
2) Also available in 480 IVP pack on request
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
4) Mains frequency: 50 to 60 Hz, not suitable for DC operation
5) Mains frequency: 0, 50 to 60 Hz





For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: Connection of a function earth required.

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A	λ
QUICKTRONIC® for HE lamps – two-lamp version							
QT-FH 2x14-35/230-240 CW[2)5)]	4050300**613079**	2xHE 14	198…254	176…254	ap. 45…50	0.15	0.98
		2xHE 21				0.2	
		2xHE 28				0.26	0.99
		2xHE 35				0.33	
QT-FH 2x14-28/230-240 F/CW[4)]	4050300**943442**	2xHE 14	198…254		ap. 45…50	0.15	0.97
		2xHE 21				0.21	0.97
		2xHE 28				0.27	0.99

Product reference	W SYSTEM	lm [3]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FH 2x14-35/230-240 CW[2)5)]	31	2x1200	–20…+50	360	30	30	350	20	300	1
	46	2x1900								
	61	2x2600								
	77	2x3300								
QT-FH 2x14-28/230-240 F/CW[4)]	32	2x1200	–20…+50	423	30	21	415	20	415	2
	46	2x1900								
	61	2x2600								

General:

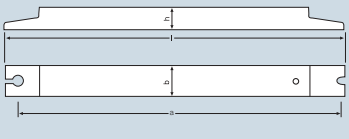
- Supply voltage: 230 to 240 V
- Lamp start: lamp start within 1 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current
- The battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

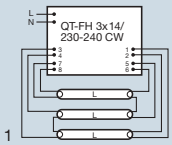
Changes in the product family from July 2006

QT-FH 1x14/230-240	4050300**434681**	is superseded by	QTP5 1x14-35	4008321**061515**
QT-FH 1x21/230-240	4050300**434704**	is superseded by	QTP5 1x14-35	4008321**061515**
QT-FH 1x14-35/230-240 CW	4050300**823089**	is superseded by	QTP5 1x14-35	4008321**061515**
QT-FH 1x14-35/230-240 F/CW	4050300**642437**	is superseded by	QTP5 1x14-35	4008321**061515**
QT-FH 2x14-35/230-240 CW	4050300**613079**	is superseded by	QTP5 2x14-35	4008321**061539**
QT-FH 2x14-28/230-240 F/CW	4050300**943442**	is superseded by	QTP5 2x14-35	4008321**061539**

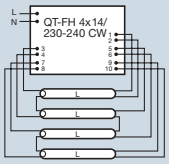
1) Sinusoidal mains voltage
2) Also available in 480 IVP pack on request
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
4) Mains frequency: 50 to 60 Hz, not suitable for DC operation
5) Mains frequency: 0, 50 to 60 Hz

QUICKTRONIC® for HE fluorescent lamps (T5/Ø 16 mm)





1



2

For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: Connection of a function earth required.

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® for HE lamps – three and four-lamp versions						
QT-FH 3x14/230-240 CW	4050300**459073**	3xHE 14	198…254	176…254	ap. 45…50	0.22
QT-FH 4x14/230-240 CW	4050300**459097**	4xHE 14	198…254	176…254	ap. 45…50	0.29

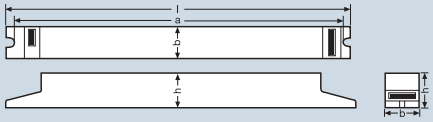
Product reference	λ	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FH 3x14/230-240 CW	0.99	48	3x1200	–20…+50	423	40	30	415	20	395	1
QT-FH 4x14/230-240 CW	0.99	65	4x1200	–20…+50	423	40	30	415	20	395	2

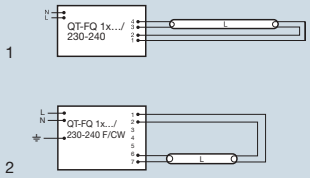
General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 1 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current
- The battery voltage may drop to 176 V. Ignition must take place above 198 V however
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32





For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: No earthing required.

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG		A	λ
QUICKTRONIC® for HO lamps – single-lamp version								
QT-FQ 1x24/230-240 CW[5]	4050300**457499**	1xHO 24	198…254	176…254	ap. 40		0.12	0.99
QT-FQ 1x24-39/230-240 F/CW[4]	4050300**943480**	1xHO 24	198…254		ap. 45…50		0.12	0.99
		1xHO 39					0.18	0.99
QT-FQ 1x39/230-240 CW[5]	4050300**457529**	1xHO 39	198…254	176…254	ap. 40		0.20	0.99
QT-FQ 1x49/230-240 CW[2)5]	4050300**617473**	1xHO 49	198…254	176…254	ap. 45		0.24	0.99
QT-FQ 1x54/230-240 CW[2)5]	4050300**457536**	1xHO 54	198…254	176…254	ap. 40		0.26	0.99
QT-FQ 1x54/230-240 F/CW[4]	4050300**943527**	1xHO 54	198…254		ap. 45…50		0.26	0.98
QT-FQ 1x80/230-240 CW[2)5]	4050300**480138**	1xHO 80	198…254	176…254	ap. 40		0.37	0.98
QT-FQ 1x80/230-240 F/CW[4]	4050300**775302**	1xHO 80	198…254		ap. 45…50		0.76	0.97

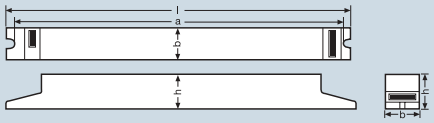
Product reference	W SYSTEM	lm [3]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FQ 1x24/230-240 CW[5]	27	1750	–20…+50	360	30	30	350	20	230	1
QT-FQ 1x24-39/230-240 F/CW[4]	28	1750	–20…+50	360	30	21	350	20	330	2
	41	3100								
QT-FQ 1x39/230-240 CW[5]	42	3100	–20…+50	360	30	30	350	20	280	1
QT-FQ 1x49/230-240 CW[2)5]	54	4300	–20…+50	360	30	30	350	20	280	1
QT-FQ 1x54/230-240 CW[2)5]	61	4450	–20…+50	360	30	30	350	20	280	1
QT-FQ 1x54/230-240 F/CW[4]	59	4450	–20…+50	360	30	21	350	20	330	2
QT-FQ 1x80/230-240 CW[2)5]	86	6150	–20…+50	360	30	30	350	20	280	1
QT-FQ 1x80/230-240 F/CW[4]	88	6150	–20…+50	360	30	21	350	20	330	2

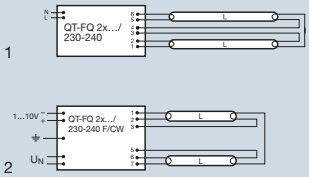
General:
- Supply voltage: 230 to 240 V
- Lamp start: lamp start within 0.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current; the battery voltage may drop to 176 V. Ignition must take place above 198 V
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

For changes to the product family from July 2006 see page 11.34

1) Sinusoidal mains voltage
2) Also available in 480 IVP pack on request
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
4) Mains frequency: 50 to 60 Hz, not suitable for DC operation
5) Mains frequency: 0, 50 to 60 Hz

QUICKTRONIC® for HO (T5/Ø 16 mm) fluorescent lamps





For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: No earthing required.

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A	λ
QUICKTRONIC® for HO lamps – two-lamp version							
QT-FQ 2x24/230-240 CW[5]	4050300**823553**	2xHO 24	198…254	176…254	ap. 40	0.22	0.99
QT-FQ 2x24-39/230-240 F/CW[4]	4050300**943503**	2xHO 24	198…254		ap. 45…50	0.24	0.99
		2xHO 39				0.36	0.99
QT-FQ 2x39/230-240 CW[5]	4050300**825366**	2xHO 39	198…254	176…254	ap. 40	0.37	0.98
QT-FQ 2x49/230-240 CW[2)5]	4050300**617459**	2xHO 49	198…254	176…254	ap. 45	0.48	0.99
QT-FQ 2x54/230-240 CW[2)5]	4050300**825410**	2xHO 54	198…254	176…254	ap. 40	0.52	0.98
QT-FQ 2x54/230-240 F/CW[4]	4050300**943541**	2xHO 54	198…254		ap. 45…50	0.54	0.98
QT-FQ 2x80[4]	4050300**825564**	2xHO 80	198…254		ap. 45…50	0.76	0.97

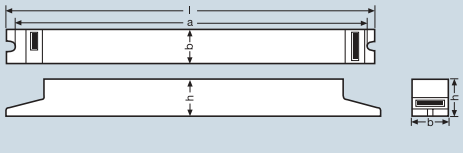
Product reference	W SYSTEM	lm [3]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FQ 2x24/230-240 CW[5]	51	2x1750	–20…+50	360	30	30	350	20	280	1
QT-FQ 2x24-39/230-240 F/CW[4]	53	2x1750	–20…+50	423	30	21	415	20	400	2
	82	2x3100								
QT-FQ 2x39/230-240 CW[5]	85	2x3100	–20…+50	360	30	30	350	20	280	1
QT-FQ 2x49/230-240 CW[2)5]	110	2x4300	–20…+50	360	30	30	350	20	280	1
QT-FQ 2x54/230-240 CW[2)5]	118	2x4450	–20…+50	360	30	30	350	20	280	1
QT-FQ 2x54/230-240 F/CW[4]	122	2x4450	–20…+50	423	30	21	415	20	400	2
QT-FQ 2x80[4]	176	2x6150	–20…+50	423	30	21	415	20	415	2

For general notes see page 11.33

Changes in the product family from July 2006

QT-FQ 1x24/230-240 CW	4050300**457499**	is superseded by	QTP5 1x24	4008321**123190**
QT-FQ 1x24-39/230-240 F/CW	4050300**943480**	is superseded by	QTP5 1x24-39	4008321**123190**
QT-FQ 1x39/230-240 CW	4050300**457529**	is superseded by	QTP5 1x24-39	4008321**123190**
QT-FQ 1x49/230-240 CW	4050300**617473**	is superseded by	QTP5 1x49	4008321**061614**
QT-FQ 1x54/230-240 CW	4050300**457536**	is superseded by	QTP5 1x54	4008321**061553**
QT-FQ 1x54/230-240 F/CW	4050300**943527**	is superseded by	QTP5 1x54	4008321**061553**
QT-FQ 1x80/230-240 CW	4050300**480138**	is superseded by	QTP5 1x80	4008321**061591**
QT-FQ 1x80/230-240 F/CW	4050300**775302**	is superseded by	QTP5 1x80	4008321**061591**
QT-FQ 2x24/230-240 CW	4050300**823553**	is superseded by	QTP5 2x24-39	4008321**123671**
QT-FQ 2x24-39/230-240 F/CW	4050300**943503**	is superseded by	QTP5 2x24-39	4008321**123671**
QT-FQ 2x39/230-240 CW	4050300**825366**	is superseded by	QTP5 2x24-39	4008321**123671**
QT-FQ 2x49/230-240 CW	4050300**617459**	is superseded by	QTP5 2x49	4008321**123831**
QT-FQ 2x54/230-240 CW	4050300**825410**	is superseded by	QTP5 2x54	4008321**061577**
QT-FQ 2x54/230-240 F/CW	4050300**943541**	is superseded by	QTP5 2x54	4008321**061577**

1) Sinusoidal mains voltage
2) Also available in 480 IVP pack on request
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32
4) Mains frequency: 50 to 60 Hz, not suitable for DC operation
5) Mains frequency: 0, 50 to 60 Hz



For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: No earthing required.

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL for T8 lamps – single-lamp version						
QTP 1x18/230-240[2]	4050300**479156**	1xL 18	198…264	154…276	50	0.09
QTP 1x36/230-240[2]	4050300**479194**	1xL 36 (L 38)	198…264	154…276	60	0.16
QTP 1x58/230-240[2]	4050300**479279**	1xL 58	198…264	154…276	45	0.25

Product reference	λ	W SYSTEM	W LAMP	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP 1x18/230-240[2]	0.97	19	16	1300	–25…+50	360	30	30	350	20	280
QTP 1x36/230-240[2]	0.96	35	32	3200	–25…+50	360	30	30	350	20	280
QTP 1x58/230-240[2]	0.98	55	50	5000	–25…+50	360	30	30	350	20	280

Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® PROFESSIONAL for T8 lamps – two-lamp version						
QTP 2x18/230-240[2]	4050300**479170**	2xL 18	198…264	154…276	50	0.17
QTP 2x36/230-240[2]	4050300**479217**	2xL 36 (L 38)	198…264	154…276	30	0.31
QTP 2x58/230-240[2]	4050300**479293**	2xL 58	198…264	154…276	30	0.49

Product reference	λ	W SYSTEM	W LAMP	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP 2x18/230-240[2]	0.97	38	32	2x1300	–25…+50	423	30	30	415	20	415
QTP 2x36/230-240[2]	0.98	70 (70)	64 (64)	2x3200	–25…+50	423	30	30	415	20	415
QTP 2x58/230-240[2]	0.98	110	100	2x5000	–25…+50	423	30	30	415	20	415

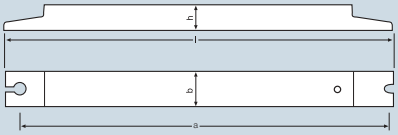
Suitable for master/slave circuits and damp-proof luminaires.

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 0.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. Ignition must take place above 198 V
- Same luminous flux with direct and alternating current
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Single-lamp operation possible for 2-lamp ECGs
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Can be used in emergency lighting systems (DC operation)

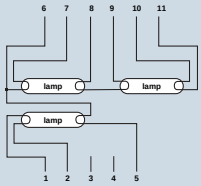
For changes to the product family from October 2006 see page 11.36

1) Sinusoidal mains voltage
2) Also available as a CW (Combi Wiring) version for manual and automatic luminaire wiring

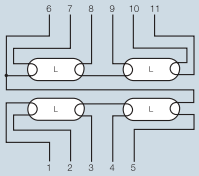
QUICKTRONIC® PROFESSIONAL for T8/Ø 26 mm fluorescent lamps



Earthing via ECG casing required by means of serrated edge washer (as per EN 60598). Only for PC I luminaires.



Lines 3, 4:
Leave terminals open
Keep lines 1, 2, 10, 11 short



Keep lines 1, 2, 10, 11 short

Product reference	Product number		V min.-max. 1)	V min.-max.	kHz ECG	A	λ
QUICKTRONIC® PROFESSIONAL for T8 lamps – three and four-lamp versions							
QTP 3x/4x18/230-240 CW	4050300**527840**	3xL 18	198…264	154…276	43	0.26	ap. 0.99
		4xL 18				0.32	

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTP 3x/4x18/230-240 CW	56	3x1300	–25…+50	423	40	30	415	20	490
	73	4x1300							

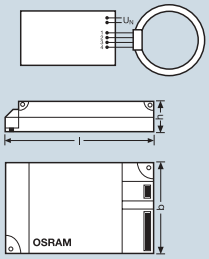
General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 2 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 154 V. The lamps must be ignited at over 198 V
- Same luminous flux with direct and alternating current
- Single-lamp operation possible
- Automatic restart of replacement lamps
- Energy Efficiency Index EEI = A2
- Only for PC I luminaires
- Approval marks:
- Safety to EN 61347-2-3
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Can be used in emergency lighting systems (DC operation)

QUICKTRONIC® PROFESSIONAL for T8 lamps
- No change in geometry
- No change in lamp wiring
- Can withstand a 5 K higher thermal load: T_C = 75 °C
- Greater input voltage range: U_N = 220 to 240 V
- CW terminals as standard for both manual and automatic wiring

Changes in the product family from October 2006

QTP 1x18/230-240	4050300**479156**	is superseded by	QTP8 1x18/220-240	4008321**131584**
QTP 1x36/230-240	4050300**479194**	is superseded by	QTP8 1x36/220-240	4008321**131621**
QTP 1x58/230-240	4050300**479279**	is superseded by	QTP8 1x58/220-240	4008321**131669**
QTP 2x18/230-240	4050300**479170**	is superseded by	QTP8 2x18/220-240	4008321**131607**
QTP 2x36/230-240	4050300**479217**	is superseded by	QTP8 2x36/220-240	4008321**131645**
QTP 2x58/230-240	4050300**479293**	is superseded by	QTP8 2x58/220-240	4008321**131683**
QTP 3x18, 4x18/230-240	4050300**527840**	is superseded by	QTP8 3x18, 4x18/220-240	4008321**131706**

1) Sinusoidal mains voltage



Product reference	Product number		V min.-max. [1]	kHz ECG	A	λ
QUICKTRONIC® for FC® lamps – single-lamp version						
QT-M 1x26-42/230-240	4050300**609256**	1xFC 22	198…254	ap. 40	0.11	0.97
		1xFC 40			0.18	
QT-FC 1x55/230-240	4050300**526096**	1xFC 55	198…254	ap. 40	0.27	0.99

Product reference	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-M 1x26-42/230-240	26	1800	–20…+50	103	67	31	110	20	160
	44	3200							
QT-FC 1x55/230-240	60	4200	–15…+50	123	79	33	129.5	20	250

Product reference	Product number		V min.-max. [1]	kHz ECG	A	λ
QUICKTRONIC® for FC® lamps – two-lamp version						
QT-M 2x26-32/230-240	4050300**624969**	2xFC 22	198…254	ap. 40	0.23	0.97
		1xFC 22+1xFC 40			0.30	
QT-M 2x26-42/230-240	4008321**110022**	2xFC 40	198…254	ap. 40	0.36	0.97

Product reference	W SYSTEM	lm [2]	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-M 2x26-32/230-240	54	2x1800	–20…+50	123	79	33	129.5	20	240
	70	1800+3200							
QT-M 2x26-42/230-240	88	2x3200	–20…+50	123	79	33	129.5	20	280

NEW

General:

- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Preheat starting: Lamp start within 1.0 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- QT-FC 1x55/230-240 S: Preheat starting: Lamp start within 2 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Same luminous flux with direct and alternating current. The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® ECONOMIC for T8/Ø 26 mm fluorescent lamps

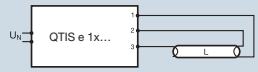
Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
Only for PC I luminaires.

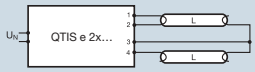
Product reference	Product number		V min.-max. [1]	V min.-max.	kHz ECG	A
QUICKTRONIC® ECONOMIC for T8 lamps – single-lamp version						
QT-ECO 1x36/230-240	4050300**940656**	1xL 36 W	198…254	176…254	45…50	0.16
QT-ECO 1x58/230-240	4050300**940632**	1xL 58 W	198…254	176…254	45…50	0.25

Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 1x36/230-240	0.95	36	2900	–15…+50	150	41	28	140	50	190
QT-ECO 1x58/230-240	0.95	58	4800	–15…+50	150	41	28	140	50	190

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 50, 60 Hz
- Lamp start: warm start within 2 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Only for PC I luminaires
- Energy Efficiency Index EEI = A3
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Can be used in emergency lighting systems (DC operation)

1) Sinusoidal mains voltage





Product reference	Product number		V min.-max. 1)	kHz ECG	A	λ
QUICKTRONIC® INSTANT START economic						
QTIS e 1x18/220-240	4050300**775388**	1xL 18 W	198…254	45…50	0.09	0.94
QTIS e 1x36/220-240	4050300**940649**	1xL 36 W	198…254	45…50	0.16	0.95
QTIS e 1x58/220-240	4050300**940625**	1xL 58 W	198…254	45…50	0.24	0.95
QTIS e 2x18/220-240	4050300**775401**	2xL 18 W	198…254	45…50	0.16	0.96
QTIS e 2x36/220-240	4050300**940663**	2xL 36 W	198…254	45…50	0.30	0.95
QTIS e 2x58/220-240	4050300**940618**	2xL 58 W	198…254	45…50	0.47	0.95
QTIS e 3x/4x18/220-240	4050300**940670**	3xL 18 W	198…254	45…50	0.29	0.95
		4xL 18 W			0.32	
QTIS e 3x36/220-240 CW	4008321**104687**	3xL 36 W	198…254	35…50	0.44	0.95

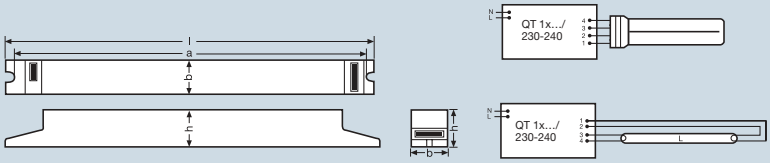
Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QTIS e 1x18/220-240	18	1350	–15…+50	360	30	30	350	20	250
QTIS e 1x36/220-240	36	3200	–15…+50	360	30	30	350	20	300
QTIS e 1x58/220-240	58	5000	–15…+50	360	30	30	350	20	315
QTIS e 2x18/220-240	36	2x1350	–15…+50	360	30	30	350	20	360
QTIS e 2x36/220-240	70	2x3200	–15…+50	360	30	30	350	20	360
QTIS e 2x58/220-240	112	2x5000	–15…+50	360	30	30	350	20	360
QTIS e 3x/4x18/220-240	62	3x1350	–15…+50	360	30	30	350	20	360
	70	4x1350	–15…+50						
QTIS e 3x36/220-240 CW	99	3x3200	–15…+50	423	40	30	415	20	440

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 50, 60 Hz
- Lamp start: cold start within 0.3 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Only for PC I luminaires
- Energy Efficiency Index EEI = A3
- Approval marks:
- Safety to IEC 61347
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

QUICKTRONIC®
for OSRAM DULUX® L and OSRAM DULUX® F lamps



For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: No earthing required.

Product reference	Product number		V min.-max. [5]	V min.-max.	kHz ECG	A
QUICKTRONIC® for OSRAM DULUX® L and OSRAM DULUX® F – single-lamp version						
QT 1x18/230-240[1]	4050300**333809**	DL 18, DF 18	198…254	176…254	ap. 40	0.09
QT 1x24/230-240[1]	4050300**333823**	DL 24, DF 24	198…254	176…254	ap. 40	0.11
QT 1x36/230-240[2]	4050300**333847**	DL 36, DF 36	198…254	176…254	ap. 40	0.17
QT 1x40/230-240[2]	4050300**290492**	DL 40	198…254	176…254	ap. 40	0.20
QT 1x55, 70/230-240[3][4]	4050300**479354**	DL 55, L 70	198…254	176…254	ap. 40	0.28

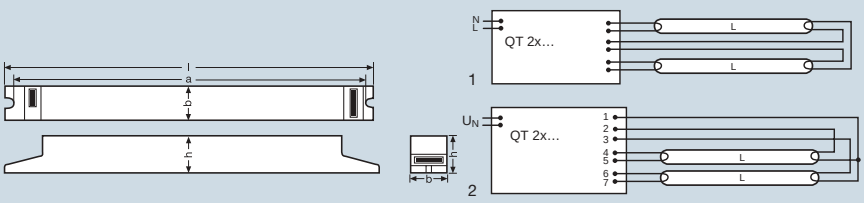
Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT 1x18/230-240[1]	0.99	20	1200, 1100	–20…+50	237	30	30	230	20	190
QT 1x24/230-240[1]	0.99	26	1800, 1700	–20…+50	237	30	30	230	20	190
QT 1x36/230-240[2]	0.99	38	2900, 2800	–20…+50	237	30	30	230	20	190
QT 1x40/230-240[2]	0.97	44	3500	–25…+50	360	30	30	350	20	340
QT 1x55, 70/230-240[3][4]	0.97	61	4800	–25…+50	360	30	30	350	20	340

For dimming OSRAM DULUX® L and F see ECG system overview, page 11.112 f.
For ECGs for OSRAM DULUX® L 80, see pages 11.26, 11.30.

[1] ECG is superseded by QTP-DL 1x18-24 4008321**117861**
[2] ECG is superseded by QTP-DL 1x36-40 4008321**117908**
[3] ECG is superseded by QTP-DL 1x55 4008321**117946**

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 2 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V; 100% of the luminous flux with dc operation
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

4) Also available as a CW (Combi Wiring) version for manual and automatic wiring
5) Sinusoidal mains voltage



For PC I luminaires: Earthing via ECG casing required by means of serrated edge washer (as per EN 60598).
For PC II luminaires: No earthing required.

Product reference	Product number		V min.-max. 5)	V min.-max.	kHz ECG	A	λ
QUICKTRONIC® for OSRAM DULUX® L and OSRAM DULUX® F – two-lamp version							
QT 2x18/230-240 1)	4050300**325910**	2xDL 18, DF 18	198…254	176…254	ap. 40	0.15	0.99
QT 2x24/230-240 1)	4050300**325934**	2xDL 24, DF 24	198…254	176…254	ap. 40	0.21	0.99
QT 2x36/230-240 2)	4050300**325958**	2xDL 36, DF 36	198…254	176…254	ap. 40	0.32	0.99
QT 2x40/230-240 2)	4050300**300610**	2xDL 40	198…254	176…254	ap. 40	0.39	0.98
QT 2x55, 70/230-240 3)4)	4050300**479378**	2xDL 55, 2xL 70	198…254	176…254	ap. 40	0.45	0.99

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT 2x18/230-240 1)	36	2x1200, 1100	–20…+50	237	42	30	230	20	240	1
QT 2x24/230-240 1)	49	2x1800, 1700	–20…+50	237	42	30	230	20	240	1
QT 2x36/230-240 2)	70	2x2900, 2800	–20…+50	280	42	30	273	20	340	1
QT 2x40/230-240 2)	87	2x3500	–25…+50	423	30	30	415	20	480	2
QT 2x55, 70/230-240 3)4)	121	2x4800	–25…+50	423	30	30	415	20	480	2

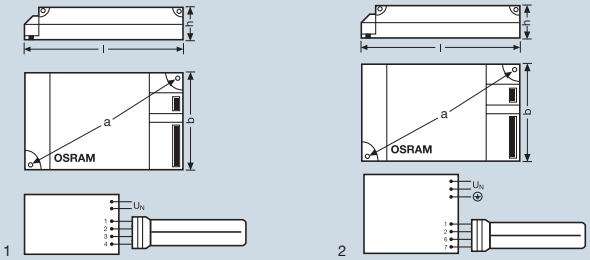
For ECGs for OSRAM DULUX® L 80, see pages 11.109 and 11.113.

1) ECG is superseded by QTP-DL 2x18-24 4008321**117885**
2) ECG is superseded by QTP-DL 2x36-40 4008321**117922**
3) ECG is superseded by QTP-DL 2x55 4008321**117960**

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Lamp start: lamp start within 2 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V; 100% of the luminous flux with dc operation
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

4) Also available as a CW (Combi Wiring) version
5) Sinusoidal mains voltage

QUICKTRONIC®
for OSRAM DULUX® T/E, D/E, S/E and HO compact fluorescent lamps



Product reference	Product number		V min.-max. 1)	kHz ECG	A	λ
QUICKTRONIC® for compact fluorescent lamps – single-lamp version						
QT-D/E 1x9-13/230-240 3)	4050300**025827**	DS/E 9	198…254	ap. 40	0.05	0.99
		DD/E 10			0.05	
		DS/E 11, DD/E 13, DT/E 13			0.07	
QT-T/E 1x18/230-240	4050300**326382**	DD/E 18, DT/E 18	198…254	ap. 40	0.08	0.99
QT-M 1x26-42/230-240*)	4050300**609256**	DD/E 26, DT/E 26	198…254	ap. 40	0.12	0.97
		DT/E 32			0.15	
		DT/E 42			0.20	
QT-T/E 1x57/230-240	4050300**605357**	DT/E 57	198…254	ap. 40	0.28	0.99
QT-T/E 1x70/230-240 4)	4050300**792002**	DT/E 70	198…254	ap. 40	0.35	0.98
NEW QTi 1x26-120*)	4008321**040893**	DULUX HO 120	198…254	50	0.58	0.99

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-D/E 1x9-13/230-240 3)	12	640	–15…+50	93	58	29	96	20	120	1
	12	600								
	14	850								
QT-T/E 1x18/230-240	20	1150	–15 2)…+50	103	67	31	110	20	145	1
QT-M 1x26-42/230-240*)	27	1750	–20 2)…+50	103	67	31	110	20	160	1
	35	2400								
	46	3200								
QT-T/E 1x57/230-240	62	4300	–20 2)…+50	123	79	33	129.5	20	240	1
QT-T/E 1x70/230-240 4)	77	5200	–20 2)…+50	123	79	33	129.5	12	190	2
QTi 1x26-120*)	132	9000	–20…+50	163	88	39	150	6	350	

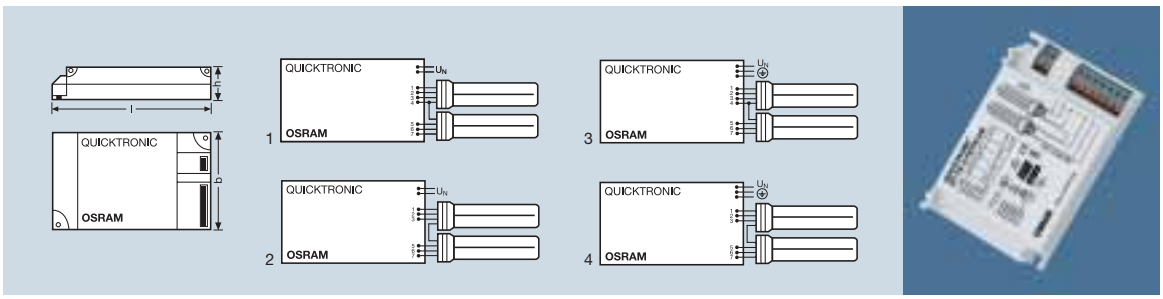
*) For further information see page 11.44

General:

- Supply voltage: 230 to 240 V or 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- DC voltage range: 176 to 254 V; lamps must be ignited at over 198 V however
- Lamp start: lamp start within approx. 1.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Amalgam lamps, e.g. OSRAM DULUX® T/E…IN, are suitable, with restrictions, for outdoor lighting
3) For no-voltage changeover times of 100 ms to 200 ms the ECG safety shutdown circuit may respond in individual cases
4) PC II luminaires: Connection of a function earth required

QUICKTRONIC®
for OSRAM DULUX® T/E, D/E and S/E compact fluorescent lamps



Product reference	Product number			V min.-max. 1)	kHz ECG	A	λ
QUICKTRONIC® for compact fluorescent lamps – two-lamp version							
QT-D/E 2x10-13/230-240	4050300**312538**	2xDD/E 10		198…254	ap. 40	0.09	0.99
		2xDS/E 11, DD/E 13, DT/E 13				0.11	
QT-T/E 2x18/230-240	4050300**312576**	2xDD/E 18, DT/E 18		198…254	ap. 40	0.16	0.99
QT-M 2x26-32/230-240	4050300**624969**	2xDD/E 26, DT/E 26		198…254	ap. 40	0.23	0.97
		2xDT/E 32				0.30	
QT-M 2x26-42/220-240	4008321**110022**	2xDD/E 26, DT/E 26		198…254	ap. 40	0.23	0.97
		2xDT/E 32				0.30	
		2xDT/E 42				0.39	
QT-T/E 2x42-57/230-240 3)	4050300**829814**	2xDT/E 42		198…264	ap. 40	0.40	0.98
		2xDT/E 57				0.60	

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-D/E 2x10-13/230-240	20	2x600	–15…+50	123	79	33	129.5	20	220	1
	25	2x850								
QT-T/E 2x18/230-240	36	2x1150	–15 2)…+50	123	79	33	129.5	20	220	2
QT-M 2x26-32/230-240	54	2x1750	–20 2)…+50	123	79	33	129.5	20	240	2
	70	2x2400								
QT-M 2x26-42/220-240	54	2x1750	–20…+50	123	79	33	129.5	20	280	4
	70	2x2400								
	92	2x3200								
QT-T/E 2x42-57/230-240 3)	90	2x3200	–20 2)…+50	158	102	39	171	9	330	3
	122	2x4300								

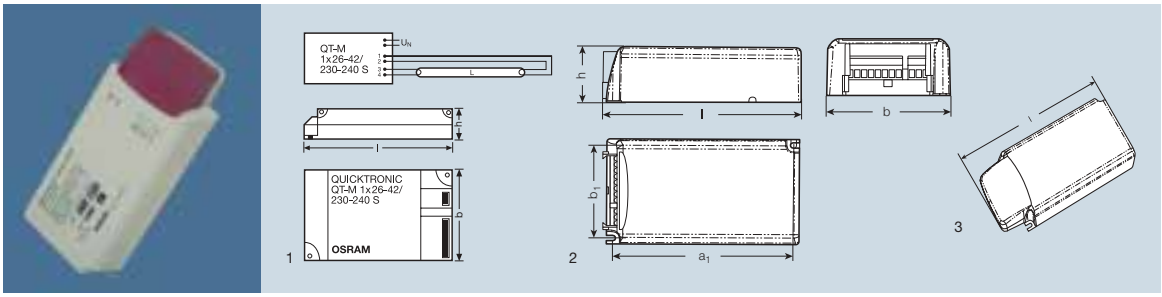
NEW

General:

- Supply voltage: 230 to 240 V or 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- DC voltage range: 176 to 254 V; lamps must be ignited at over 198 V however
- Lamp start: lamp start within approx. 1.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Amalgam lamps, e.g. OSRAM DULUX® T/E…IN, are suitable, with restrictions, for outdoor lighting
3) PC II luminaires: Connection of a function earth required

QUICKTRONIC® MULTIWATT, QUICKTRONIC® INTELLIGENT
for (compact) fluorescent lamps



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® MULTIWATT, QUICKTRONIC® INTELLIGENT for (compact) fluorescent lamps – single-lamp version					
QT-M 1x26-42/230-240	4050300**609256**	D/E 26, DT/E 26	27	1750	0.12
		DT/E 32	35	2400	0.15
		DT/E 42	46	3200	0.20
		DL 18, DF 18	18	1150, 1050	0.09
		DL 24, DF 24	26	1750, 1650	0.12
		DL 36, DF 36	35	2800, 2700	0.15
		DL 40	44	3500	0.19
		L 18 (∅ 26 mm)	19	1300	0.09
		L 36 (∅ 26 mm)	35	3200	0.15
		FC 22	26	1800[3]	0.11
		FC 40	44	3200[3]	0.18
		HO 24	27	1750[3]	0.12
		HO 39	40	3000[3]	0.17
QTi 1x26-120	4008321**040893**	DD/E 26, DT/E 26	28	1800	0.14
		DD/E 32	35	2400	0.17
		DD/E 42	46	3200	0.20
		DT/E 57	63	4300	0.28
		DT/E 70	78	5200	0.35
		DULUX HO 120	132	9000	0.58
		HO 85 W	96	6000	0.42
		HO 60 W	68	4000	0.30
PTU-SR	4050300**939896**	Cable clamp for QTi 1x26-120			

NEW

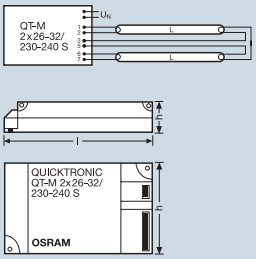
Product reference	V min.-max.	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-M 1x26-42/230-240	198…254	ap. 40	0.97	–20[2]…+50	103	67	31	110	20	160	1
QTi 1x26-120	198…254	40…80	0.9-0.99	–20…+50	163	88	39	150	6	350	2
QTi 1x26-120 + PTU-SR					190						3

For more alternatives to single-lamp (compact) fluorescent lamp operation see pages 11.109 and 11.113.

General:

- Supply voltage: 230 to 240 V or 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- DC voltage range: 176 to 254 V; lamps must be ignited at over 198 V however
- Lamp start: lamp start within 1 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Amalgam lamps, e.g. OSRAM DULUX® T/E…IN, are suitable, with restrictions, for outdoor lighting
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® MULTIWATT for (compact) fluorescent lamps – two-lamp version					
QT-M 2x26-32/230-240	4050300**624969**	2xD/E 26, DT/E 26	54	2x1750	0.23
		2xDT/E 32	70	2x2400	0.30
		2xDL 18, DF 18	35	2x1150, 1050	0.16
		2xDL 24, DF 24	54	2x1750, 1650	0.23
		2xDL 36, DF 36	70	2x2800, 2700	0.30
		2xL 18 (∅ 26 mm)	35	2x1300	0.16
		2xFC 22	54	2x1800[3]	0.23
		1xFC 22+1xFC 40	70	1800[3] + 3200[3]	0.30
		2xHO 24	54	2x1750[3]	0.23
QT-M 2x26-42/220-240	4008321**110022**	2xDD/E 26, DT/E 26	54	2x1750	0.23
		2xDD/E 32	70	2x2400	0.30
		2xDD/E 42	92	2x3200	0.39
		2xDL 24, DF 24	54	2x1750	0.23
		2xDL 36, DF 36	70	2x2800	0.30
		2xL 36	70	2x3200	0.30
		2xFC 22	54	2x1800[3]	0.23
		1xFC 22+1xFC 40	70	1800[3] + 3200[3]	0.30
		2xFC 40	88	2x3200[3]	0.36
		2xHO 24	54	2x1750[3]	0.23

NEW

Product reference	V min.-max.[1]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-M 2x26-32/230-240	198…254	ap. 40	0.97	–20[2]…+50	123	79	33	129.5	20	240
QT-M 2x26-42/220-240	198…254	ap. 40	0.97	–20…+50	123	79	33	129.5	20	280

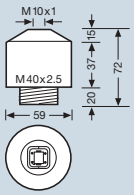
For more alternatives to two-lamp (compact) fluorescent lamp operation see pages 11.109 and 11.113.

General:

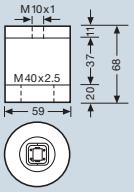
- Supply voltage: 230 to 240 V or 220 to 240 V
- Mains frequency: 0, 50 to 60 Hz[1]
- DC voltage range: 176 to 254 V; lamps must be ignited at over 198 V however
- Lamp start: lamp start within 1 s with optimum filament preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage
2) Amalgam lamps, e.g. OSRAM DULUX® T/E…IN, are suitable, with restrictions, for outdoor lighting
3) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

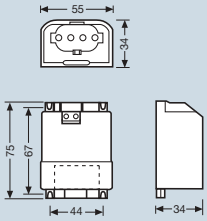
DULUXTRONIC ® for OSRAM DULUX® S/E, D/E and T/E fluorescent lamps with integrated lampholders



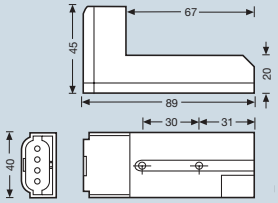
P version



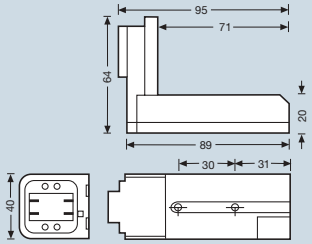
C version



S version



L version (5 W–11 W)



L version (10 W–18 W)

DULUXTRONIC® – the major benefits at a glance

Simple wiring

- Only a mains connection is required; there is no need for wiring between the ECG and the lampholder
- Three of the five DULUXTRONIC® versions have integrated cable clamps

Greater lighting comfort

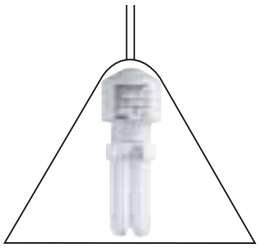
- Flicker-free starting
- Flicker-free light
- Silent operation
- No flickering of the lamp at the end of its life thanks to automatic shutdown

Greater economy

- Much longer lamp life thanks to gentle electronic operation
- Low power loss for further energy savings

Greater safety and reliability

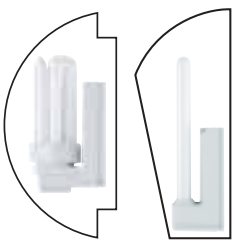
- Suitable for emergency lighting
- No adverse effect from frequent on/off switching thanks to optimised hot restart
- Around 80% lower thermal output compared with ordinary light bulbs



DULUXTRONIC® Version P
The perfect cylindrical unit with a conical end for pendant and floor-standing luminaires.

DULUXTRONIC® Version C
The cylindrical unit for slim spotlights – also suitable for downlights.

DULUXTRONIC® Version S
The super-compact unit for low-profile wall and ceiling luminaires and also for emergency lighting and illuminated signs.



DULUXTRONIC® Version L
The L unit has the lampholder mounted in front to reduce the overall length. Ideal for compact wall and ceiling luminaires and also for emergency lighting and illuminated signs (available in two models).

Product reference	Product number		V min.-max. [2]	V min.-max.	kHz ECG	A	λ
DULUXTRONIC® (S version)							
DT-S/E 5-11/230-240 S[1]	4050300**436852**	DS/E 5	198…254	176…254	40	0.04	0.85-0.9
		DS/E 7				0.04	
		DS/E 9				0.05	
		DS/E 11				0.06	

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm	a1 mm		g
DT-S/E 5-11/230-240 S[1]	6.7	250	–20…+50	75	55	34	44	67	20	150
	8.5	400								
	9.5	600								
	12.5	850								

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Preheat starting: Lamp start within 1.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V however
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- With integrated cable clamp[1]

S version

1) The cable clamp is only effective in conjunction with cable type H03VVH2-F and with the terminal cover locked in place
2) Sinusoidal mains voltage

DULUXTRONIC®
for OSRAM DULUX® D/E and T/E with integrated lampholder

Product reference	Product number		V min.-max. [2]	V min.-max.	kHz ECG	A
DULUXTRONIC® for OSRAM DULUX® D/E and T/E (C version)						
DT-D/E 10-13/230-240 C[1]	4050300**421445**	DD/E 10	198…254	176…254	40	0.06
		DD/E 13, DT/E 13				0.07
DT-T/E 18/230-240 C[1]	4050300**421384**	DD/E 18, DT/E 18	198…254	176…254	40	0.1

Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	d [mm]		g
DT-D/E 10-13/230-240 C[1]	0.85-0.9	11	600	–20…+50	68	59	20	180
		15	900					
DT-T/E 18/230-240 C[1]	0.85-0.9	20	1200	–20…+50	68	59	20	180

Product reference	Product number		V min.-max. [2]	V min.-max.	kHz ECG	A
DULUXTRONIC® for OSRAM DULUX® D/E and T/E (P version)						
DT-D/E 10-13/230-240 P[3][4]	4050300**421407**	DD/E 10	198…254	176…254	40	0.06
		DD/E, DT/E 13				0.07
DT-T/E 18/230-240 P[3][4]	4050300**421421**	DD/E, DT/E 18	198…254	176…254	40	0.1

Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	d [mm]		g
DT-D/E 10-13/230-240 P[3][4]	0.85…0.9	11	600	–20…+50	72	59	20	180
		15	900					
DT-T/E 18/230-240 P[3][4]	0.85…0.9	20	1200	–20…+50	72	59	20	180

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Preheat starting: Lamp start within 1.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V however
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- With integrated strain relief

C version

P version

1) The 20 mm high ring is decorative only. If, for example, a reflector is to be attached between the ring and the ECG, this can be done with the P version

2) Sinusoidal mains voltage
3) Maximum load capacity (e.g. glass shield) 15 kg
4) Shipment includes retaining ring (M40 x 2.5) for attaching a shield

Product reference	Product number		V min.-max. [2]	V min.-max.	kHz ECG	A
DULUXTRONIC® for OSRAM DULUX® S/E (L version)						
DT-S/E 5-11/230-240 L	4050300**406367**	DS/E 5	198…254	176…254	40	0.04
		DS/E 7				0.04
		DS/E 9				0.05
		DS/E 11				0.06

Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
DT-S/E 5-11/230-240 L	0.85-0.9	6.7	250	–20…+50	89	40	45	30	20	150
		8.5	400							
		9.5	600							
		12.5	850							

Product reference	Product number		V min.-max. [2]	V min.-max.	kHz ECG	A
DULUXTRONIC® for OSRAM DULUX® D/E and T/E (L version)						
DT-D/E 10-13/230-240 L	4050300**406381**	DD/E 10	198…254	176…254	40	0.06
		DD/E 13, DT/E 13				0.07
DT-T/E 18/230-240 L[1]	4050300**406404**	DD/E 18, DT/E 18	198…254	176…254	40	0.10

Product reference	λ	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
DT-D/E 10-13/230-240 L	0.85-0.9	11	600	–20…+50	95	40	64	30	20	180
		15	900							
DT-T/E 18/230-240 L[1]	0.85-0.9	20	1200	–20…+50	95	40	64	30	20	180

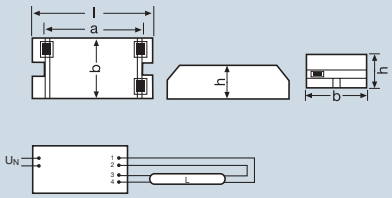
General:
- Supply voltage: 230 to 240 V
- Mains frequency: 0, 50 to 60 Hz
- Preheat starting: Lamp start within 1.5 s with optimum electrode preheating. If there is a temporary interruption in the power supply (< 0.5 s) the lamp will start within 0.3 s
- The battery voltage may drop to 176 V. The lamps must be ignited at over 198 V however
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

L version (5 W–11 W)

L version (10 W–18 W)

1) DT-T/E 18/230-240 L is not approved for use in ceiling luminaires unless additional equipment is installed (such as a heat-dissipating reflector) because of the heat rising from the lamp. The maximum T_C temperature of 70 °C must not be exceeded
2) Sinusoidal mains voltage

QUICKTRONIC® ECONOMIC
for (compact) fluorescent lamps



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – single-lamp version					
QT-ECO 1x4-16/220-240 S	4050300**638584**	DS/E 5	7.5	250	0.06
		DS/E 7	9	400	0.06
		DS/E 9	10	600	0.07
		DS/E 11	13	900	0.09
		DD/E 10	11.5	600	0.08
		DD/E 13, DT/E 13	14	800	0.10
		HE 14	15	1200[2]	0.10
		L 4 (∅ 16 mm)	6.5	120	0.05
		L 6 (∅ 16 mm)	8.5	240	0.06
		L 8 (∅ 16 mm)	10.5	450	0.07
		L 13 (∅ 26 mm)	15	950	0.08
		L 10 (∅ 26 mm)	12	650	0.10
		L 16 (∅ 26 mm)	16	1100	0.11

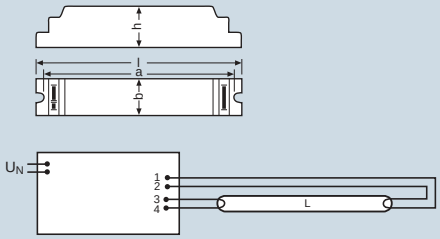
Product reference	V min.-max. [1]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 1x4-16/220-240 S	198…254	ap. 40	0.6	–15…+50	80	40	22	72...75	50	50

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz
- Lamp start: warm start within approx. 1 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2); < 0.5 m (PIN 3, 4)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – single-lamp version					
QT-ECO 1x4-16/220-240 L	4050300**660370**	DS/E 5	7.5	250	0.06
		DS/E 7	9	400	0.06
		DS/E 9	10	600	0.07
		DS/E 11	13	900	0.09
		DD/E 10	11.5	600	0.08
		DD/E 13, DT/E 13	14	800	0.10
		HE 14	15	1200[2]	0.10
		L 4 (∅ 16 mm)	6.5	120	0.05
		L 6 (∅ 16 mm)	8.5	240	0.06
		L 8 (∅ 16 mm)	10.5	450	0.07
		L 13 (∅ 26 mm)	15	950	0.08
		L 10 (∅ 26 mm)	12	650	0.10
		L 16 (∅ 26 mm)	16	1100	0.11

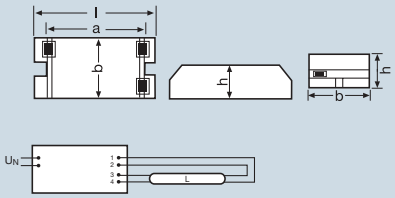
Product reference	V min.-max. [1]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 1x4-16/220-240 L	198…254	ap. 40	0.6	–15…+50	150	22	22	140	50	50

General:
- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz
- Lamp start: warm start within approx. 1 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2); < 0.5 m (PIN 3, 4)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® ECONOMIC
for (compact) fluorescent lamps



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – single-lamp version					
QT-ECO 1x18-21/220-240 S	4050300**794907**	DD/E 18, DT/E 18	19	1150	0.14
		HE 21	23	1800[2)]	0.17
QT-ECO 1x18-24/220-240 S	4050300**638560**	DL 18, DF 18	18	1100, 1000	0.13
		DL 24, DF 24	22.5	1600, 1500	0.16
		FC 22	22.5	1650[2)]	0.16
		HO 24	22	1600[2)]	0.15
		L 15 (∅ 26 mm)	17	950	0.13
		L 18 (∅ 26 mm)	19	1250	0.14
		L 18 U	19.5	900	0.14
		L 22 C	20	1100	0.14
NEW QT-ECO 1x26/220-240 S	4008321**065971**	DD/E 26, DT/E 26	23.5	1600	0.18

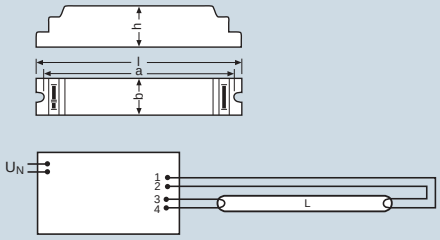
Product reference	V min.-max. [1)]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 1x18-21/220-240 S	198…254	ap. 40	0.6	–15…+50	80	40	22	72…75	50	50
QT-ECO 1x18-24/220-240 S	198…254	ap. 40	0.6	–15…+50	80	40	22	72…75	50	50
QT-ECO 1x26/220-240 S	198…254	ap. 40	0.6	–15…+50	80	40	22	72…75	50	50

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz
- Lamp start: warm start within approx. 1.5 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2); < 0.5 m (PIN 3, 4)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32



Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – single-lamp version					
QT-ECO 1x18-24/220-240 L	4050300**660417**	DL 18, DF 18	18	1100, 1000	0.13
		DL 24, DF 24	22.5	1600, 1500	0.16
		FC 22	22.5	1650[2]	0.16
		HO 24	22	1600[2]	0.15
		L 15 (∅ 26 mm)	17	950	0.13
		L 18 (∅ 26 mm)	19	1250	0.14
		L 18 U	19.5	900	0.14
		L 22 C	20	1100	0.14

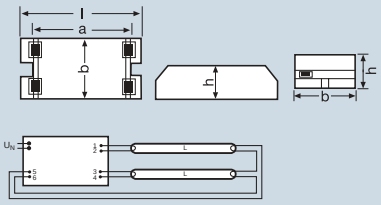
Product reference	V min.-max.[1]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 1x18-24/220-240 L	198…254	ap. 40	0.6	–15…+50	150	22	22	140	50	50

General:
- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz
- Lamp start: warm start within approx. 1.5 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2); < 0.5 m (PIN 3, 4)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

2) As with fluorescent lamps in general, the rated luminous flux for T5 fluorescent lamps is specified at 25 °C. The maximum luminous flux here however is measured at 34 °C to 38 °C. Please refer to the luminous flux/temperature curve on page 4.32

QUICKTRONIC® ECONOMIC
for (compact) fluorescent lamps



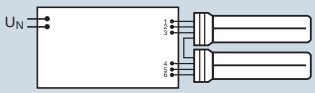
NEW

Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – two-lamp version					
QT-ECO 2x5-11/220-240 S	4050300**821504**	2xDS/E 5	12.5	2x250	0.10
		2xDS/E 7	15.0	2x350	0.11
		2xDS/E 9	18.0	2x500	0.13
		2xDS/E 11	23.5	2x700	0.16
		2xDD/E 10	20.0	2x600	0.14
		2xL 6 (∅ 16 mm)	14.5	2x240	0.11
		2xL 8 (∅ 16 mm)	17.5	2x400	0.13
		2xL 10 (∅ 26 mm)	20.0	2x600	0.14

Product reference	V min.-max. [1]	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO 2x5-11/220-240 S	198…254	ap. 40	0.6	–15…+50	80	40	22	72…75	50	55

General:
- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz
- Lamp start: warm start within approx. 2.0 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2, 3, 4); < 0.5 m (PIN 5, 6)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage



NEW

Product reference	Product number		W SYSTEM	lm	A
QUICKTRONIC® ECONOMIC for (compact) fluorescent lamps – two-lamp version					
QT-ECO T/E 2x18/220-240	4050300**803982**	DD/E 18, DT/E 18	36	2x1200	0.18
QT-ECO T/E 2x26/220-240	4050300**803999**	DD/E 26, DT/E 26	52	2x1800	0.25

Product reference	V min.-max. 1)	kHz ECG	λ	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO T/E 2x18/220-240	198…254	ap. 45	0.95	–15…+50	150	41	28	140	50	190
QT-ECO T/E 2x26/220-240	198…254	ap. 45	0.95	–15…+50	150	41	28	140	50	190

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 50 to 60 Hz
- Lamp start: warm start within 2.0 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Suitable for use in emergency lighting systems with central batteries
- Maximum permitted cable length between the ECG and lamp: < 1.0 m (PIN 1, 2, 3, 4); < 0.5 m (PIN 5, 6)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

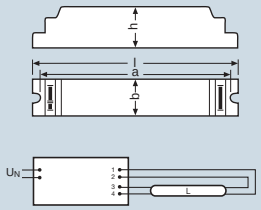
QUICKTRONIC® for FM® (T2/Ø 7 mm) miniature fluorescent lamps

Exceptional lighting solutions call for exceptional components. A good example of innovative components is the FLUORESCENT MINIATURE (FM®) lighting system from OSRAM. FM® fluorescent lamps are characterised by an extremely slim tube diameter of just 7 mm. Because of their electrical and geometric data, these miniature fluorescent lamps can only be operated reliably with electronic control gear. There is a choice of three QUICKTRONIC® ECGs to operate the four wattages (6 W, 8 W, 11 W and 13 W):

- **QT-ECO FM:** New built-in unit with slim compact plastic casing
  (dimensions: 150 mm x 22 mm x 22 mm)
- **QT-FM...L:** Low-profile casing version with cable clamp suitable for through-wiring
  (dimensions: 276 mm x 32 mm x 16 mm)
- **QT-FM...LB:** Slim space-saving board version for applications that make special demands on the geometry
  (dimensions: 225 mm x 18 mm x 13 mm)

Applications:
- Shelf and display cabinet lighting
- Mirror, furniture and picture lights
- Acrylic displays
- Small and stylish table, wall and ceiling lights

QUICKTRONIC® ECONOMIC for FM® (T2/Ø 7 mm) miniature fluorescent lamps



Product reference	Product number		V min.-max. 1)	kHz ECG	A	λ	W SYSTEM	lm
QUICKTRONIC® ECONOMIC for FM® fluorescent lamps – Built-in unit with plastic casing								
QT-ECO FM 1x6-8/220-240	4050300**797502**	FM 6	198…254	ap. 45	0.06	0.6	7.5	330
		FM 8			0.07		10	540
QT-ECO FM 1x11-13/220-240	4050300**799780**	FM 11	198…254	ap. 45	0.10	0.6	13	750
		FM 13			0.12		16	930

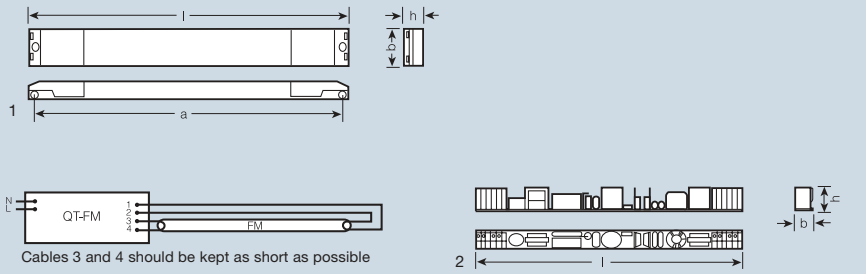
Product reference	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT-ECO FM 1x6-8/220-240	–15…+50	150	22	22	140	50	50
QT-ECO FM 1x11-13/220-240	–15…+50	150	22	22	140	50	50

General:

- Supply voltage: 220 to 240 V
- Mains frequency: 50 Hz[1)]
- Lamp start: warm start within 1.5 s
- Automatic safety shutdown of lamps in the event of a defect or at end of life
- Automatic restart of replacement lamps
- Not suitable for dc operation
- Maximum connected load per luminaire: 25 W
- Maximum permitted cable length between ECG and lamp < 1.0 m (PIN 1, 2); < 0.5 m (PIN 3, 4)
- Approval marks:
- Safety to EN 61347-2-3
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

QUICKTRONIC® for FM® (T2/Ø 7 mm) miniature fluorescent lamps



Product reference	Product number		V min.-max. 1)	kHz ECG	A	λ	W SYSTEM
QUICKTRONIC® for FM® fluorescent lamps – with plastic casing and cable clamp							
QT-FM 1x6/230-240 L	4050300**511139**	FM 6	198…254	ap. 45	0.04	0.97	9
QT-FM 1x8/230-240 L	4050300**511153**	FM 8	198…254	ap. 45	0.05	0.97	11
QT-FM 1x11/230-240 L	4050300**511177**	FM 11	198…254	ap. 45	0.06	0.97	14
QT-FM 1x13/230-240 L	4050300**511191**	FM 13	198…254	ap. 45	0.07	0.97	16

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g	No.
QT-FM 1x6/230-240 L	6	330	0…+50	276	32	16	263	20	130	1
QT-FM 1x8/230-240 L	8	540	0…+50	276	32	16	263	20	130	1
QT-FM 1x11/230-240 L	11	750	0…+50	276	32	16	263	20	130	1
QT-FM 1x13/230-240 L	13	930	0…+50	276	32	16	263	20	130	1

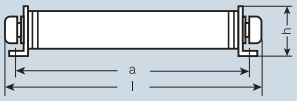
Product reference	Product number		V min.-max. 1)	kHz ECG	A	λ	W SYSTEM
QUICKTRONIC® for FM® fluorescent lamps – without casing, long board, with insulating foil							
QT-FM 1x8/230-240 LB	4050300**363523**	FM 8	198…254	ap. 45	0.05	0.97	11
QT-FM 1x11/230-240 LB	4050300**363547**	FM 11	198…254	ap. 45	0.06	0.97	14
QT-FM 1x13/230-240 LB	4050300**363561**	FM 13	198…254	ap. 45	0.07	0.97	16

Product reference	W SYSTEM	lm	°C min.-max.	l [mm]	b [mm]	h [mm]		g	No.
QT-FM 1x8/230-240 LB	8	540	0…+50	225	13	18	20	130	2
QT-FM 1x11/230-240 LB	11	750	0…+50	225	13	18	20	130	2
QT-FM 1x13/230-240 LB	13	930	0…+50	225	13	18	20	130	2

General:
- Supply voltage: 230 to 240 V
- Mains frequency: 50 to 60 Hz[1)]
- Lamp start: warm start within 2 s
- Not suitable for dc operation
- Approval marks:
- Safety to IEC 61347
- Lamp operation to EN 60929
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547

1) Sinusoidal mains voltage

OUT KIT® – protective housing for ECGs in type of protection IP67



Product reference	Product number	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm	
OUT KIT® – New: now also available for ECGs with a height of 21 mm							
OUT KIT® short[1)]							
for ECG dimensions: 360 x 30 x 30 mm	4050300**539256**	–25…+50	485	38	38	452	20
OUT KIT® 30 short							
for ECG dimensions: 360 x 30 x 30 mm	in preparation	–25…+50	466	38	38	430	20
OUT KIT® 21 short							
for ECG dimensions: 360 x 30 x 21 mm	in preparation	–25…+50	456	38	28.5	430	20
OUT KIT® long[1)]							
for ECG dimensions: 423 x 30 x 30 mm	4050300**539232**	–25…+50	550	38	38	517	20
OUT KIT® 30 long							
for ECG dimensions: 423 x 30 x 30 mm	in preparation	–25…+50	531	38	38	495	20
OUT KIT® 21 long							
for ECG dimensions: 423 x 30 x 21 mm	in preparation	–25…+50	521	38	28.5	495	20

NEW
NEW
NEW
NEW

Protective housing for electronic control gear in humid applications
Electronic control gear for fluorescent lamps now plays a major role in indoor lighting. If the benefits of energy saving and low maintenance costs that ECG operation brings are to be enjoyed in outdoor systems as well, these valuable ECGs have to be protected against moisture. In other words, they need a special housing.

Areas of application:
Outdoor lighting applications in which the ECG requires a high level of protection against moisture, such as advertising panels

General:
- Type of protection: IP67
- Self-heating: only 5 K higher than an open ECG

1) Discontinued

Lighting management systems








Why lighting management?
Economical light to suit requirements.
Light stirs emotions and gives us a feeling of well-being. Both physically and mentally. At home, at work and at play. The right light in the right amount at the right place and at the right time stimulates us

to be active and promotes our sense of well-being. For this reason, a holistic approach to lighting is now taken, so when high-quality lighting systems are being planned particular attention is given not only to the technical and architectural aspects but also to lighting management. Lighting management gives lighting solutions a dynamic character – by changing the amount of light, the colour of the light and the direction of the light. Instead of a rigid “on/off” pattern, the light is controlled to improve the economy of the lighting system and to ensure that light meets the requirements of users at all times. This involves everything from regulating the amount of artificial light according to available daylight, to calling up different lighting scenes at the touch of a button and making use of dynamic lighting applications. And no longer are comfort and energy savings mutually exclusive. Daylight is supplemented by modern, economical and increasingly “natural” artificial light. The brilliant benefit of all this is that users can adjust the lighting level themselves at any time to suit their specific needs.

Why OSRAM?
A full range of products and expertise across the board.
OSRAM is a skilled and highly experienced partner for tailor-made innovative **l**ighting **m**anagement **s**ystems at room and luminaire level. We have all the necessary products, immense know-how and many years of experience in practical applications. Our **l**ighting **m**anagement **s**ystems offer the right solutions to cover a wide variety of requirements, conditions and room types – whether energy-saving daylight-dependent control is needed or multi-functional management of lighting groups and lighting scenes. Whether the system has to be operated manually or by remote control, and whether a high degree of flexibility is required in its configuration. Whether the application calls for a single intelligent luminaire or a complete room solution.

LMS from OSRAM –
dynamic light for a wide variety of uses

Energy-saving management: daylight-dependent lighting control
The available daylight in a room is supplemented as required by artificial light from luminaires equipped with dimmable electronic control gear. Light sensors detect the lighting level comprising artificial light and natural daylight. The groups of luminaires are controlled according to their position in the room and the amount of available daylight so that a predefined lighting level of, say, 500 lux is maintained. Users can adjust the lighting at any time to a level that meets their specific needs. Artificial light and daylight complement one another perfectly in this application and result in possible energy savings of up to 60% – or even 70% in combination with a presence sensor.

Energy-saving management: intelligent luminaires
Daylight-dependent control in combination with a presence sensor can also be provided for intelligent floor-standing luminaires. The luminaire takes all the work away from the user. The light is only switched on if there is not enough natural daylight and the lighting level falls below a certain predefined threshold. Users can set their own individual lighting levels at any time and change them as they like – energy savings and comfort are therefore no longer mutually exclusive. The intelligent luminaire solution provides a high degree of flexibility so there is no problem in adjusting the lighting levels to suit a different use for the room.

Scene management: a multifunctional conference room
Training and conference rooms need lighting solutions that can cover a range of requirements. What is needed here is demand-oriented planning and a scene-oriented **l**ighting **m**anagement **s**ystem. At the touch of a button, individual lighting scenes can be selected for different activities, such as the welcoming address, a presentation and a group discussion. The lighting scenes can be adapted and changed at any time by the user. For training rooms it is important for the system to be easy and intuitive to use because these rooms are generally used by different people at different times.

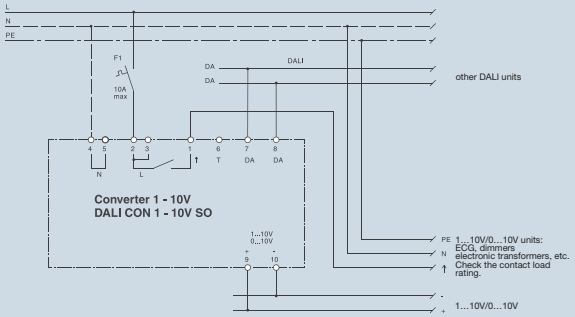
Combination of daylight-dependent control and scene management
Because they usually have a high proportion of window area, sports halls and multi-purpose halls need combined lighting management solutions featuring scene-oriented and daylight-dependent control. In such cases, the energy-saving mode comprising daylight-dependent and presence-dependent control is assigned to one of the lighting scenes. Different lighting scenes can be created to produce a festive, sporting or relaxing atmosphere. Certain areas can be individually lit by separate groups of luminaires as required.

The dynamics of light and colour
Dynamic light grabs our attention and arouses our interest. Whether it's a gentle change of colour in a bar or spectacular lighting for a shop window display or event, the intensity and the colour of the light can be changed automatically or at the touch of a button to create the right effects for the particular application. Such effects are based on dimmable electronic control gear in conjunction with coloured fluorescent lamps and/or LED modules. The required colour mix can be created by controlling the individual ECGs appropriately.

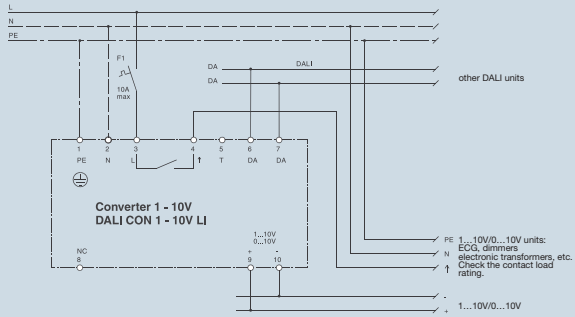
Lighting control for QUICKTRONIC® DALI

With DALI to 1-10 V converters it is possible to control 1-10 V control gear via DALI signals. The converter behaves in the DALI system in the same way as a DALI ECG. Alternatively, converters can be used to operate 1-10 V ECGs by means of standard switches via the ***Touch DIM***® function[4].

Wiring diagram (in DALI mode): Converter for snap-on



Wiring diagram (in DALI mode): Converter for luminaire installation



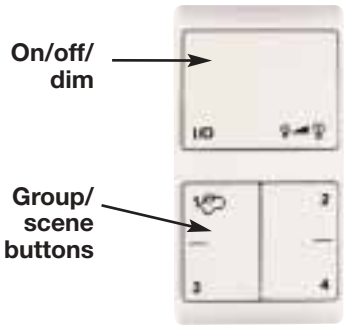
Technical data:

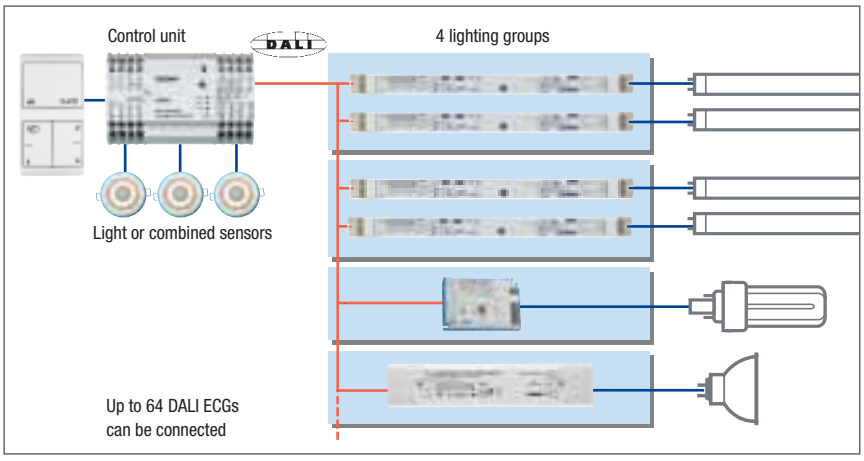
Designation	DALI CON/230-240 1…10 SO[1]	DALI CON/230-240 1…10 LI[2]
Mains voltage	230V ~50/60 Hz, DC not permitted	
Power consumption	approx. 1 W	
Operating temperature	0 to 45 °C	0 to 50 °C
Protection class	II (total insulation) IP20	I (protective earth) IP20
Load contact	Relay contact (make contact), connected internally to L, max. 5 A	
Control output	1-10 V max. 100 mA DC bzw. 100 OSRAM 1…10 V EVG	
Control input	Switchable characteristic linear/logarithmic or 0-10 V, max. 5 mA DC active	
Switch inputs	1 Switch input[3] (max. 250 V AC) (make contact)	
Terminals	Screw terminals:	Plug-in terminals:
	Max. 2.5 mm² for single-core cable	0.1 to 1.5 mm² for single-core cable
	Max. 2.5 mm² for multi-strand cable	0.1 to 1.0 mm² for multi-strand cable
	with ferrule	
Design	Moulded plastic case with snap fitting to rails	Metal casing for installation in luminaires with
	(EN 50022-35) for surface mounting	screw fastening, hole spacing 180 mm
	and installation in distributors	
Dimensions	L x W x H = 72 x 90 x 64 mm (4TE)	L x W x H = 189 x 30 x 28 mm
Weight	approx. 230 g	approx. 185 g
Product number	4050300**639802**	4050300**638973**

Subject to change without notice. For detailed technical data please refer to the DALI Guide (order no. 130T011E)
1) SO = Snap On
2) LI = Luminaire Installation
3) If switch input T is used for ***Touch DIM***® this input is isolated by an opto-coupler. The relevant connection conditions must be met
4) ***Touch DIM***® and ***Touch DIM***® ***Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard

Main applications:
The DALI BASIC system is characterised by simple installation and commissioning. It enables convenient scene-based lighting controls to be set up and energy-saving lighting to be provided with daylight and presence-dependent regulation. Luminaires can be assigned to groups, and this assignment can be changed at any time without changing the wiring. DALI BASIC is therefore ideal for offices, conference rooms, classrooms, sports halls, arenas and production and assembly plants.

System features:
- Digital lighting control system with DALI interface
- Up to 64 DALI ECGs can be controlled
- 4 freely programmable scenes, lockable scenes, one scene can be controlled according to available daylight
- 4 freely programmable groups, of which three can be controlled according to available daylight
- Motion detection with user-definable delay (1 to 30 minutes)
- Notification of lamp faults and control line breaks via LEDs and floating make contact
- Simple programming and operation using five standard switches with make contacts
- The switches can be connected in parallel so the system can be controlled from different locations
- Programming and scene storage are lockable
- DALI power supply integrated in the controller
- The last state is automatically restored after a power failure
- Integration of 1-10 V control gear via DALI to 1-10 V converters

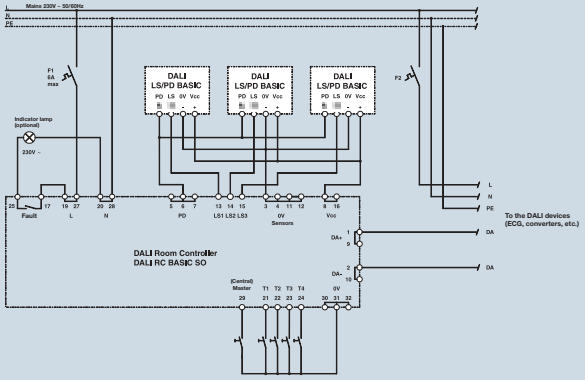




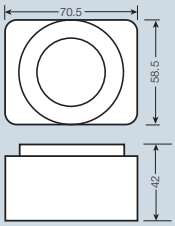
Check out DALI BASIC on our internet site at www.osram.com

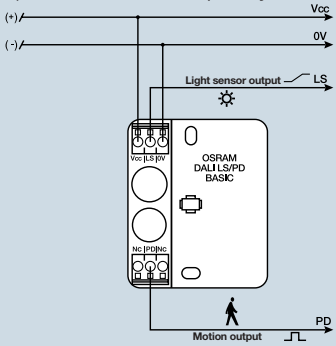
Technical data for the BASIC system[1)]

Wiring diagram for DALI BASIC:



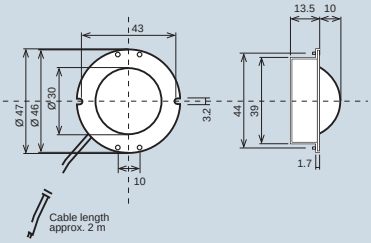
Light and motion sensor for surface mounting on ceilings (can also be used purely as a light sensor)





DALI LS/PD BASIC

Light and motion sensor for recessed ceiling mounting or installation in luminaires
(can also be used purely as a light sensor)



DALI LS/PD BASIC LI
The sensor is supplied with a white fixing ring for installation in Ø 51 mm halogen downlights

Type	Product reference	Product number	Dimensions in mm	
BASIC order data				
Control unit BASIC	DALI RC BASIC SO	4050300**654973**	140 x 61 x 90	18
Combined sensor for BASIC	DALI LS/PD BASIC	4050300**639949**	59 x 42 x 70	50
Combined sensor for BASIC, luminaire installation	DALI LS/PD BASIC LI	4050300**850184**	∅ 47 x 24	20
5-way switch panel for BASIC, white	DALI WCU 5 BASIC W	4050300**771106**	150 x 80 x 40	50

Note: No sensors other than those specified for DALI BASIC may be used
1) For detailed technical data please refer to the DALI Guide (order no. 130T011E)

DALI BASIC controller (snap-on)	
Designation	DALI RC BASIC SO[1]
Mains voltage	230 V ~50/60 Hz, DC not permitted
Power consumption	approx. 4 W to 9 W depending on load
Fuse protection	external max. 16 A, fault contact external max. 6 A
Operating temperature	0…+45 °C
Protection class/type of protection	II (total insulation)/IP20
Fault contact	Floating relay contact (make contact), max. 5 A
Absence shutdown	Delay adjustable between 1 and 30 minutes
DALI interface[2]	Control of up to 64 ECGs
	electr. current limiter, overtemperature protection
Inputs	5 switch inputs[3] for floating make contacts
	3 light sensor inputs, 1 motion sensor input, up to 6 sensors can be connected
Dimensions	W x H x D = 140 x 90 x 61 mm (8 TE)
Weight	approx. 550 g

Sensors for the BASIC controller		
Sensor type	Ceiling mounting	Recessed ceiling
Designation	DALI LS/PD BASIC	DALI LS/PD BASIC LI
Operating temperature	0 °C…+50 °C	
Operating range	Up to 400 Lux at the sensor	
Connection	4-pin: Vcc, PD (motion)	
	0 V (ground), LS (light value)	
Terminal assignment	See controller	
Parallel connection of sensors	See controller	
Protection class	II (total insulation)	
Type of protection	IP20	
Max. sensor cable length	100 m	
(The sensor cables must be routed separately from DALI and mains cables; a shared cable must not be used)		
Dimensions, weight	L x W x H = 71 x 59 x 42 mm, approx. 70 g	∅ x H = 47 x 24 mm, approx. 65 g
Labelling	CE	

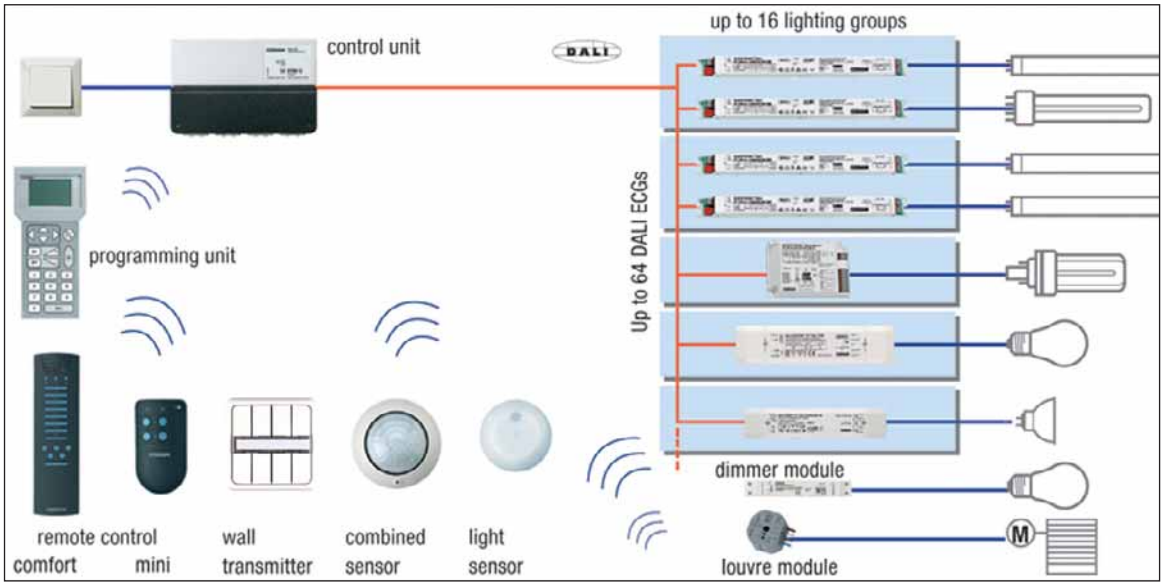
Subject to change without notice. For detailed technical data please refer to the DALI Guide (order no. 130T011E)
1) SO = Snap On
2) The DALI interface simultaneously supplies the connected DALI components. In steady-state operation (no data transfer) approx. 16 V/160 mA DC is available here
3) A 5-way switch for mains voltage is used for operating the system

The DALI ADVANCED single or multi-room lighting control system

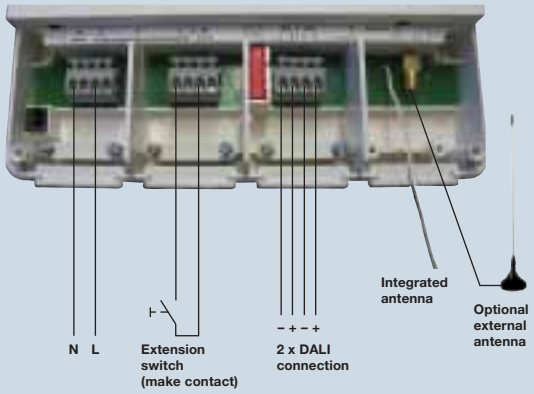
Main applications:
The DALI ADVANCED system is based on an intelligent combination of radio controls and a freely programmable central unit with a DALI interface. There is therefore no need for wiring between the sensors, switches and control unit. Because luminaires can be assigned to groups irrespective of the wiring, the system has enormous flexibility to cope with changes of use for the building. DALI ADVANCED is ideal for retrofitting and upgrading existing systems in conference rooms, offices, presentation and exhibition areas and the home.

System features:
- Digital lighting control system with DALI interface
- 15 freely programmable scenes (lockable scene storage)
- 16 freely programmable groups
- Up to eight groups can be controlled on the basis of daylight and presence
- Operated by 2, 4 and 8-way switches than can be placed anywhere and freely combined
- Mini and fully featured remote control
- No cabling required for the user control components or sensors
- Simple programming with menu-based manual programming unit (can be used for any number of systems)
- All system settings are retained even if there is a lengthy power outage
- 1-10 V components can be integrated via DALI to 1-10 V converters
- The last state is automatically restored after a power failure

The remote control and the programming unit.



Control unit	**DALI RC ADVANCED CI**
• Mains voltage:	110-240 V AC/DC, 0/50-60 Hz
• DALI interface:	Up to 64 ECGs/up to 128 ECGs if a second control unit is used
• Radio module:	up to 200 channels (approx. 30 transmitters) can be trained
• Type of protection:	IP20
• Dimensions in mm:	200 x 130 x 52 (L x W x H)



General properties:

The control unit is operated almost exclusively by radio signals. For this reason, the following points should be considered when planning an installation based on a DALI system and when installing the control unit:

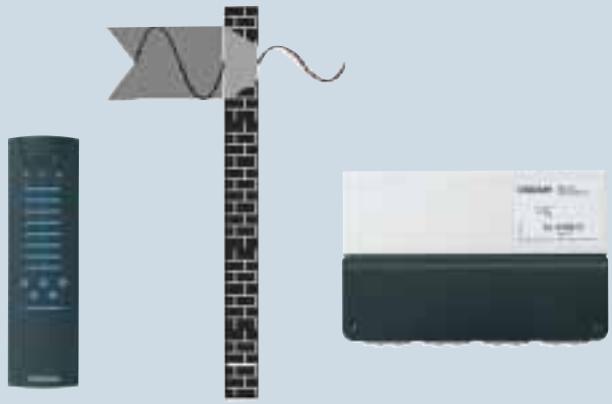
- Radio transmission is not suitable for safety applications, such as emergency shutdown or emergency calls.
- The central unit must be installed so that the distance between it and the various radio components is not too great for the local conditions.
- If the DALI system extends over a number of rooms or floors, a radio path test must be performed in the rooms before the system is installed. This should show whether the signals reach the units furthest away.

Radio system

• Transmit frequency	433.42 MHz, ASK
• Transmission power	< 10 mW
• Approved as an	SRD (short range device)

The range of the radio transmitter depends on the fabric of the building:

Dry material	**Penetration**
• Wood, plaster, plasterboard	approx. 90%
• Brick, MDF	approx. 70%
• Reinforced concrete	approx. 30%
• Metal, metal grating, aluminium cladding	approx. 10%

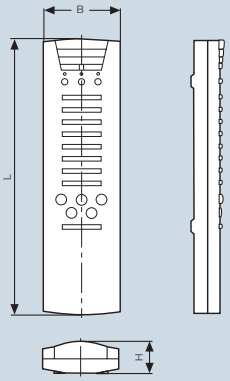


Components	**Typical range in buildings**	**Range outdoors**
Wall transmitter WCU2/4/8	15 m	30 m
Manual transmitter Comfort	25 m	100 m
Manual transmitter Mini	15 m	30 m
Light sensor	25 m	100 m
Combined sensor	25 m	100 m
Manual programming unit	20 m	100 m

Technical data of the DALI ADVANCED system components[1)]

Comfort Manual Transmitter
DALI RMC ADVANCED B

- All on/off
- Dim all
- 5 scenes
- 3 x 8 groups (16 for DALI, 8 for additional radio components)

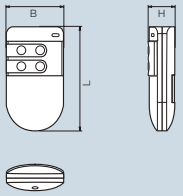


Technical data:

• Power supply:	6 V DC
• Batteries:	4 x type LR03 (AAA)
• Dimensions in mm:	192 x 53 x 23 (L x W x H)
• Weight:	144 g

Mini Manual Transmitter
DALI RMC-M ADVANCED

- Central dimming/switching or dimming/ switching of two groups

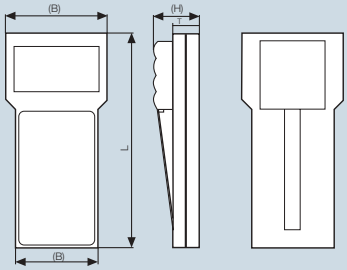


Technical data:

• Power supply:	3 V DC
• Battery: (included)	1 x lithium button cell (CR 2032)
• Dimensions in mm:	73 x 40 x 19 (L x W x H)
• Weight:	28 g

Manual programming unit
DALI HPT ADVANCED

Management and configuration of any number of DALI ADVANCED systems

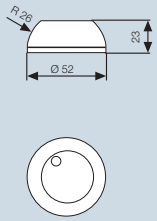


Technical data:

• Power supply:	6 V DC, 4 x 1.5 V, type LR6 (AA)
• Operating time:	Approx. 24 hours, without illumination
• Display:	multi-line backlit LCD display
• Dimensions in mm:	211 x 81 (100) x 26 (45) (L x W x H)
• Weight:	282 g

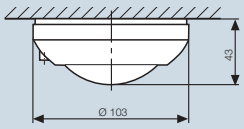
1) The technical data is included here only in abbreviated form. For detailed technical data on the DALI ADVANCED control system please refer to the DALI Guide (order no. 130T11E) or our homepage at www.osram.com. Subject to change without notice. Errors and omission excepted.

Technical data of the DALI ADVANCED system components[1)]



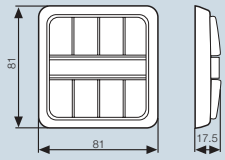
Light sensor DALI LS ADVANCED[2)]

- Power supply: 3 V DC
- Battery (included): 1 x lithium cell CR 2450N
- Operating range: approx. 3 lux to 2000 lux
- Type of protection: IP20
- Temperature range: +5 °C to +55 °C
- Dimensions in mm: 52 x 23 (Ø x H)
- Weight: 24 g



Combined sensor DALI LS/PD ADVANCED[2)]

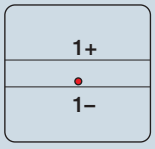
- Power supply: 6 V DC
- Batteries: 4 x 1.5 V LR03 (AAA)
- Detection angle: 360°
- Rated detection range (if mounted at a height of 2.5 m)
  - – at desk level: approx. Ø 5 m
  - – at floor level: approx. Ø 8 m
- Setting range PD: approx. 2 min to 1 h
- Operating range: approx. 3 Lux to 2000 Lux
- Temperature range: 0 °C to 45 °C
- Type of protection: IP20
- Dimensions in mm: 103 x 43 (Ø x H)
- Weight: 116 g



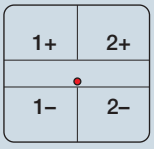
Wall control unit (white)
DALI WCU 2/4/8 ADVANCED W

Supplied with simple frame

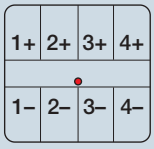
- Power supply: 6 V DC
- Battery (included): 2 x lithium cells CR 2016
- Type of protection: IP20
- Dimensions in mm: 81 x 81 x 18 (L x W x H)
- Weight: 72 g



2-way switch



4-way switch



8-way switch

Switch assignment, selectable functions via DIP switches at the back:

Function switch at the back	Function of	In OFF setting	In ON setting
F2	Button 1+ Button 1–	Lighting scene 1 All off	Group 1+ / or Group 1– / central unit
F3	Button 2+ Button 2–	Lighting scene 3 Lighting scene 2	Group 2+ / or Group 2– / central unit
F4	Button 3+ Button 3–	Lighting scene 5 Lighting scene 4	Group 3+ / or Group 3– / central unit

Button 4+/4– Group + / or
Group – / central unit

1) The technical data is included here only in abbreviated form. For detailed technical data on the DALI ADVANCED control system please refer to the DALI Guide (order no. 130T011E) or our homepage at www.osram.com. Subject to change without notice. Errors and omission excepted.

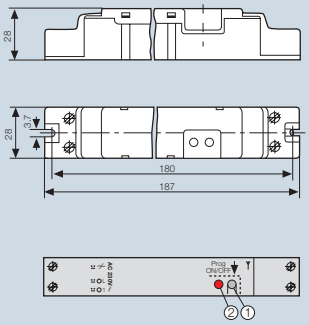
2) Depending on the system, the reaction times of the sensors may be longer than in a wired system because of optimisation to achieve minimal power consumption

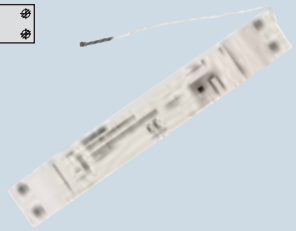
Technical data of the DALI ADVANCED system components[1)]

Universal radio dimmer
DALI DM ADVANCED LI

R,L,C

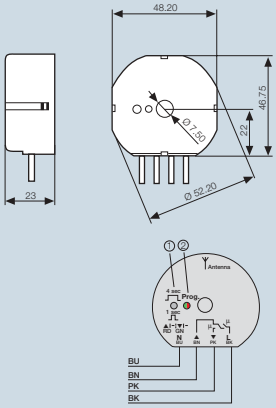
- Power supply: 230 V AC, 50/60 Hz (N conductor not required)
- Connected load: 50 to 315 VA
- Dimming of ohmic loads, electronic or conventional transformers
- Temperature range: approx. 0 °C to +55 °C
- Type of protection: IP20
- Dimensions in mm (L x W x H): 187 x 28 x 28
- Weight: 94 g

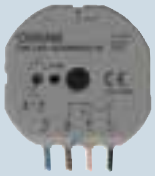




Blind control DALI BC ADVANCED RI

- Rated voltage: 230 V AC, 50/60 Hz (N conductor required)
- Circuit breaker: 10 A
- Switching output: max. 1 motor 700 VA
- Relay output: 2 make contacts (with potential and interlocked)
- Changeover time for change of direction: approx. 1 s
- Continuous operation: approx. 2 min.
- Temperature range: approx. –20 °C to +55 °C
- Type of protection: IP20
- Dimensions in mm: 52 x 23 (Ø x H)
- Weight: 44 g
- Central hole Ø: 7.5 mm





Type	Product reference	Product number	Dimensions in mm	
ADVANCED order data				
ADVANCED control unit	DALI RC ADVANCED CI	4050300**655970**	200 x 130 x 52	10
Manual programming unit	DALI HPT ADVANCED	4050300**655994**	211 x 81/100 x 26/45	10
Combined sensor	DALI LS/PD ADVANCED	4050300**655918**	∅ 103 x 42	50
Light sensor	DALI LS ADVANCED	4050300**656366**	∅ 52 x 23	50
Comfort remote control	DALI RMC ADVANCED	4050300**655796**	192 x 53 x 23	33
Mini remote control	DALI RMC-M ADVANCED	4050300**655895**	73 x 40 x 19	45
Wall transmitter, 2-way, white	DALI WCU 2 ADVANCED W	4050300**656786**	81 x 81 x 18	50
Wall transmitter, 4-way, white	DALI WCU 4 ADVANCED W	4050300**656724**	81 x 81 x 18	50
Wall transmitter, 8-way, white	DALI WCU 8 ADVANCED W	4050300**658292**	81 x 81 x 18	50
Blind control	DALI BC ADVANCED RI	4050300**656748**	∅ 52 x 23	50
Radio dimmer	DALI DM ADVANCED LI	4050300**655932**	187 x 28 x 28	40

1) The technical data is included here only in abbreviated form. For detailed technical data on the DALI ADVANCED control system please refer to the DALI Guide (order no. 130T011E) or our homepage at www.osram.com. Subject to change without notice. Errors and omission excepted.

Multi 3 – lighting control system for individual and open-plan offices

The MULTI 3 lighting control system was developed to regulate and control brightness levels in offices. Sensors measure the brightness in the room and detect the presence of persons. The lighting conditions at the workplace are maintained at a user-adjustable setpoint by providing artificial light according to the amount of available daylight. If there is enough natural daylight or if there are no persons in the room, the lighting control unit switches the luminaire off. Good workplace lighting makes the working environment more comfortable. Energy savings of over 70% can be made compared with conventional workplace lighting.

The two-part Multi 3 system, consisting of a control unit with digital DALI or analogue 1-10 V interface and separate miniaturised sensor head, is recommended in particular for installation in pendant luminaires, recessed and surface-mounted luminaires, strip lighting and floor-mounted luminaires. For the 1-10 V version see also page 11.81.

System overview

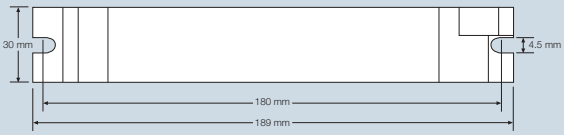
Overview of system properties

Interface	DALI (DALI MULTI 3 control unit)
	1-10 V (DIM MULTI 3 control unit)
Assembly	In luminaires of protection classes I and II
Manual operation	on/off
	1 – 100% dimming
	Deactivation of automatic switch-on
Comfort functions	Constant daylight-dependent lighting control
(can be activated and	Automatic activation if movement is detected
deactivated individually)	Automatic switch-off with a 15 minute delay
Max. no. of ECGs	DALI MULTI 3: 15
	DIM MULTI 3: 30[1)]
Size of opening required	Standard sensor and low-profile sensor: ∅ 20 mm
	Movable spherical-head sensor: ∅ 23 mm
Max. no. of sensors	4

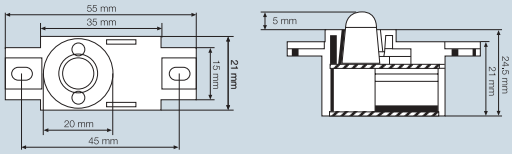
1) Check the switching contact load

DALI control unit DALI MULTI 3

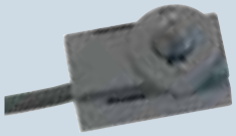
1-10 V control unit DIM MULTI 3[1)]

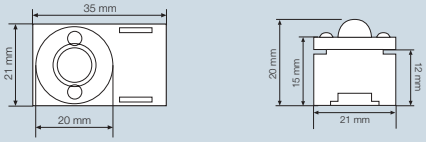


Standard light and motion sensor LS/PD MULTI 3

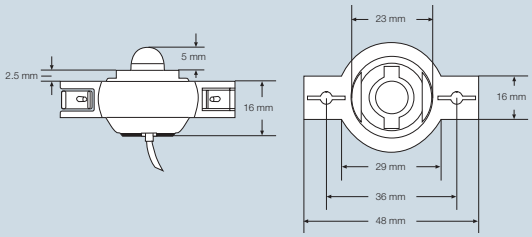


Low-profile light and motion sensor LS/PD MULTI 3 FL

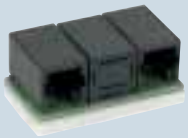


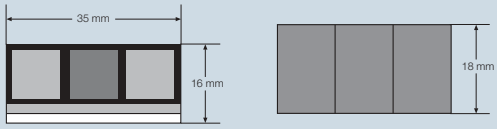


Movable light and motion sensor LS/PD MULTI 3 B



Y-CONNECTOR





Type	Product reference	Product number	Dimensions in mm	
MULTI 3 order data				
DALI control unit	DALI MULTI 3	4050300**802084**	189 x 30 x 28	25
Standard light and motion sensor	LS/PD MULTI 3	4050300**802138**	55 x 21 x 29	25
Low-profile light and motion sensor	LS/PD MULTI 3 FL	4008321**047342**	35 x 21 x 20	25
Movable light and motion sensor	LS/PD MULTI 3 B	4050300**803081**	48 x 29 x 24	25
Y-CONNECTOR	Y-CONNECTOR	4050300**803135**	35 x 18 x 16	25

1) For DIM MULTI 3 order data see page 11.81

Control units

Designation:	**DALI MULTI 3 (control unit with DALI interface)**
Power supply:	L, N, PE
Interface:	DALI control signal, a maximum of 15 DALI ECGs can be connected
Switch input:	Floating make contact, maximum cable length 100 m
Sensor connection:	Maximum of 4 sensors[1)], maximum cable length 100 m
Operating voltage:	230 – 240 V AC 50/60 Hz (no DC operation)
Fuse protection:	external 16 A
Power consumption:	approx. 1.5 W
Temperature range:	0 °C to +50 °C
Adjustable light value:	20 – 1000 lux (measured at the sensor)
CE requirement:	EMC to EN 61547, low voltage to EN 60928
Insulation:	Basic insulation to IEC 60664

Designation:	**DIM MULTI 3 (control unit with 1-10 V interface)**
Power supply:	L, N, PE
Load connection:	O', switched output, max. 5 A ohmic load or 10 1-lamp ECGs or 5 2-lamp ECGs,
	up to 30 ECGs via external load contact
Interface:	1-10 V control signal, a maximum of 30 ECGs can be connected
Switch input:	Floating make contact, maximum cable length 100 m
Sensor connection:	Maximum of 4 sensors[1)], maximum cable length 100 m
Operating voltage:	230 – 240 V AC 50/60 Hz (no DC operation)
Fuse protection:	external 16 A
Power consumption:	approx. 1.5 W
Temperature range:	0 °C to +50 °C
Adjustable light value:	20 – 1000 lux (measured at the sensor)
CE requirement:	EMC to EN 61547, low voltage to EN 60928
Insulation:	Basic insulation to IEC 60664

Sensors

Designation:	**LS/PD MULTI 3**
Combined control connection:	RJ 11 connection, 4-pin
Connecting cable:	Length 2.1 m unpluggable (included)
Light sensor range:	20 – 1000 lux (measured at the sensor)
Motion detection area:	Conical detection area, opening angle approx. 100°
CE requirement:	EMC to EN 61547, low voltage to EN 60928
Insulation:	Basic insulation to EN 60664
Casing colour:	RAL 7015 (slate grey)

Designation:	**LS/PD MULTI 3 FL**
Combined control connection:	RJ 11 connection, 4-pin
Connecting cable:	Length 2.1 m, permanently connected
Light sensor range:	20 – 1000 lux (measured at the sensor)
Motion detection area:	Conical detection area, opening angle approx. 100°
CE requirement:	EMC to EN 61547, low voltage to EN 60928
Insulation:	Basic insulation to EN 60664
Casing colour:	RAL 7015 (slate grey)

Designation:	**LS/PD MULTI 3 B**
Combined control connection:	RJ 11 connection, 4-pin
Connecting cable:	Length 2.1 m, permanently connected
Light sensor range:	20 – 1000 lux (measured at the sensor)
Motion detection area:	Conical detection area, opening angle approx. 100°
CE requirement:	EMC to EN 61547, low voltage to EN 60928
Insulation:	Basic insulation to EN 60664
Casing colour:	RAL 7015 (slate grey)

Accessories

Designation:	**Y-CONNECTOR**
Combined control connection:	3 x RJ 11 socket 4-pin
Connecting cable:	4-pin, RJ 11 connector on both ends, length 2.1 m (2 x included)

1) If there is more than one sensor a Y-CONNECTOR is needed for each further sensor

DALI EASY

DALI EASY is a new generation of lighting control products offering high levels of functionality, modular expansion and intuitive operation.

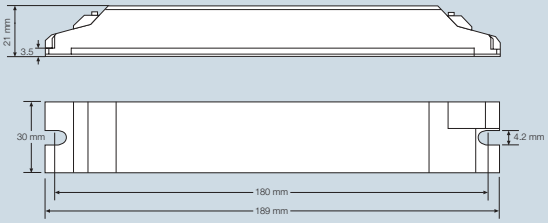
Setting the colour, storing settings at the touch of a button, selecting the fade time, and starting – “programming” your own individual preferences is so simple with DALI EASY. With fade times of 0.1 s to 99 minutes it is possible to create a wide range of effects with the integrated sequencer from stunning rapid colour changes to gentle relaxing variations. It doesn’t always have to be dynamic though – up to four static colour moods can be stored and retrieved at any time. With such a simple concept and clearly labelled infra-red hand-held transmitter, operating the system is child's play. DALI EASY has a special operating mode in which it is possible to simulate the natural changes in daylight over a time span of up to 24 hours. The central element of the DALI EASY system is the extremely compact control unit. This has four separate digital DALI control outputs, one input for the IR receiver and a connection for a standard switch for central control.

If the integrated supply for the DALI interface is not sufficient for large systems, control units can be interconnected using Y-connectors. The master/ slave structure ensures that transitions and colour changes are fully synchronised. If differently “programmed” control units are interlinked in this way, complex effects such as contrasting colour sequences can be easily set up. This is a simple way of providing lighting for effect or relaxation or bringing a little colour into the office. The simple DALI EASY lighting control system offers some interesting options for luminaires with changeable colour temperatures, for daylight simulation and for comfortable lighting in offices and conference rooms. DALI EASY is an attractive alternative to far more complex products.

Daylight simulation with virtual windows
EFH Bank Zurich

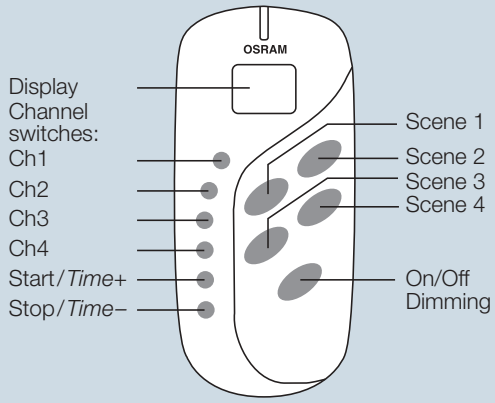
Spectacular lighting
Hallenstadion Zurich

Entrance area
Hallein hospital



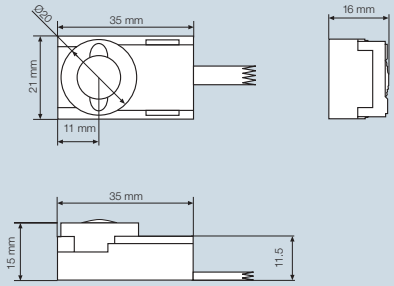
DALI EASY

- Power supply: L, N
- Inputs: IR sensor input, floating switch input
- Outputs:
  - 4 DALI broadcast channels,
  - Up to 16 DALI units can be connected (total across all channels),
  - Up to 100 m total DALI cable length (total across all channels)
- Master/slave connection:
  - Up to 100 m total connecting cable length
  - Up to 10 slaves can be connected (do not lay master/slave connecting cables together with mains and lamp cables)
- Operating voltage: 230 V AC; 50/60 Hz (no DC operation)
- Power consumption: approx. 3.5 W
- Operating temperature: 0 °C to +50 °C
- Type of protection: IP20
- CE
- Dimensions: 189 x 30 x 21 mm (L x W x H), hole spacing for mounting: 180 mm



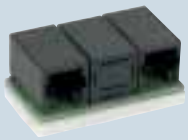
DALI EASY RMC

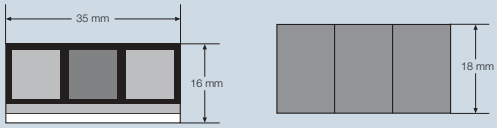
- Batteries required: 2 x AAA/LR03 (alkaline)
- IR signal: 38 KHz signal digitally encoded 2 OSRAM-specific codes can be selected
- Range: approx. 10 – 15 m (please read IR receiver installation instructions)
- Ambient temperature: 0 °C to +40 °C
- Type of protection: IP20
- Dimensions: 120 x 57 x 26 mm (L x W x H)



DALI EASY IR

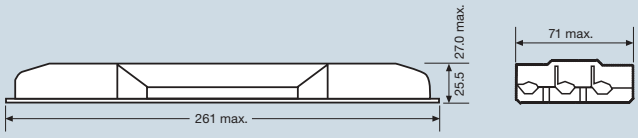
- Connection:
  - Permanently connected cable with RJ 11 connector (length: approx. 2 m)
  - Up to 100 m total cable length (incl. all connecting cables to control units) (do not lay connecting cable together with mains or lamp cables)
- Operating temperature: 0 °C to +50 °C
- Type of protection: IP20
- CE





Y-CONNECTOR

- 3 x RJ 11 socket 4-pin
- Fixing: Adhesive pad
- Dimensions: 35 x 18 x 16 mm (L x W x H)
- Connecting cable: 4-pole, RJ 11 connector on both sides, length: 2.1 m (2 x included)



LMS CI BOX

For separate installation of the control unit

- Permissible cable cross-section: min. ∅ 8 mm/ max. ∅ 13 mm
- Dimensions: 261 x 71/35 x 27 mm (L x W x H)

Type	Product reference	Product number	Dimensions in mm (L x W x H)	
Order data				
DALI EASY	Control unit	4008321**053046**	189 x 30 x 21	25
DALI EASY RMC	Remote control	4008321**053152**	120 x 57 x 26	25
DALI EASY IR	IR receiver	4008321**053138**	35 x 21 x 16	25
Y-CONNECTOR	Branch	4050300**803142**	35 x 18 x 16	25
LMS CI BOX	Installation kit	4008321**083692**	261 x 71/35 x 27	40

Dimmable lighting systems
Dimmable lighting systems are playing a more and more important role in all areas of application. The reason is that many of the demands that are placed on lighting systems can be met more easily and more elegantly with lighting controls. Economy and comfort are the driving forces here.

- Reducing lighting costs
- Increasing lighting comfort
- Promoting individuality

This has all been made possible thanks to technical developments over recent years. Modern dimmable ECGs with 1-10 V interfaces in combination with the appropriate controllers and sensors provide the basis for simple and cost-effective systems.

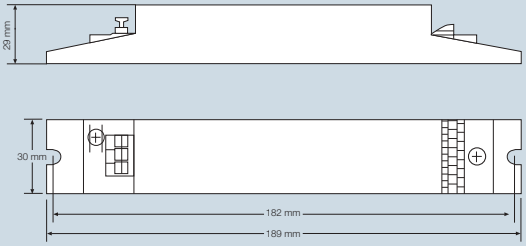
The right controller for any application
There are very many different ways in which dimmable ECGs can be used. Typical applications include offices and factories with daylight-dependent controllers, conference and meeting rooms with situation-dependent lighting and CAD rooms and control rooms with individual adjustment of the lighting level. At the heart of the lighting system are QUICKTRONIC® DIMMABLE ECGs with 1-10 V interfaces. They are controlled with a controller or a sensor. The choice of the right 1-10 V dimmer components for controlling the lighting level depends on the particular application. The requirement profile for the dimmable lighting system must therefore be defined accurately.

Manual controllers
Manual controllers using switches and remote control units, for example, offer a high degree of flexibility and can be adapted to the specific needs of the user. The functions of different 1-10 V controllers can be combined for tailor-made lighting control.

Automatic controllers
Automatic controllers with sensors are ideal for saving on lighting costs. The lighting level is regulated by light sensors according to the amount of daylight available, so full use is made of available daylight. Energy savings of up to 60% are possible. Potential savings of up to 70% and more can be achieved by using sensors with automatic disconnection, motion detectors and time switches.

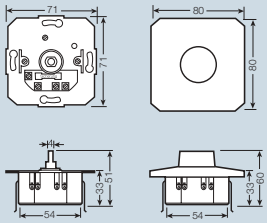
Complex controllers
A simple link between the 1-10 V interface and the *instabus EIB* or *LON* building services control bus can be established via switching/dimming actuators.

Properties of the 1-10 V interface:
1. Control is via an interference-proof dc voltage signal of 10 V (maximum brightness; control line open) to 1 V (minimum brightness; control line short-circuited)
2. The control power is generated by the ECG (maximum current 0.6 mA per ECG).
3. The voltage on the control line is isolated from the power cable (basic insulation) but is not at safety extra-low voltage (SELV).
4. ECGs connected to different phases can be dimmed via the same controller.



DIM SA

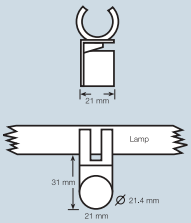
- Signal amplifier for 1-10 V signal
- Can only be used in conjunction with other controllers (such as sensors)
- Weight: 190 g
- Permissible ambient temperature: 0 °C to +50 °C
- Rated voltage: 230 V/50 – 60 Hz, DC not permissible
- Power consumption: 2 W
- Protection class: I
- Type of protection: IP20
- Load capacity of the signal output: max. 100 mA or 100 OSRAM 1-10 V ECGs or signal amplifiers: max. 33



DIM MCU P

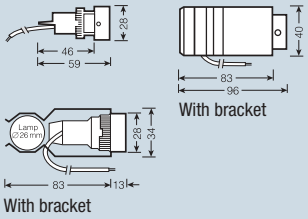
- Electronic potentiometer for 1-10 V
- For 1 control point
- Integrated switching contact
- With rotary button and cover
- Permissible ambient temperature: –20 °C to +50 °C
- Load capacity of switching contact: 250 V/6 A (10 single-lamp or 5 two-lamp dimmable ECGs)
- Protection class: II
- Type of protection: IP20
- Load capacity of the signal output: Max. 40 mA or dimmable ECGs: max. 50 or signal amplifiers: max. 16
- Approval marks:

Type	Product reference	Product number	Dimensions in mm	
Order data				
Signal amplifier	DIM SA	4008321**097095**	189 x 30 x 29	40
Manual control unit	DIM MCU P	4050300**347424**	80 x 80 x 60	100



DIM PICO

- 1-10 V mini light sensor for single luminaires in single and open-plan offices
- Up to 50% energy savings
- Simple clip-on fitting for T8 and T5 lamps
- Direct connection to the 1-10 V-interface
- Compensates for 50% of the incoming daylight
- Easy to adjust by turning the casing
- Permissible ambient temperature: +5 °C to +55 °C
- Load capacity of the signal output: 6 mA or a maximum of 10 OSRAM dimmable ECGs
- Cable length: 700 mm
- Protection class: II
- Type of protection: IP20
- Weight: 21 g



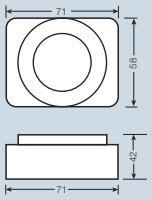
DIM MICO

- 1-10 V mini light sensor for strip lighting in single and open-plan offices
- Up to 60% energy savings
- Direct connection to the 1-10 V-interface
- Compensates for 100% of the incoming daylight
- Integrated trimmer for adjusting the lighting level
- Mounting bracket for simple installation
- Permissible ambient temperature: 0 °C to +45 °C
- Load capacity of the signal output: Dimmable ECGs: max. 100
Signal amplifiers: max. 16
- Cable length: 800 mm, can be extended to 50 m
- Protection class: II
- Type of protection: IP20
- Weight: 100 g

Order data

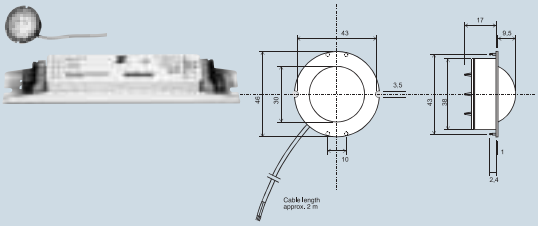
Type	Product reference	Product number	Dimensions in mm	
Mini light sensor	DIM PICO	4050300**554457**	21 x 21 x 31	20
Mini light sensor	DIM MICO	4050300**464411**	∅ 28 x 59	20

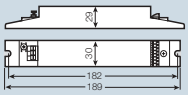
1-10 V combined light and motion sensors



DIM MULTI

- 1-10 V sensor for daylight-dependent control with automatic shutdown in adequate daylight
- Integrated motion sensor (can be disabled)
- Energy savings: up to 70%
- Compensates for 100% of the incoming daylight
- Easy to adjust with three trimmers on the sensor
- For ceiling mounting in single and open-plan offices
- Upgrades: in louvre luminaires with clip for T5/T8 lamps
- Rated voltage: 230 V 50/60 Hz, DC not permissible
- Permissible ambient temperature: 0 °C to +50 °C
- Load capacity of the signal output: Dimmable ECGs: max. 50 Signal amplifiers: max. 16
- Load capacity of switching contact: 5 A ohmic load or 20 1-lamp ECGs or 10 2-lamp ECGs
- Switch-off delay range: 5 to 30 minutes
- Detection angle of the light sensor: Approx. 100°
- Monitoring range of the motion sensor: Approx. 7 m diameter at a height of 3 m
- Protection class: II
- Type of protection: IP20
- Weight: 150 g





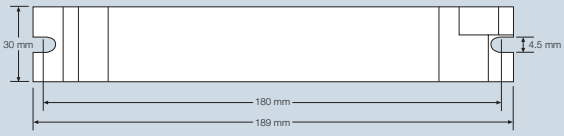
DIM MULTI 2

- 1-10 V control system for installation in floor-standing luminaires and strip lighting for daylight-dependent control with automatic shutdown in adequate daylight
- Integrated motion detector
- Manual control using switches
- Energy savings: 70% and more
- Compensates for 100% of the incoming daylight
- Pushbutton adjustment of the setpoint value
- Rated voltage: 230 V 50/60 Hz, DC not permissible
- Permissible ambient temperature: 0 °C to +50 °C
- Load capacity of the signal output: Dimmable ECGs: max. 100 signal amplifiers: max. 33
- Load capacity of switching contact: 5 A ohmic load or 20 1-lamp ECGs or 10 2-lamp ECGs
- Switch-off delay range: 1 to 30 minutes
- Detection angle of the light sensor: Approx. 130°
- Monitoring range of the motion sensor: Approx. 7 m diameter at a height of 3 m
- Cable length to sensor head: 2 m, can be extended to 100 m
- Protection class: I
- Type of protection: IP20
- Weight: 150 g (control unit) + 60 g (sensor)

Type	Product reference	Product number	Dimensions in mm	
Order data				
One-part light and motion sensor	DIM MULTI	4050300**554471**	71 x 58 x 42	20
Two-part light and motion sensor	DIM MULTI 2	4050300**585680**	189 x 30 x 29	20

DALI control unit DALI MULTI 3 (see also pages 11.71 ff.)

1-10 V control unit DIM MULTI 3



Accessories (for technical data see page 11.73):
- Standard light and motion sensor
- Low-profile light and motion sensor
- Movable light and motion sensor
- Y-CONNECTOR

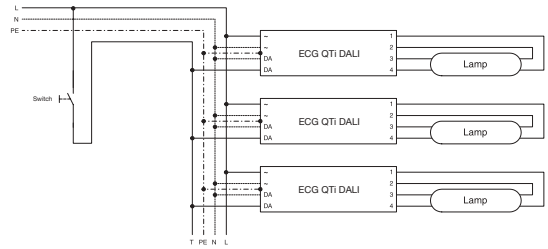
Type	Product reference	Product number	Dimensions in mm	
MULTI 3 order data				
1-10 V control unit	DIM MULTI 3	4050300**802107**	189 x 30 x 28	25
Standard light and motion sensor	LS/PD MULTI 3	4050300**802138**	55 x 21 x 29	25
Low-profile light and motion sensor	LS/PD MULTI 3 FL	4008321**047342**	35 x 21 x 20	25
Movable light and motion sensor	LS/PD MULTI 3 B	4050300**803081**	48 x 29 x 24	25
Y-CONNECTOR	Y-CONNECTOR	4050300**803135**	35 x 18 x 16	25

Touch DIM®[1] lighting control without a controller

Dimming with mains voltage

OSRAM has come up with a cost-effective idea for providing simple lighting control with DALI ECGs. A new function has been added to DALI ECGs. It's called ***Touch DIM***®. It is now possible to dim and switch the control gear directly with mains voltage at the DALI control terminals. There is no longer any need for a separate controller as the ECG itself acts as the controller.

Wiring diagram for *Touch DIM*® operation:



Note: The ECGs may be connected to different power supply phases

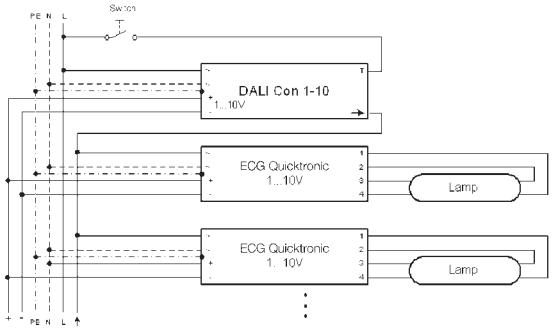
***Touch DIM*® offers the following convenient functions:**

- Soft start
- Precise setting of the required light value
- Either manual storage of the switch-on value by double-clicking or switching on at the last dimmer value
- The last state is automatically restored after a power failure

***Touch DIM*® also with 1-10 V ECGs**

By using DALI to 1-10 V converters it is possible also to control 1-10 V ECGs via ***Touch DIM***®. The converter has a separate input for connecting the switch (see page 11.62).

Wiring diagram for converters in *Touch DIM*® mode:



Changeover is automatic

After an interruption in the power supply it is possible to change over from DALI mode (factory default) to ***Touch DIM***® by holding down the switch for about two seconds. If the unit is used again in a DALI system the ECG automatically changes back to DALI mode after a break in the power supply.

Important:

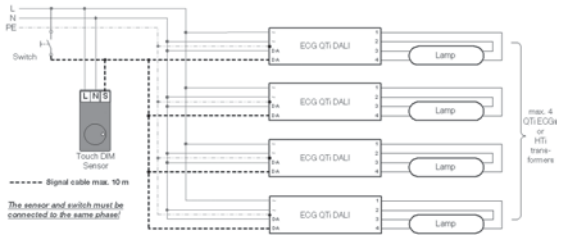
Touch DIM® must **never** be used at the same time as a DALI control system. **Either** DALI mode **or** ***Touch DIM***® mode, but not both. Otherwise the controller or the ECG or converter may be damaged.

1) ***Touch DIM***® is an extra function of the DALI ECG and DALI to 1-10 V converter that is **integrated** in addition to the DALI standard in our QTi DALI, HTi DALI and QTi DALI ECGs

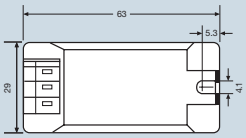
The *Touch DIM® Sensor* – lighting control without a controller

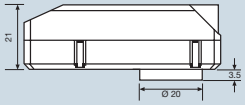
The ***Touch DIM®*** function of the microprocessor-controlled QTi DALI ... DIM series of ECGs now also offers integrated lighting control functions – without the need for an external controller. Daylight and presence-dependent lighting control is possible in conjunction with the new ***Touch DIM® Sensor***. Connection of a ***Touch DIM® Sensor*** is automatically detected by the ECG. For luminaire manufacturers this means fewer components, less space needed in the luminaire and less wiring. The simplicity of ***Touch DIM®*** operation has been retained. The ***Touch DIM® Sensor***, in conjunction with the new intelligent family of QTi DALI ECGs, offers tailor-made solutions for comfortable energy-saving lighting that meets the needs of individual and open-plan offices.

Wiring diagram for *Touch DIM® Sensor*:

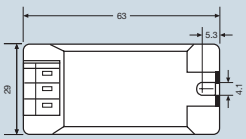


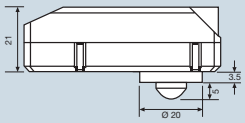
Note: The ECGs may be connected to different power supply phases. The switch and sensor must be connected to the same phase.





Device type:	Light sensor	• Power consumption:	Approx. 0.5 W
Designation:	***Touch DIM®* LS LI**	• Operating temperature:	0 °C to +50 °C
• Operating voltage:	220 – 240 V/50-60 Hz	• Adjustable light value:	10 – 300 lux measured at the sensor or approx. 10 – 1200 lux on the desktop
• Connections:	L, N, S (signal), a maximum of 4 QTi DALI ECGs or 4 HTi transformers can be connected	• Dimensions:	63 x 29 x 21 mm (L x W x H)
• Max. overall length of the signal cable:	10 m	• Protection class:	II





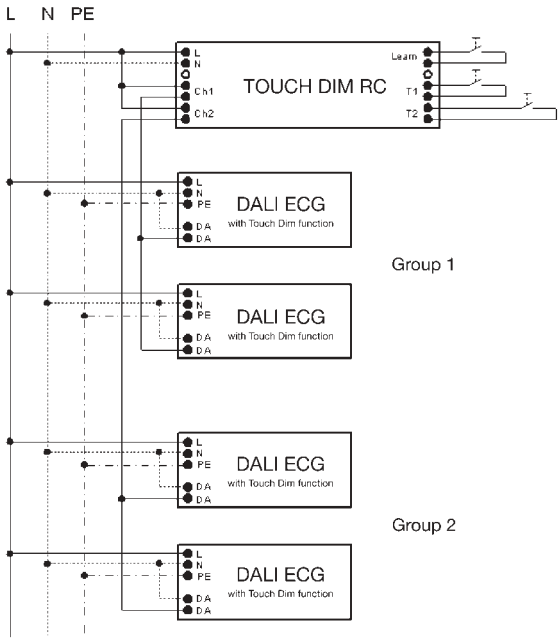
Device type:	Light and motion sensor	• Operating temperature:	0 °C to +50 °C
Designation:	***Touch DIM®* LS/PD LI**	• Adjustable light value:	Approx. 0 – 300 lux measured at the sensor or approx. 10 – 1200 lux on the desktop
• Operating voltage:	220 – 240 V/50-60 Hz	• Motion detection area:	Conical, approx. 80 to 100° opening angle
• Connections:	L, N, S (signal), a maximum of 4 QTi DALI ECGs or 4 HTi transformers can be connected	• Delay time:	15 min
• Max. overall length of the signal cable:	10 m	• Dimensions:	63 x 29 x 21 mm (L x W x H)
• Power consumption:	Approx. 0.5 W	• Protection class:	II

Type	Product reference	Product number	Dimensions in mm	
***Touch DIM®* order data**				
Light sensor	Touch DIM LS LI	4008321**023087**	63 x 29 x 21	25
Light and motion sensor	Touch DIM LS/PD LI	4008321**023025**	63 x 29 x 21	25

Touch DIM® Remote Control – dimming without a control cable

With the new "***Touch DIM***® **R**emote **C**ontrol System", all ***Touch DIM***® compatible ECGs can be controlled without the need for cables. The system consists of a 2-channel radio receiver module and a 2-channel radio switch. The receiver module for controlling up to 2 x 15 ECGs can be accommodated either directly in a luminaire or, with the LMS CI BOX installation kit, in a suspended ceiling. The systems requires no maintenance whatsoever. Thanks to innovative piezo technology, batteries are not needed to power the transmitter module in the radio switch. The unique coding of the switch ensures that there is no interference between neighbouring systems. Up to 30 radio switches can be very easily "trained and retrained" in each receiver module at the push of a button. Transmission is extremely reliable over distances of about 30 metres indoors and 300 metres outdoors, which is what distinguishes this professional "***Touch DIM***® **R**emote **C**ontrol System" from the many consumer products available on the market. The system is suitable not only for purpose-built buildings but also, in combination with the new intelligent HTi transformer for operating low-voltage halogen lamps, for meeting sophisticated lighting requirements in the home.

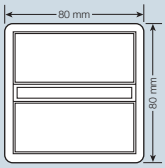
Wiring diagram for *Touch DIM*® Remote Control:

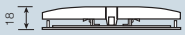


Notes on radio operation:
The installation site for wall transmitters and receivers, the structure of the building and the building materials all have a major impact on the transmission range. The type and number of obstacles between the transmitter and the receiver, sources of interference and signal reflections may reduce the ranges shown here quite considerably. If you are in any doubt you should test the transmission range before installing the equipment.

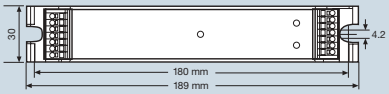
The following transmission ranges are given as guide values:

- In the open air: Approx. 300 m
- Factories: Approx. 100 m
- Passageways and corridors: Approx. 50 m
- Rooms with wooden or plasterboard walls: penetration of up to 7 walls Approx. 30 m
- Rooms with brick or breezeblock walls: penetration of up to 3 walls Approx. 20 m
- Rooms with reinforced concrete walls: penetration of one wall Approx. 10 m

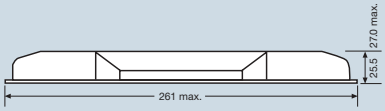


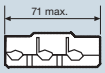


Device type:	2-channel wall transmitter	• Frequency band:	868.3 MHz
Designation:	***Touch DIM*® WCU**	• Output power:	10 mW
• Type of protection:	IP20	• Switching cycles:	> 50000
• Ambient temperature:	0 °C to +50 °C	• Dimensions:	80 x 80 x 18 mm (L x W x H)



Device type:	2-channel radio receiver module	• Inputs:	Learn, T1, T2 inputs for floating make contacts
Designation:	***Touch DIM*® RC**	• Outputs:	2 floating semiconductor relay outputs (Ch1, Ch2), max. 45 mA/240 V
• Operating voltage:	220 – 240 V/50-60 Hz		
• Current input:	approx. 9 mA		
• Power consumption:	max. 1.5 W		
• Protection class:	II, IP20	• Number of control gear units per output:	up to 15 QTi DALI ECGs or HTi transformers or 15 QT DALI ECGs
• Ambient temperature:	0 °C to +50 °C		
• Frequency band:	868.3 MHz	• Number of wall transmitters:	max. 30





Installation kit:	**LMS CI BOX**	• Dimensions:	261 x 71/35 x 27 mm (L x W x H)
• Permissible cable cross-section:	min. ∅ 8 mm/ max. ∅ 13 mm		

Touch DIM® order data

Type	Product reference	Product number	Dimensions in mm	
2-channel radio receiver	Touch DIM RC	4008321**031938**	189 x 30 x 21	20
2-channel wall transmitter	Touch DIM WCU	4008321**032737**	80 x 80 x 18	25
Installation kit	LMS CI BOX	4008321**083692**	261 x 71/35 x 27	40

HALOTRONIC® with and without casing: for separate installation or installation in luminaires

HALOTRONIC® is primarily intended for:
- recessed and surface-mounted ceiling luminaires
- tube lighting systems
- domestic lighting (lighting installed in and on furniture)

Versions:
- Long with casing and cable clamp (L)
- With low-profile casing and cable clamp (LF)
- Built-in version with casing (S)
- As a board (B)

HTM Mouse® is available as a compact standard unit with cable clamp for shallow suspended ceilings.
New: Connections for 2 luminaires.

HTN (HT NANO) is ideal in systems with OSRAM MINISTAR® lamps for particularly tight spaces. Excellent thermal behaviour despite its small size – brilliant white halogen light even at high ambient temperatures.

Thanks to its low power loss it generates much less heat than a conventional transformer. Part-load operation prolongs the life of the lamp.

Applications:
- Foyers/reception areas
- Passages/corridors
- Shops and exhibition rooms
- Offices and conference rooms
- Living rooms
- Accent lighting
- Decorative lighting

Prescribed dimmer for HALOTRONIC®

HT 70/230/12 L	C
HT 105/230/12 L	C
HT 150/230/12 L	C
HT 210/230/12 L	C
HT 120/230-240/12 LF	C
HTM 70/230-240	L,C
HTM 105/230-240	L,C
HTM 150/230-240	L,C
HTN 75/230-240 I, …S	C
HT 50/230-240/12 SB	C

C with trailing-edge phase dimmer
L with leading-edge phase dimmer for inductive loads
L,C with trailing-edge or leading-edge phase dimmers for inductive loads

Dimmers for ohmic loads are not suitable.

Comfort:
- Since it weighs around 80% less and takes up 40% less space than normal transformers it gives much greater scope for planning halogen-based lighting systems
- Dimmable
- Electronically reversible cutout to protect against short circuits, overloads and overtemperature

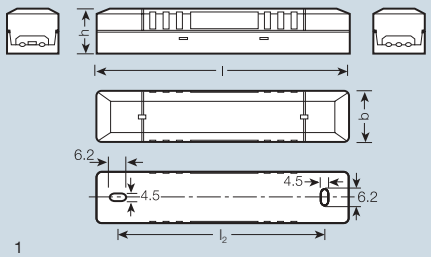
Economy:
- Protective operation throughout the entire partial load range
- No additional safety measures required for connecting the unit
- Approx. 60% lower power loss compared with conventional transformers

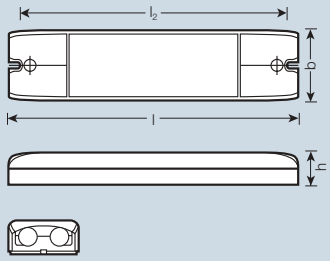
Safety:
- All units are VDE tested
- Suitable for mounting on wooden surfaces
- Devices for separate installation have W W labels
- Suitable, without any additional measures, for luminaires in protection classes II and III, luminaires with F and F F labels and luminaires with W and W W labels
- Complies with international, European and German standards for safety, operation and EMC

Ease of installation

L version
- Primary and secondary covers easy to lever off. No force needed to open or unscrew the caps
- Two terminal pairs on primary side for looping from unit to unit
- The same screwdriver can be used to lever off the caps, connect the wires and tighten the cable clamp
- Cable clamp on the primary side for two cables up to NYM 3 x 1.5 mm²
- Three terminal pairs on the secondary side for connecting three luminaires in parallel
- Sufficient space for cables in front of the screw terminals

LF version
- Low-profile design
- Two terminal pairs on primary side for looping from unit to unit
- Cable clamp on the primary side for two cables up to NYM 3 x 1.5 mm²
- Two luminaires can be connected in parallel on the secondary side





Product reference	Product number		V	Hz	kHz ECG	A	
HALOTRONIC® – long with casing for separate installation with cable clamp							
HTi DALI 150/220-240 DIM	4050300**807782**		220–10%/240+10%	50/60	20-35	0.80	NEW
HT 120/230/12 LF	4050300**461342**	Flat with casing	230–10%/240+6%	50	~50	0.48	
HT 70/230/12 L	4050300**297453**		230+6%/–10%	0/50	~45	0.29	
HT 105/230/12 L	4050300**299662**		230+6%/–10%	0/50	~32	0.46	
HT 150/230/12 L	4050300**332123**		230+6%/–10%	0/50	~35	0.65	
HT 210/230/12 L	4050300**462257**		230+6%/–10%	0/50	~35	0.90	

Product reference	λ	W min.-max.	V_{OUT}	°C min.-max.	W	
HTi DALI 150/220-240 DIM	0.95	35…150	11.7±5%	–20…+45	DALI interface[2]	NEW
HT 120/230/12 LF	0.95	35…120	11.3 (120 W)/11.5 (35 W)	–20…+45	Trailing-edge phase dimmer	
HT 70/230/12 L	0.95	20…70	11.6 (70 W) /12.0 (20 W)	–20…+60	Trailing-edge phase dimmer	
HT 105/230/12 L	0.95	20…105	11.6 (105 W)/12.0 (20 W)	–20…+50	Trailing-edge phase dimmer	
HT 150/230/12 L	0.95	50…150	11.6 (150 W)/12.0 (50 W)	–20…+55	Trailing-edge phase dimmer	
HT 210/230/12 L	0.95	50…210	11.6 (210 W)/11.8 (50 W)	–20…+50	Trailing-edge phase dimmer	

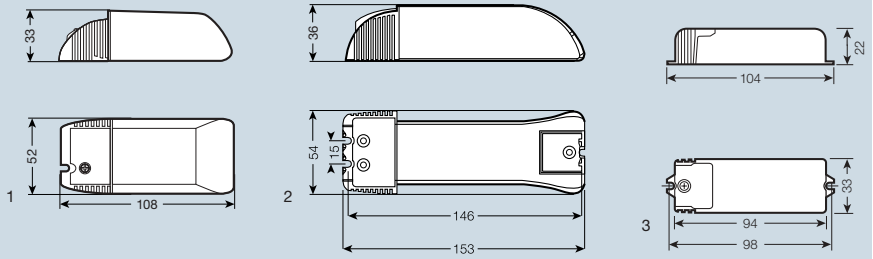
Product reference		l [mm]	b [mm]	h [mm]	l_2 [mm]	g	No.	
HTi DALI 150/220-240 DIM		220	47	44	180	280	1	NEW
HT 120/230/12 LF		172	42	20	164	170	2	
HT 70/230/12 L		175	42	34	140	170	1	
HT 105/230/12 L		175	42	34	140	200	1	
HT 150/230/12 L		220	47	44	180	270	1	
HT 210/230/12 L		220	47	44	180	300	1	

For further information please refer to the HALOTRONIC® product guide.

General:

- Short-circuit protection: electronically reversible[1]
- Overload protection: electronically reversible[1]
- Overtemperature protection: electronically reversible[1]
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Product to EN 61347-2-2
- Immunity to EN 61547

1) For HT...L only if supplied with ac voltage
2) ***Touch DIM®*** and ***Touch DIM® Sensor*** functions of the HTi DALI 150 DIM are not part of the DALI standard



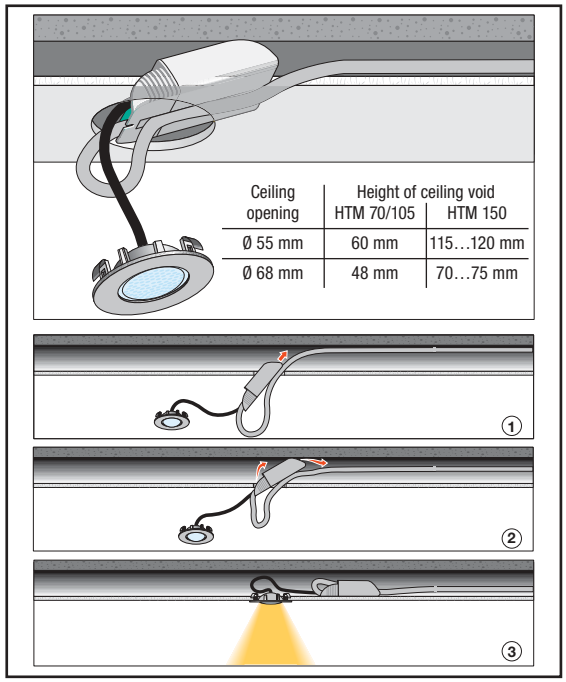
Product reference	Product number		V	Hz	kHz ECG	A
HALOTRONIC MOUSE® – compact, for separate installation with cable clamp						
NEW HTM 70/230-240	4050300**442310**	Compact	230–10%/240+6%	50/60	ap. 48	0.27
NEW HTM 105/230-240	4050300**442334**	Compact	230–10%/240+6%	50/60	ap. 40	0.42
NEW HTM 150/230-240[2]	4050300**581415**	Compact	230–10%/240+6%	50/60	ap. 35	0.57
NEW HTN 75/230-240 I	4008321**073037**	Very small	230–10%/240+6%	50/60	ap. 50	0.32

Product reference	λ	W LOSS	W min.-max.	V_{OUT}	°C min.-max.
NEW HTM 70/230-240	0.95	approx. 4	20-70	11.2 (70 W) /11.2 (20 W)	0…+50
NEW HTM 105/230-240	0.95	approx. 6	35-105	11.3 (105 W)/11.4 (35 W)	0…+45
NEW HTM 150/230-240[2]	0.95	approx. 7	50-150	11.4 (150 W)/11.5 (50 W)	0…+45
NEW HTN 75/230-240 I	0.95	approx. 4	20-75	11.5 (75 W) /11.7 (20 W)	0…+50

Product reference	W		l [mm]	b [mm]	h [mm]	g	No.
NEW HTM 70/230-240	With leading-edge ph. dim.[1]		108	52	33	110	1
	or trailing-edge phase dim.						
NEW HTM 105/230-240	With leading-edge ph. dim.[1]		108	52	33	120	1
	or trailing-edge phase dim.						
HTM 150/230-240[2]	With leading-edge ph. dim.[1]		153	54	36	200	2
	or trailing-edge phase dim.						
NEW HTN 75/230-240 I	With leading-edge ph. dim.		104	33	22	70	3

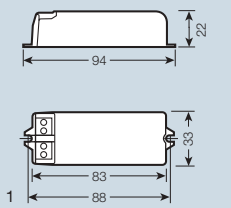
General:

- Short-circuit protection: electronically reversible
- Overload protection: electronically reversible
- Overtemperature protection: electronically reversible
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Product to EN 61347-2-2
- Immunity to EN 61547



1) For inductive loads

2) Simple installation of HTM 150:
– two terminal pairs on primary side for looping from unit to unit
– three terminal pairs on the secondary side for connecting up to six luminaires



Product reference	Product number		V	Hz
HALOTRONIC® – for installation in luminaires				
HTN 75/230-240 S	4008321**909329**	1	230–10%/240+6%	50/60
HT 50/230-240/12 SB[1)]	4050300**861678**	2	240+6%	50/60

Product reference	kHz ECG	A	λ	W min.-max.	V_{OUT}	°C min.-max.
HTN 75/230-240 S	50	0.3	0.95	20…75	11.5 (75 W)/11.7 (20 W)	0…50
HT 50/230-240/12 SB[1)]	45	0.4	0.95	20…50	11.5 (50 W)/11.4 (20 W)	0…65

Product reference	W		l [mm]	b [mm]	h [mm]	g
HTN 75/230-240 S	Trailing-edge phase dimmer		94	33	22	70
HT 50/230-240/12 SB[1)]	Trailing-edge phase dimmer		53	53	29	70

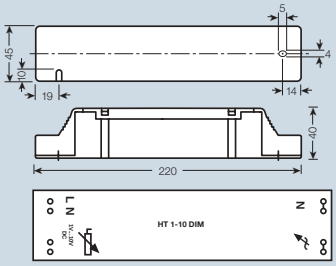
For further information please refer to the HALOTRONIC® product guide.

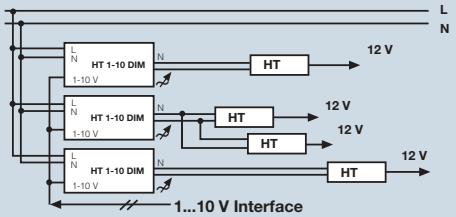
General:

- Short-circuit protection: electronically reversible
- Overload protection: electronically reversible
- Overtemperature protection: electronically reversible
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity to EN 61547
- Product to EN 61347-2-2

1) Board version

Dimmer modules for controlling HALOTRONIC®





Product reference	Product number	A	W LAMP	W
HT 1-10 DIM	4050300**451350**	ap. 3	60–700 at t_a 45 °C 60–750 at t_a 40 °C	Trailing-edge phase dim.

Product reference	V	Hz	°C min.-max.
HT 1-10 DIM	230	50	0…+45

Product reference	VDE	l [mm]	b [mm]	h [mm]	g	CONTROL
HT 1-10 DIM	[1]	220	45	40	ap. 240	via the 1-10 V interface

General:
- Short-circuit protection: electronically reversible
- Overload protection: electronically reversible
- Overtemperature protection: electronically reversible
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Product to EN 61347-2-2
- Immunity to EN 61547, EN 61047

1) In preparation

Converters for operating LEDs
All LEDs require a power supply with a constant current. The maximum current is defined by the particular LED and therefore also the resulting luminous flux. The large range of LEDs makes specifying lighting systems complicated. Not only must the photometric and geometric parameters be defined, so too must the appropriate converter, and the electronics needed for the constant current have to be developed so that the LEDs selected for a particular application can be operated to optimum effect. To simplify the design of a lighting system with LEDs, OSRAM has developed a versatile and comprehensive system solution. We offer LED systems ready for connection in various designs with integrated electronic current regulation.

OPTOTRONIC® specially for LED systems
For optimum operation of LED systems, control gear is needed that is precisely matched to requirements. Most LED systems from OSRAM are designed for particular voltages (10 V and 24 V) because there are extensive design options for LED systems here, given the technical conditions and the possibility of minimal power consumption. OPTOTRONIC® electronic converters were developed specifically for operating the LED systems. They are therefore designed for rated voltages of 10 V or 24 V and supply an electronically stabilised dc voltage with excellent efficiency. The system design of the OPTOTRONIC® converter and LED system with integrated current control means that the latest generations of LEDs can always be used on the modules. OSRAM also offers a new OPTOTRONIC® product series for constant current LED modules that has been specially developed to meet the requirements of high-flux LED modules.

The converters in the OPTOTRONIC® family cover wattages from 6 W to 200 W. Within the specified output range several LED modules can be operated in parallel or in series on one converter.

The converters are all short-circuit-proof (reversible) and protected against overloads. All the units meet the necessary standards for lighting technology: operation (DIN IEC 62384), safety (DIN EN 61347-2-13), radio interference suppression (EN 55015) and immunity (EN 61547).

Trouble-free integration of LED modules in safe lighting systems is therefore guaranteed.

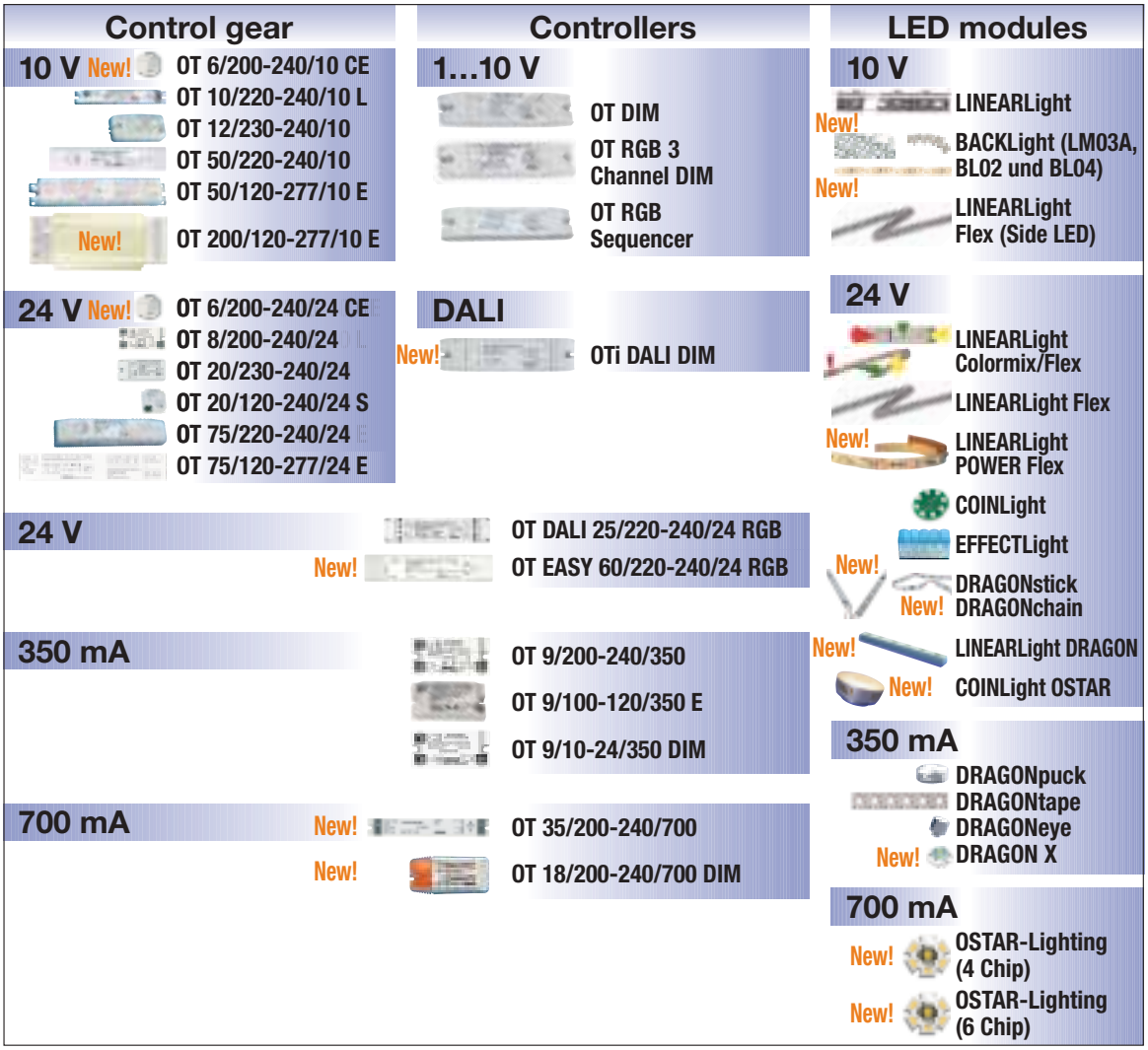
Counter lighting in a café in Munich, Germany.

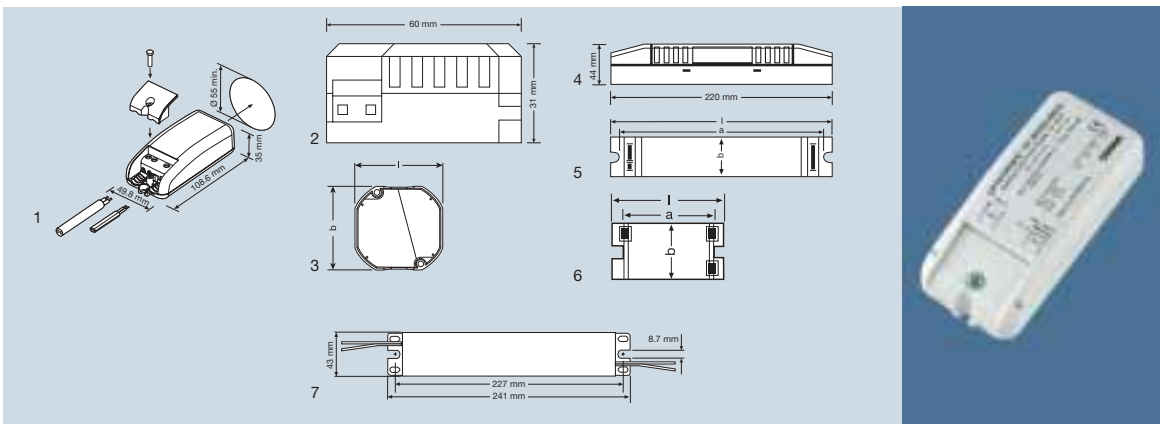
OPTOTRONIC® product family

With its OPTOTRONIC® family of products, OSRAM offers appropriate control gear and controllers for any application. With OPTOTRONIC®, users can participate fully in the dynamic development of light emitting diodes and associated LED systems. The units ensure quality and reliability in the traditional sense and also consistency in system design.

Special features

- OPTOTRONIC® ensures optimum operation of LED systems. Only in this way can the required quality of light and level of reliability for the LED systems be achieved.
- Very low power consumption thanks to extremely high efficiency.
- Small space requirements thanks to compact functional design.
- Several modules can be connected in parallel or in series within the specified output range.
- Flexibility for lighting design.
- Impressive reliability through long life.
- Wide permitted ambient temperature range.
- Electrical isolation between the primary side and the secondary side (SELV equivalent).
- Long permitted secondary cables.
- Protection class III luminaires and luminaires with ⓕ and ⓦⓦ labels can be operated without the need for additional measures.
- Protection mechanisms for short-circuits, over-temperature and overloads are implemented in OPTOTRONIC® and not on the LED modules.
- All the units meet the necessary standards for lighting technology. It is therefore easy for them to be integrated in luminaires.





Product reference	Product number		V min.-max.	Hz	W MODULE	SYSTEM	V_{OUT}
OPTOTRONIC® control gear							
OT 6/100-120/10 CE	4008321**128911**	10 V LED modules	90-132	50/60	6	72	10 V_{DC}
OT 6/200-240/10 CE	4008321**113306**	10 V LED modules	198-254	50/60	6	72	10 V_{DC}
OT 6/100-120/24 CE	4008321**129130**	24 V LED modules	90-132	50/60	6	72	24 V_{DC}
OT 6/200-240/24 CE	4008321**113269**	24 V LED modules	198-254	50/60	6	72	24 V_{DC}
OT 8/200-240/24	4008321**040176**	24 V LED modules	180-254	0/50/60	8	75	24 V_{DC}
OT 10/220-240/10 L	4050300**802206**	10 V LED modules	198-254	0/50/60	10	78	10 V_{DC}
OT 12/230-240/10	4050300**609232**	10 V LED modules	207-254	50/60	12	77	10 V_{DC}
OT 20/230-240/24	4050300**618111**	24 V LED modules	207-254	0/50/60	20	83	24 V_{DC}
OT 20/120-240/24 S	4050300**662626**	24 V LED modules	108-254	0/50/60	20	83	24 V_{DC}
OT 50/220-240/10	4050300**817491**	10 V LED modules	198-254	0/50/60	50	90	10 V_{DC}
OT 75/220-240/24	4050300**817477**	24 V LED modules	198-254	0/50/60	75	90	24 V_{DC}
OT 50/120-277/10 E	4050300**861517**	10 V LED modules	108-305	0/50/60	50	90	10 V_{DC}
OT 75/120-277/24 E	4050300**861494**	24 V LED modules	108-305	0/50/60	75	87	24 V_{DC}
OT 200/120-277/10 E	In preparation	10 V LED modules	108-305	0/50/60	200	90	10 V_{DC}

Product reference	°C min.-max.	l [mm]	b [mm]	h [mm]		No.
OT 6/100-120/10 CE	–20…+50	51	50	22	20	3
OT 6/200-240/10 CE	–20…+50	51	50	22	20	3
OT 6/100-120/24 CE	–20…+50	51	50	22	20	3
OT 6/200-240/24 CE	–20…+50	51	50	22	20	3
OT 8/200-240/24	–20…+50	80	40	22	50	6
OT 10/220-240/10 L	–20…+45	50	22	22	50	5
OT 12/230-240/10	–20…+50	109	50	35	20	1
OT 20/230-240/24	–20…+45	109	50	35	20	1
OT 20/120-240/24 S	–20…+50	60	60	31	30	2
OT 50/220-240/10	–20…+50	220	47	44	10	4
OT 75/220-240/24	–20…+50	220	47	44	10	4
OT 50/120-277/10 E	–25…+60	241	43	30	10	7
OT 75/120-277/24 E	–25…+60	241	43	30	10	7
OT 200/120-277/10 E	–25…+55	347	105	154	–	–

OPTOTRONIC®
The LED controller opens up so many opportunities

The complete system
The control units round off the LED system from OSRAM. In addition to the LED modules and the OPTOTRONIC® converters, various OT controllers are available. Launching on the market with a system consisting of control gear, controller and light source not only offers benefits for users but also makes it easier to open up new areas of application for LEDs in general lighting.
The controllers are used on the secondary side of the power supplies. This means they are connected between the OPTOTRONIC® power supply and the LED modules.

OT DIM is a 1-10 V controller and enables LED modules to be dimmed individually by pulse width modulation (PWM). In pulse width modulation, the supply to the LED modules is interrupted at a frequency of 135 Hz. This means that the amount of light produced can be set individually. This technology produces an exactly linear dimming characteristic at maximum dimming rates.
- 1-channel 1-10 V dimmer for comfortable dimming of LED systems.
- Control input isolated according to SELV requirements. This guarantees the safety of the entire system (power supply – dimming unit – LED systems).

OT RGB 3-Channel DIM is a three-channel 1-10 V controller and enables individual colour mixing of LED modules by pulse width modulation (PWM). PWM at a frequency of 350 Hz is generated from a 1-10 V control voltage and modulated to the applied input voltage of 10-24 V. There are three independent control circuits per unit, the control inputs of which provide the necessary control condition of 10 V themselves and which are therefore directly suitable for operation with passive potentiometers (100 K lin.), standard controllers or more complex lighting management systems (such as DMX).
- 3-channel 1-10 V controller for individual dimming and regulating three colours on LED systems.
- Output terminals with common + pole.

Administration building of Swiss Re, Switzerland.

OT RGB Sequencer is a three-channel PWM sequencer for dynamic colour changes for RGB LED modules by means of pulse width modulation. PWM is generated for each channel by a factory preset sequence characteristic and also modulated to the applied input voltage of 10-24 V. The speed of the sequence can be controlled with the 1-10 V control input. If necessary, a particular colour can be set in the same way.
- For dynamic colour chases on RGB LED systems.
- Via a 1-10 V control input the speed of the preset colour sequence can be controlled.
- Functions of the control input:
  < 1.3 V activation threshold
  1.3 – 9.8 V sequence speed 5 s – 10 min
  > 9.8 V fix current colour
- Output terminals with common + pole.

OTi DALI DIM is a DALI-compatible electronic dimmer with intelligent processor technology. The brightness of the LED modules is regulated via pulse width modulation with a frequency of 350 Hz. Control is handled via DALI controllers such as DALI EASY. Thanks to the DALI interface, all the DALI functions can be used.
The integrated ***Touch DIM®*** function opens up further lighting concepts. In combination with a standard switch the dimming level of the LEDs can be set with one-switch operation and the switch-on value can be stored by double-clicking.
A ***Touch DIM® Sensor*** enables motion-dependent lighting effects to be produced.

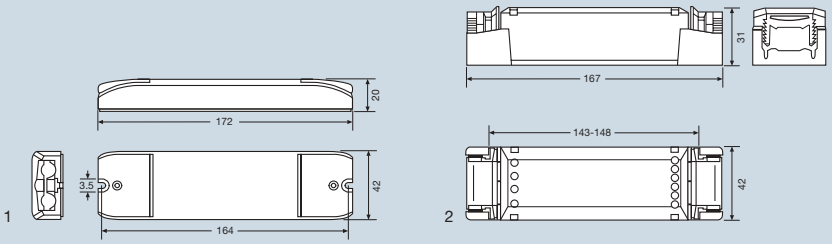
- 1-channel DALI-compatible intelligent electronic dimmer.
- Control via DALI interface by DALI controllers such as DALI EASY.
- Full DALI functionality.
- In combination with DALI EASY and its master/slave function it is possible to achieve very high secondary outputs.
- Integrated ***Touch DIM®*** function[1)].

Special features of OPTOTRONIC® controllers

- The four types cover a very wide range of applications.
- Standard actuators and also potentiometers and digital signals can be connected via the 1-10 V interface for control purposes.
- Control via DALI interface by DALI controllers such as DALI EASY. All the DALI functions can be used.
- Multiple LED modules can be connected in parallel on two terminal pairs.
- Low power loss.
- Operation in ambient temperatures of –20 °C to +50 °C.
- Slim low-profile casing with cable clamp for separate installation.
- The controllers are suitable for both 10 V and 24 V LED systems and can therefore be used universally.
- Electronically reversible cutout for short-circuits, overloads and overheating.
- All the units meet the necessary standards for lighting technology. It is therefore easy for them to be integrated in luminaires.

Variable wall system for creating different moods indoors.

1) ***Touch DIM®*** and ***Touch DIM® Sensor*** functions for OSRAM QTi DALI ... DIM ECGs are not part of the DALI standard



Product reference	Product number		V min.-max.	Hz	W MODULE	SYSTEM
OPTOTRONIC® control gear						
OT DIM[2]	4050300**943459**	10 V LED modules	10-24 V_{DC}		50	
		24 V LED modules			120	
OT RGB 3 Channel DIM[2]	4050300**793108**	10 V LED modules	10-24 V_{DC}		20 W per channel	
		24 V LED modules			48 W per channel	
OT RGB Sequencer[2]	4050300**792460**	10 V LED modules	10-24 V_{DC}		20 W per channel	
		24 V LED modules			48 W per channel	
OTi DALI DIM[2]	4008321**061195**	10 V LED modules	10-24 V_{DC}		60	
		24 V LED modules			144	
OT DALI 25/220-240/24 RGB[1)3)]	4050300**829463**	24 V LED modules	198-254	0/50/60	8 W per channel	82

Product reference	V_{OUT}		No. of CONTROL INPUTS	No. of OUTPUTS	°C min.-max.	l [mm]	b [mm]	h [mm]	
OT DIM[2]	10-24 V_{DC}	1…10 V	1	1	–20…+50	172	42	20	20
OT RGB 3 Channel DIM[2]	10-24 V_{DC}	1…10 V	3	3	–20…+50	172	42	20	20
OT RGB Sequencer[2]	10-24 V_{DC}	1…10 V	3	3	–20…+50	172	42	20	20
OTi DALI DIM[2]	10-24 V_{DC}	DALI	1	1	–20…+50	172	42	20	20
OT DALI 25/220-240/24 RGB[1)3)]	24 V_{DC}	DALI	1	3 (address-able)	–20…+45	167	42	31	20

OT DALI 25/220-240/24 RGB

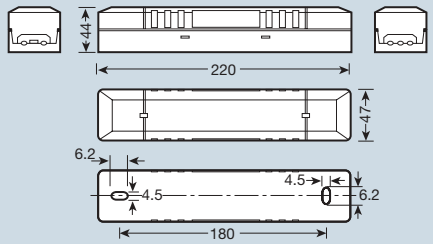
With OT DALI 25/220-240/24 RGB, LED systems can be integrated in DALI lighting control systems. OT DALI 25/220-240/24 RGB combines a mains voltage converter, DALI interface and PWM controller in a single unit. The unit has a DALI input for three addressable 24 V output channels for colour mixing with LED systems.

Special features:

- DALI-addressable converter for colour mixing.
- One DALI input for three addressable output channels.
- Three 24 V PWM output signals.
- Electronic reversible cutout for short-circuits, overloads and overheating.
- Casing for independent installation with cable clamp.
- The units meet the necessary standards for lighting technology. It is therefore easy for them to be integrated in luminaires.

Lufthansa Senator Lounge at Terminal 2, Munich airport.

1) With integrated mains voltage converter
2) Fig. no. 1
3) Fig. no. 2



Product reference	Product number		V min.-max.	Hz	W MODULE		SYSTEM
OT EASY 60-220-240/24 RGB							
OT EASY 60/220-240/24 RGB	in preparation	24 V module	198-254	0/50/60	60 W distributed		88

NEW

Product reference	V_{OUT}	No. of OUTPUTS	°C min.-max.		l [mm]	b [mm]	h [mm]	
OT EASY 60/220-240/24 RGB	24 V_{DC}	4	–20…+50		220	47	44	10

NEW

OT EASY 60/220-240/24 RGB is an all-in-one product. It integrates the control gear, controller and dimmer in one unit. It is operated via the EASY lighting management system, opening up many different possible applications with extremely simple operation and installation.

The **control gear** supplies a constant output voltage of 24 V and is set up to operate 24 V LED modules. The output power of 60 W is distributed among four channels RGB(W); 60 W is also possible on one channel. The integrated **dimmer** has 4 x 24 V PWM outputs for RGB(W) colour mixing. The **controller** in OT EASY 60/220-240/24 RGB has an individually configurable RGB(W) sequencer for stand-alone operation. Colour and lighting scenes can be stored and retrieved as either static or dynamic scenes.

OT EASY 60/220-240/24 RGB can be easily combined with different operating elements.

Colours and lighting scenes can be easily set in conjunction with the **EASY IR** Sensor and the **EASY RMC** remote control. Scenes and colours can also be set with the aid of the **EASY PUSH BUTTON** coupler and conventional pushbutton units from any range.
The Windows interface of the **EASY COLOR CONTROL** software enables all the functions of the OT EASY 60/220-240/24 RGB to be visualised and interactively used.

With the master/slave function of the OT EASY 60/220-240/24 RGB, lighting systems can be expanded quickly and easily.

It is therefore no problem at all to provide dynamic LED lighting.

OPTOTRONIC® electronic control gear specifically for OSTAR®-Lighting, DRAGON® and high-flux LED systems

For optimum operation of LED systems, control gear is needed that is precisely matched to requirements. For our new OSTAR®-Lighting and DRAGON® families we therefore offer a separate OPTOTRONIC® series specially developed for operating high-flux LEDs. The new generation of high-flux LED systems calls for operation at a constant current of 350 mA or 700 mA.

Starlight ceiling with Golden DRAGON® LEDs in a theatre.

350 mA: DRAGON® LEDs

The OT 9 family comprises compact electronically controlled constant current power supply units (350 mA) with a maximum output of 9 W. They are therefore suitable for operating the DRAGON® LED family. Because of its extremely small dimensions, **OT 9/200-240/350** is ideal for mains voltage operation in various applications in which space is at a premium.

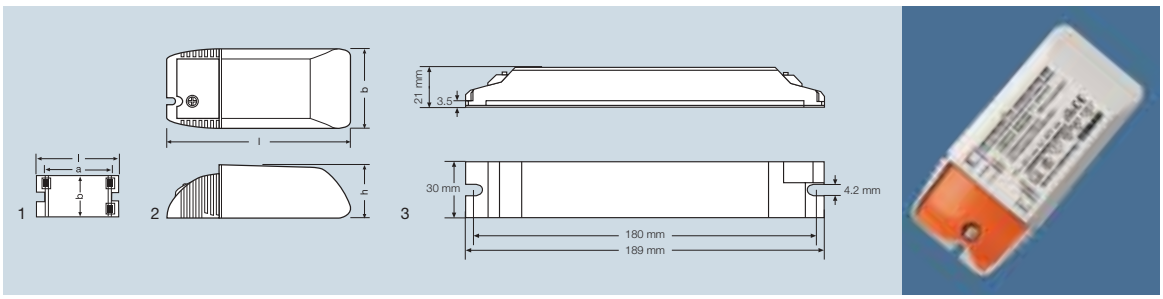
OT 9/10-24/350 DIM is a dimmable electronic control gear which

- enables high-flux LEDs to be integrated in DC supply systems (yachts, boats, mobile homes, solar lights, etc.)
- allows OSRAM's standard range of LEDs to be combined with high-flux modules (e.g. LINEARlight together with DRAGONtape® in one application)

700 mA: OSTAR®-Lighting

OT 35/200-240/700 is a compact electronically controlled constant current power supply unit (700 mA) with a maximum output of 35 W. OT 35/200-240/700 is suitable for operating a maximum of three OSTAR®-Lighting (4-chip) units or two OSTAR®-Lighting (6-chip) units.

OT 18/200-240/700 DIM is a compact dimmable control gear for OSTAR®-Lighting and 700 mA high-flux LED modules. Brightness is regulated via a 1-10 V interface. Alternatively, the unit enables the operating current to be set by means of a resistor on an application-oriented basis; in other words adjusted according to the thermal conditions. The operating current of the LEDs can be adjusted from 0 to 700 mA. One OSTAR®-Lighting (4-chip or 6-chip) can be operated.



Product reference	Product number		V min.-max.	Hz	W MODULE	SYSTEM
OPTOTRONIC®						
OT 9/200-240/350	4050300**888279**	350 mA LED modules	180-254	0/50/60	8.5	75
OT 9/100-120/350 E	4050300**888842**	350 mA LED modules	90-132	50/60	8.5	74
OT 9/10-24/350 DIM	4050300**888903**	350 mA LED modules	10-24 V_{DC}	0	8.5	80
OT 18/200-240/700 DIM	4008321**139320**	700 mA LED modules	180-254	50/60	18	80
OT 35/200-240/700	in preparation	700 mA LED modules	180-254	50/60	35	88

Product reference	V_{OUT}	°C min.-max.	l [mm]	b [mm]	h [mm]		No.
OT 9/200-240/350	1.8-25 V_{DC}	–20…+50	80	40	22	50	1
OT 9/100-120/350 E	1.8-25 V_{DC}	–20…+50	80	40	22	50	1
OT 9/10-24/350 DIM	0-24.5 V_{DC}	–20…+50	80	40	22	50	1
OT 18/200-240/700 DIM	0-25 V_{DC}	–20…+50	108	53	33	20	2
OT 35/200-240/700	0-50 V_{DC}	–20…+50	190	30	21	–	3

Special features

- Electronically stabilised constant dc current irrespective of the ambient temperature or fluctuations in the mains voltage.
- Electronic reversible cutout for short-circuits, overloads and overheating.
- All the units meet the necessary standards for lighting technology. It is therefore easy for them to be integrated in luminaires.

Possible application for OSTAR®-Lighting LEDs.

POWERTRONIC® for HCI® and HQI® metal halide lamps

POWERTRONIC® ECGs have a wide variety of uses. OSRAM can supply the right electronic control gear for any application between 20 W and 150 W, whether for installation in luminaires or mounted separately with cable clamps. Its low weight and small volume increase the scope for luminaire design and system planning. Thanks to the built-in microcontroller, POWERTRONIC® ECGs make the economical light from metal halide lamps even more comfortable, reliable and safe by constantly monitoring lamp starts and lamp operation.

Benefits of POWERTRONIC® ECGs:

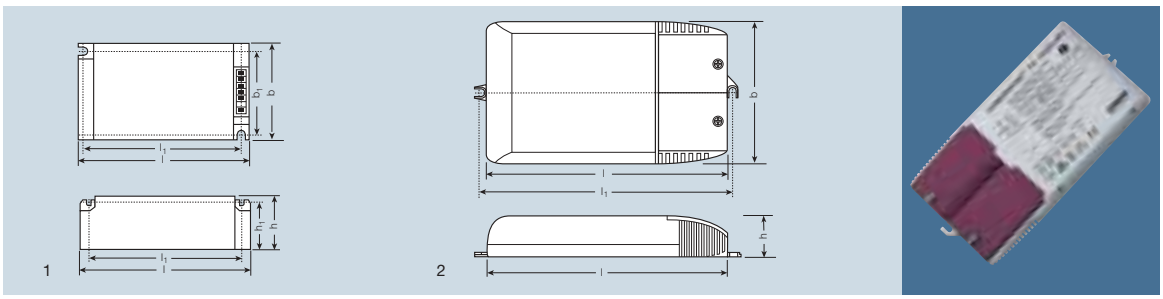
- Flicker-free light thanks to square-wave operation
- Greater colour stability and less scatter around the colour location
- Reliable shutdown of faulty lamps or lamps in abnormal operating states for much greater system safety and reliability
- Integrated ignition time restriction prevents attempts to ignite faulty or old lamps and therefore prevents lamp cycling and radio interference
- High-quality components combined with sophisticated thermal management ensure robust operation and long ECG life
- Compact designs and low weight for small modern luminaires

Better economy with POWERTRONIC® ECGs compared with conventional control gear:

- Up to 15% higher system efficacy
- Up to 20% better luminous flux maintenance and smaller spread of luminous flux
- Much longer lamp life

Applications:

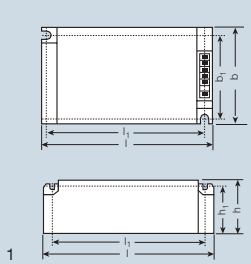
- Shop interiors/shop windows
- Foyers/entrance halls
- Production facilities/industrial plants
- Public buildings
- Art galleries/museums/exhibition rooms

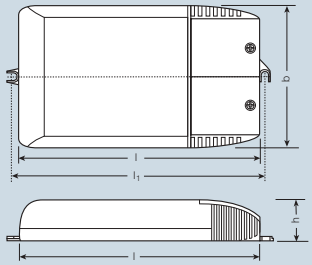


Product reference	Product number			Hz ECG	A	λ	T_a	T_c
POWERTRONIC® – single-lamp units								
PTi 35/220-240 S	4008321**073112**	Built-in unit	HCI	165	0.19	0.95	–25 to +65	80
PTi 35/220-240 I	4008321**099488**	With cable clamp	HCI	165	0.19	0.95	–25 to +65	75
PTi 70/220-240 S	4008321**049629**	Built-in unit	HCI, HQI, NAV[1)]	165	0.35	0.95	–25 to +55	80
PTi 70/220-240 I	4008321**099501**	With cable clamp	HCI, HQI, NAV[1)]	165	0.35	0.95	–25 to +55	75

Product reference	ECG / CCG	W LAMP	kV START	max.		l [mm]	b [mm]	h [mm]	l_1 mm	D_1 mm		No.
PTi 35/220-240 S	43/50	39	4.5	1.5		110	75	30	99	64	20	1
PTi 35/220-240 I	43/50	39	4.5	1.5		155	83	32	163		20	2
PTi 70/220-240 S	80/92	73	4.5	1.5		110	75	30	99	64	20	1
PTi 70/220-240 I	80/92	73	4.5	1.5		155	83	32	163		20	2

1) On request

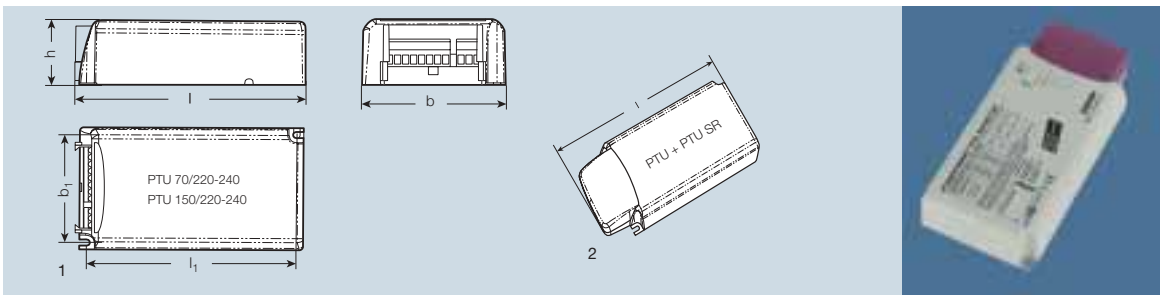




Product reference	Product number			Hz ECG	A	λ	T_a	T_c
POWERTRONIC® – two-lamp units								
PTi 2x35/220-240 S	4008321**122247**	Built-in unit	HCI	165	0.38	0.95	–25 to +55	80
PTi 2x35/220-240 I	4008321**122261**	With cable clamp	HCI	165	0.38	0.95	–25 to +55	75
PTi 2x70/220-240 S	4008321**910035**	Built-in unit	HCI, HQI, NAV[1)]	165	0.75	0.95	–25 to +55	80
PTi 2x70/220-240 I	4008321**910042**	With cable clamp	HCI, HQI, NAV[1)]	165	0.75	0.95	–25 to +55	75

Product reference	ECG / CCG	W LAMP	kV START	max.		l [mm]	b [mm]	h [mm]	l_1 mm	b_1 mm		No.
PTi 2x35/220-240 S	86/100	2x39	4.5	1.5		135	75	30	124	64	20	1
PTi 2x35/220-240 I	86/100	2x39	4.5	1.5		180	83	32	188		20	2
PTi 2x70/220-240 S	160/184	2x73	4.5	1.5		165	90	30	153	80	20	1
PTi 2x70/220-240 I	160/184	2x73	4.5	1.5		210	98	32	218		20	2

 1) On request



Product reference	Product number			Hz ECG	A	λ
POWERTRONIC®						
PTU 20/220-240	4008321**055507**	Without cable clamp	HCI	170	0.10	0.97
PTU 70/220-240[3]	4050300**666389**	Without cable clamp,	HCI, HQI, NAV[2]	130	0.35	0.97
		cable clamp (PTU-SR)				
		available as an accessory				
PTU 150/220-240	4050300**642390**	Without cable clamp,	HCI, HQI, NAV[2]	130	0.75	0.97
		cable clamp (PTU-SR)				
		available as an accessory				
PTU-SR	4050300**939896**	Cable clamp for PTU 70/150				

Product reference	ECG / CCG	W LAMP	kV START	max.		l [mm]	b [mm]	h [mm]	l_1 mm	b_1 mm		No.
PTU 20/220-240	22	20	4	0.6		103	67	31	94	58	15	–
PTU 70/220-240[3]	80/92	73	5	3.0		134	88	39	120	78	6	1
PTU 150/220-240	163/170	150	5	3.0		163	88	39	150	78	6	1
PTU 70 + PTU-SR						161						2
PTU 150 + PTU-SR						190						2

General:

- Supply voltage: 220 V – 10%/240 V + 6%
- Mains frequency: 50, 60 Hz
- RI suppression: to IEC/CISPR 15
- Mains harmonics: to EN 61000-3-2
- Immunity: to EN 61547
- Luminous flux factor 1 compared with CCG operation
- Instant hot restart not possible

1) And identical lamps from other manufacturers
2) On request
3) To be discontinued

QUICKTRONIC® for OSRAM ENDURA®

QUICKTRONIC® specifically for OSRAM ENDURA®

This high-frequency electronic control gear was developed specifically for the ENDURA® electrodeless high-performance fluorescent lamp. These lamps are installed wherever relamping costs are high. The combination of ENDURA® lamps and the extremely reliable QUICKTRONIC® QT ENDURA control gear ensures maximum lamp life and maximum luminous efficacy. Maintenance intervals are therefore longer and more energy savings can be made.

Economy:

In view of its extremely long life and high luminous efficacy, the ENDURA® system is ideal for applications in which relamping involves high costs and in which economy and reliability are important considerations. The system offers real benefits in these respects. With its low maintenance costs, low power consumption and reduced material and personnel costs, this lighting system offers much lower overall costs in the long term.

Comfort:

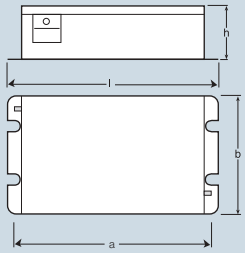
- Flicker-free ignition and flicker-free light with no annoying hum
- High reliability leads to an extremely average long life of 60,000 hours with a failure rate of only 10%, for $T_c = T_{c\,Max}$
- No adverse effect from frequent on/off switching

Safety:

- Complies with European standards for safety and EMC
- All units are VDE tested
- Suitable for use in emergency lighting systems with central batteries

Applications:

- Factory ceilings
- Tunnels in constant use
- Street lighting



Product reference	Product number		V min.-max.	kHz ECG	A	λ	W SYSTEM	lm
QUICKTRONIC® for OSRAM ENDURA®								
QT ENDURA 70-100/120-240 S	4050300**804668**	100	108…264	ap. 250	0.47	>0.95	107	8000
		70	108…264	ap. 250	0.34	>0.95	82	6500
QT ENDURA 100-150/120-240 S	4050300**662589**	150	108…264	ap. 250	0.66	>0.95	157	12000
		100	108…264	ap. 250	0.59	>0.95	146	11000

Product reference	°C min.-max.	l [mm]	b [mm]	h [mm]	a mm		g
QT ENDURA 70-100/120-240 S	–40…50	181	100	43	170	5	850
QT ENDURA 100-150/120-240 S	–40…50	181	100	43	170	5	850

General:
- Safety to EN 60928
- RI suppression: to EN 55015
- Mains harmonics: to EN 61000-3-2
- Immunity: to EN 61547

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	HO 24 W	HO 39 W	HO 49 W	HO 54 W	HO 80 W	HE 14 W	HE 21 W	HE 28 W	HE 35 W	FC 22 W	
QTi DALI 1x14/24 DIM	4050300**870380**	360 x 30 x 21	11.08					11.08				11.08	
QTi DALI 1x21/39 DIM	4050300**870366**	360 x 30 x 21		11.08					11.08				
QTi DALI 1x28/54 DIM	4050300**870809**	360 x 30 x 21				11.08				11.08			
QTi DALI 1x35/49/80 DIM	4050300**870342**	360 x 30 x 21			11.08		11.08				11.08		
QTi DALI 1x18 DIM	4050300**870403**	360 x 30 x 21											
QTi DALI 1x36 DIM	4050300**870427**	360 x 30 x 21											
QTi DALI 1x58 DIM	4050300**870823**	360 x 30 x 21											
QTi DALI 2x14/24 DIM	4050300**870861**	423 x 30 x 21	11.10					11.10				11.10	
QTi DALI 2x21/39 DIM	4050300**870489**	423 x 30 x 21		11.10					11.10				
QTi DALI 2x28/54 DIM	4050300**870502**	423 x 30 x 21				11.10				11.10			
QTi DALI 2x35/49 DIM	4050300**870465**	423 x 30 x 21			11.10						11.10		
QTi DALI 2x35/49/80 DIM	4050300**870441**	423 x 30 x 21			11.10		11.10				11.10		
QTi DALI 2x18 DIM	4050300**870526**	423 x 30 x 21											
QTi DALI 2x36 DIM	4050300**870885**	423 x 30 x 21											
QTi DALI 2x58 DIM	4050300**870847**	423 x 30 x 21											
QTi DALI 3x14/24 DIM	4008321**069955**	360 x 40 x 21	11.12					11.12					
QTi DALI 3x18 DIM	4008321**069979**	360 x 40 x 21											
QTi DALI 4x14/24 DIM	4008321**070036**	360 x 40 x 21	11.12					11.12					
QTi DALI 4x18 DIM	4008321**070050**	360 x 40 x 21											
QT DALI-T/E 1x18/230-240 DIM	4050300**946849**	123 x 79 x 33											
QT DALI-T/E 1x26-42/230-240 DIM	4050300**946887**	123 x 79 x 33											
QT DALI-T/E 2x18/230-240 DIM	4050300**666075**	158 x 102 x 38											
QT DALI-T/E 2x26-42/230-240 DIM	4050300**666099**	158 x 102 x 38											
QTi 1x14/24 DIM	4050300**870922**	360 x 30 x 21	11.15					11.15				11.15	
QTi 1x21/39 DIM	4050300**870564**	360 x 30 x 21		11.15					11.15				
QTi 1x28/54 DIM	4050300**870588**	360 x 30 x 21				11.15				11.15			
QTi 1x35/49/80 DIM	4050300**870540**	360 x 30 x 21			11.15		11.15				11.15		
QTi 2x14/24 DIM	4050300**870946**	423 x 30 x 21	11.16					11.16				11.16	
QTi 2x21/39 DIM	4050300**870694**	423 x 30 x 21		11.16					11.16				
QTi 2x28/54 DIM	4050300**870717**	423 x 30 x 21				11.16				11.16			
QTi 2x35/49 DIM	4050300**870670**	423 x 30 x 21			11.16						11.16		
QTi 2x35/49/80 DIM	4050300**870984**	423 x 30 x 21			11.16		11.16				11.16		
QTi 1x18 DIM	4050300**870601**	360 x 30 x 21											
QTi 1x36 DIM	4050300**870625**	360 x 30 x 21											
QTi 1x58 DIM	4050300**870908**	360 x 30 x 21											
QTi 2x18 DIM	4050300**870960**	423 x 30 x 21											
QTi 2x36 DIM	4050300**870755**	423 x 30 x 21											
QTi 2x58 DIM	4050300**870731**	423 x 30 x 21											
QTi 3x14/24 DIM	4008321**069719**	360 x 40 x 21	11.19					11.19					
QTi 3x18 DIM	4008321**069931**	360 x 40 x 21											
QTi 4x14/24 DIM	4008321**069993**	360 x 40 x 21	11.19					11.19					
QTi 4x18 DIM	4008321**070012**	360 x 40 x 21											
HF 1x18/230-240 DIM	4050300**319254**	360 x 30 x 30											
HF 1x36/230-240 DIM	4050300**297705**	360 x 30 x 30											
HF 1x58/230-240 DIM	4050300**297729**	360 x 30 x 30											
HF 2x18/230-240 DIM	4050300**350950**	423 x 30 x 30											
HF 2x36/230-240 DIM	4050300**350974**	423 x 30 x 30											
HF 2x58/230-240 DIM	4050300**350998**	423 x 30 x 30											
QT-T/E 1x18/230-240 DIM	4008321**124722**	123 x 79 x 33											
QT-T/E 1x26-42/230-240 DIM	4008321**124746**	123 x 79 x 33										11.22	
QT-T/E 2x18/230-240 DIM	4050300**665443**	158 x 102 x 38											
QT-T/E 2x26-42/230-240 DIM	4050300**666112**	158 x 102 x 38											

FC 22 + 40 W	FC 40 W	FC 55 W	L 4 W (Ø 16 mm)	L 6 W (Ø 16 mm)	L 8 W (Ø 16 mm)	L 13 W (Ø 16 mm)	L 10 W (Ø 26 mm)	L 15 W (Ø 26 mm)	L 16 W (Ø 26 mm)	L 18 W (Ø 26 mm)	L 20 W (Ø 38 mm)	L 30 W (Ø 26 mm)	L 36 W (Ø 26 mm)	L 36 W-1 (Ø 26 mm)	L 38 W (Ø 26 mm)	L 40 W (Ø 38 mm)	L 58 W (Ø 26 mm)	L 65 W (Ø 38 mm)	L 70 W (Ø 26 mm)	L 22 W C	L 32 W C	L 40 W C	L 18 W U
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																	11.21	11.21					

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	L 36 W U	L 36 W UK	L 58 W U	L 58 W UK	FM 6 W	FM 8 W	FM 11 W	FM 13 W	DULUX L 18 W	
QTi DALI 1x14/24 DIM	4050300**870380**	360 x 30 x 21										
QTi DALI 1x21/39 DIM	4050300**870366**	360 x 30 x 21										
QTi DALI 1x28/54 DIM	4050300**870809**	360 x 30 x 21										
QTi DALI 1x35/49/80 DIM	4050300**870342**	360 x 30 x 21										
QTi DALI 1x18 DIM	4050300**870403**	360 x 30 x 21									11.09	
QTi DALI 1x36 DIM	4050300**870427**	360 x 30 x 21										
QTi DALI 1x58 DIM	4050300**870823**	360 x 30 x 21										
QTi DALI 2x14/24 DIM	4050300**870861**	423 x 30 x 21										
QTi DALI 2x21/39 DIM	4050300**870489**	423 x 30 x 21										
QTi DALI 2x28/54 DIM	4050300**870502**	423 x 30 x 21										
QTi DALI 2x35/49 DIM	4050300**870465**	423 x 30 x 21										
QTi DALI 2x35/49/80 DIM	4050300**870441**	423 x 30 x 21										
QTi DALI 2x18 DIM	4050300**870526**	423 x 30 x 21									11.11	
QTi DALI 2x36 DIM	4050300**870885**	423 x 30 x 21										
QTi DALI 2x58 DIM	4050300**870847**	423 x 30 x 21										
QTi DALI 3x14/24 DIM	4008321**069955**	360 x 40 x 21										
QTi DALI 3x18 DIM	4008321**069979**	360 x 40 x 21									11.12	
QTi DALI 4x14/24 DIM	4008321**070036**	360 x 40 x 21										
QTi DALI 4x18 DIM	4008321**070050**	360 x 40 x 21									11.12	
QT DALI-T/E 1x18/230-240 DIM	4050300**946849**	123 x 79 x 33										
QT DALI-T/E 1x26-42/230-240 DIM	4050300**946887**	123 x 79 x 33										
QT DALI-T/E 2x18/230-240 DIM	4050300**666075**	158 x 102 x 38										
QT DALI-T/E 2x26-42/230-240 DIM	4050300**666099**	158 x 102 x 38										
QTi 1x14/24 DIM	4050300**870922**	360 x 30 x 21										
QTi 1x21/39 DIM	4050300**870564**	360 x 30 x 21										
QTi 1x28/54 DIM	4050300**870588**	360 x 30 x 21										
QTi 1x35/49/80 DIM	4050300**870540**	360 x 30 x 21										
QTi 2x14/24 DIM	4050300**870946**	423 x 30 x 21										
QTi 2x21/39 DIM	4050300**870694**	423 x 30 x 21										
QTi 2x28/54 DIM	4050300**870717**	423 x 30 x 21										
QTi 2x35/49 DIM	4050300**870670**	423 x 30 x 21										
QTi 2x35/49/80 DIM	4050300**870984**	423 x 30 x 21										
QTi 1x18 DIM	4050300**870601**	360 x 30 x 21									11.17	
QTi 1x36 DIM	4050300**870625**	360 x 30 x 21										
QTi 1x58 DIM	4050300**870908**	360 x 30 x 21										
QTi 2x18 DIM	4050300**870960**	423 x 30 x 21									11.18	
QTi 2x36 DIM	4050300**870755**	423 x 30 x 21										
QTi 2x58 DIM	4050300**870731**	423 x 30 x 21										
QTi 3x14/24 DIM	4008321**069719**	360 x 40 x 21										
QTi 3x18 DIM	4008321**069931**	360 x 40 x 21									11.19	
QTi 4x14/24 DIM	4008321**069993**	360 x 40 x 21										
QTi 4x18 DIM	4008321**070012**	360 x 40 x 21									11.19	
HF 1x18/230-240 DIM	4050300**319254**	360 x 30 x 30									11.20	
HF 1x36/230-240 DIM	4050300**297705**	360 x 30 x 30										
HF 1x58/230-240 DIM	4050300**297729**	360 x 30 x 30										
HF 2x18/230-240 DIM	4050300**350950**	423 x 30 x 30									11.21	
HF 2x36/230-240 DIM	4050300**350974**	423 x 30 x 30										
HF 2x58/230-240 DIM	4050300**350998**	423 x 30 x 30										
QT-T/E 1x18/230-240 DIM	4008321**124722**	123 x 79 x 33										
QT-T/E 1x26-42/230-240 DIM	4008321**124746**	123 x 79 x 33										
QT-T/E 2x18/230-240 DIM	4050300**665443**	158 x 102 x 38										
QT-T/E 2x26-42/230-240 DIM	4050300**666112**	158 x 102 x 38										

DULUX L 24 W	DULUX L 36 W	DULUX L 40 W	DULUX L 55 W	DULUX L 80 W	DULUX F 18 W	DULUX F 24 W	DULUX F 36 W	DULUX S/E 5 W	DULUX S/E 7 W	DULUX S/E 9 W	DULUX S/E 11 W	DULUX D/E 10 W	DULUX D/E 13 W	DULUX D/E 18 W	DULUX D/E 26 W	DULUX T/E 13 W	DULUX T/E 18 W	DULUX T/E 26 W	DULUX T/E 32 W	DULUX T/E 42 W	DULUX T/E 57 W	DULUX T/E 70 W	DULUX 120 W HO CONSTANT
11.08						11.08																	
		11.08																					
			11.08																				
				11.08																			
					11.09																		
	11.09						11.09																
11.10						11.10																	
		11.10																					
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11.15						11.15																	
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11.16						11.16																	
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	11.21						11.21																
			11.21																				
														11.22			11.22						
															11.22			11.22					
														11.23			11.23						
															11.23			11.23	11.23	11.23			

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	HO 24 W	HO 39 W	HO 49 W	HO 54 W	HO 80 W	HE 14 W	HE 21 W	HE 28 W	HE 35 W	FC 22 W	
QTi 1x14/24/21/39	4050300**796871**	360 x 30 x 21	11.26	11.26				11.26	11.26	11.26	11.26	11.26	
QTi 1x28/54	4050300**796857**	360 x 30 x 21				11.26		11.26	11.26	11.26	11.26		
QTi 1x35/49/80	4050300**796833**	360 x 30 x 21			11.26		11.26	11.26	11.26	11.26	11.26		
QTi 2x14/24/21/39	4050300**797090**	423 x 30 x 21	11.27	11.27				11.27	11.27	11.27	11.27	11.27	
QTi 2x28/54	4050300**797076**	423 x 30 x 21				11.27		11.27	11.27	11.27	11.27		
QTi 2x35/49	4050300**796895**	423 x 30 x 21			11.27			11.27	11.27	11.27	11.27		
QTP5 1x14-35	4008321**061515**	360 x 30 x 21						11.28	11.28	11.28	11.28		
QTP5 2x14-35	4008321**061539**	423 x 30 x 21						11.28	11.28	11.28	11.28		
QTP5 1x24-39	4008321**123190**	360 x 30 x 21	11.29	11.29									
QTP5 1x49	4008321**061614**	360 x 30 x 21			11.29								
QTP5 1x54	4008321**061553**	360 x 30 x 21				11.29							
QTP5 1x80	4008321**061591**	360 x 30 x 21					11.29						
QTP5 2x24-39	4008321**123671**	423 x 30 x 21	11.29	11.29									
QTP5 2x49	4008321**123831**	423 x 30 x 21			11.29								
QTP5 2x54	4008321**061577**	423 x 30 x 21				11.29							
QT-FH 1x14/230-240	4050300**434681**	237 x 30 x 30						11.30					
QT-FH 1x14-35/230-240 CW	4050300**823089**	360 x 30 x 30						11.30	11.30	11.30	11.30		
QT-FH 1x14-35/230-240 F/CW	4050300**642437**	360 x 30 x 21						11.30	11.30	11.30	11.30		
QT-FH 1x21/230-240	4050300**434704**	237 x 30 x 30							11.30				
QT-FH 2x14-35/230-240 CW	4050300**613079**	360 x 30 x 30						11.31	11.31	11.31	11.31		
QT-FH 2x14-28/230-240 F/CW	4050300**943442**	423 x 30 x 21						11.31	11.31	11.31			
QT-FH 3x14/230-240 CW	4050300**459073**	423 x 40 x 30						11.32					
QT-FH 4x14/230-240 CW	4050300**459097**	423 x 40 x 30						11.32					
QT-FQ 1x24/230-240 CW	4050300**457499**	360 x 30 x 30	11.33									11.33	
QT-FQ 1x24-39/230-240 F/CW	4050300**943480**	360 x 30 x 21											
QT-FQ 1x39/230-240 CW	4050300**457529**	360 x 30 x 30	11.33	11.33									
QT-FQ 1x49/230-240 CW	4050300**617473**	360 x 30 x 30			11.33								
QT-FQ 1x54/230-240 CW	4050300**457536**	360 x 30 x 30				11.33							
QT-FQ 1x54/230-240 F/CW	4050300**943527**	360 x 30 x 21				11.33							
QT-FQ 1x80/230-240 CW	4050300**480138**	360 x 30 x 30					11.33						
QT-FQ 1x80/230-240 F/CW	4050300**775302**	360 x 30 x 21					11.33						
QT-FQ 2x24/230-240 CW	4050300**823553**	360 x 30 x 30	11.34									11.34	
QT-FQ 2x24-39/230-240 F/CW	4050300**943503**	423 x 30 x 21	11.34	11.34									
QT-FQ 2x39/230-240 CW	4050300**825366**	360 x 30 x 30		11.34									
QT-FQ 2x49/230-240 CW	4050300**617459**	360 x 30 x 30			11.34								
QT-FQ 2x54/230-240 CW	4050300**825410**	360 x 30 x 30				11.34							
QT-FQ 2x54/230-240 F/CW	4050300**943541**	423 x 30 x 21				11.34							
QT-FQ 2x80	4050300**825564**	423 x 30 x 21					11.34						
QTP 1x18/230-240	4050300**479156**	360 x 30 x 30											
QTP 1x36/230-240	4050300**479194**	360 x 30 x 30											
QTP 1x58/230-240	4050300**479279**	360 x 30 x 30											
QTP 2x18/230-240	4050300**479170**	423 x 30 x 30											
QTP 2x36/230-240	4050300**479217**	423 x 30 x 30											
QTP 2x58/230-240	4050300**479293**	423 x 30 x 30											
QTP 3x/4x18/230-240 CW	4050300**527840**	423 x 40 x 30											
QT-FC 1x55/230-240	4050300**526096**	123 x 79 x 33											
QT-M 1x26-42/230-240[1)]	4050300**609256**	103 x 67 x 31	11.37	11.37								11.37	
QT-M 2x26-32/230-240[2)]	4050300**624969**	123 x 79 x 33	11.37									11.37	
QT-M 2x26-42/230-240[2)]	4008321**110022**	123 x 79 x 33	11.37	11.37								11.37	
QT-ECO 1x36/230-240	4050300**940656**	150 x 41 x 28											
QT-ECO 1x58/230-240	4050300**940632**	150 x 41 x 28											
QTIS e 1x18/220-240	4050300**775388**	360 x 30 x 30											

1) See also pages 11.42 and 11.44
2) See also pages 11.43 and 11.45

FC 22 + 40 W	FC 40 W	FC 55 W	L 4 W (Ø 16 mm)	L 6 W (Ø 16 mm)	L 8 W (Ø 16 mm)	L 13 W (Ø 16 mm)	L 10 W (Ø 26 mm)	L 15 W (Ø 26 mm)	L 16 W (Ø 26 mm)	L 18 W (Ø 26 mm)	L 20 W (Ø 38 mm)	L 30 W (Ø 26 mm)	L 36 W (Ø 26 mm)	L 36 W-1 (Ø 26 mm)	L 38 W (Ø 26 mm)	L 40 W (Ø 38 mm)	L 58 W (Ø 26 mm)	L 65 W (Ø 38 mm)	L 70 W (Ø 26 mm)	L 22 W C	L 32 W C	L 40 W C	L 18 W U
	11.26									11.26		11.26	11.26										
																	11.26		11.26				
		11.26																					
	11.27									11.27		11.27	11.27										
																	11.27						
																	11.29						
																	11.29						
									11.30														
									11.30														
									11.31														
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	11.33																						
																	11.33						
	11.34																						
																	11.34						
										11.35													11.35
												11.35	11.35		11.35	11.35					11.35	11.35	
														11.35	11.35		11.35	11.35					
										11.35													11.35
												11.35	11.35		11.35	11.35					11.35	11.35	
														11.35	11.35		11.35	11.35					
										11.36													
		11.37																					
	11.37									11.37			11.37							11.37			
11.37										11.37										11.37			
	11.37							11.37					11.37							11.37			
													11.38		11.38								
																	11.38						
										11.39													

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	L 36 W U	L 36 W UK	L 58 W U	L 58 W UK	FM 6 W	FM 8 W	FM 11 W	FM 13 W	DULUX L 18 W	
QTi 1x14/24/21/39	4050300**796871**	360 x 30 x 21									11.26	
QTi 1x28/54	4050300**796857**	360 x 30 x 21										
QTi 1x35/49/80	4050300**796833**	360 x 30 x 21										
QTi 2x14/24/21/39	4050300**797090**	423 x 30 x 21									11.27	
QTi 2x28/54	4050300**797076**	423 x 30 x 21										
QTi 2x35/49	4050300**796895**	423 x 30 x 21										
QTP5 1x14-35	4008321**061515**	360 x 30 x 21										
QTP5 2x14-35	4008321**061539**	423 x 30 x 21										
QTP5 1x24-39	4008321**123190**	360 x 30 x 21										
QTP5 1x49	4008321**061614**	360 x 30 x 21										
QTP5 1x54	4008321**061553**	360 x 30 x 21										
QTP5 1x80	4008321**061591**	360 x 30 x 21										
QTP5 2x24-39	4008321**123671**	423 x 30 x 21										
QTP5 2x49	4008321**123831**	423 x 30 x 21										
QTP5 2x54	4008321**061577**	423 x 30 x 21										
QT-FH 1x14/230-240	4050300**434681**	237 x 30 x 30										
QT-FH 1x14-35/230-240 CW	4050300**823089**	360 x 30 x 30										
QT-FH 1x14-35/230-240 F/CW	4050300**642437**	360 x 30 x 21										
QT-FH 1x21/230-240	4050300**434704**	237 x 30 x 30										
QT-FH 2x14-35/230-240 CW	4050300**613079**	360 x 30 x 30										
QT-FH 2x14-28/230-240 F/CW	4050300**943442**	423 x 30 x 21										
QT-FH 3x14/230-240 CW	4050300**459073**	423 x 40 x 30										
QT-FH 4x14/230-240 CW	4050300**459097**	423 x 40 x 30										
QT-FQ 1x24/230-240 CW	4050300**457499**	360 x 30 x 30										
QT-FQ 1x24-39/230-240 F/CW	4050300**943480**	360 x 30 x 21										
QT-FQ 1x39/230-240 CW	4050300**457529**	360 x 30 x 30										
QT-FQ 1x49/230-240 CW	4050300**617473**	360 x 30 x 30										
QT-FQ 1x54/230-240 CW	4050300**457536**	360 x 30 x 30										
QT-FQ 1x54/230-240 F/CW	4050300**943527**	360 x 30 x 21										
QT-FQ 1x80/230-240 CW	4050300**480138**	360 x 30 x 30										
QT-FQ 1x80/230-240 F/CW	4050300**775302**	360 x 30 x 21										
QT-FQ 2x24/230-240 CW	4050300**823553**	360 x 30 x 30										
QT-FQ 2x24-39/230-240 F/CW	4050300**943503**	423 x 30 x 21										
QT-FQ 2x39/230-240 CW	4050300**825366**	360 x 30 x 30										
QT-FQ 2x49/230-240 CW	4050300**617459**	360 x 30 x 30										
QT-FQ 2x54/230-240 CW	4050300**825410**	360 x 30 x 30										
QT-FQ 2x54/230-240 F/CW	4050300**943541**	423 x 30 x 21										
QT-FQ 2x80	4050300**825564**	423 x 30 x 21										
QTP 1x18/230-240	4050300**479156**	360 x 30 x 30										
QTP 1x36/230-240	4050300**479194**	360 x 30 x 30	11.35	11.35								
QTP 1x58/230-240	4050300**479279**	360 x 30 x 30			11.35	11.35						
QTP 2x18/230-240	4050300**479170**	423 x 30 x 30										
QTP 2x36/230-240	4050300**479217**	423 x 30 x 30	11.35	11.35								
QTP 2x58/230-240	4050300**479293**	423 x 30 x 30			11.35	11.35						
QTP 3x/4x18/230-240 CW	4050300**527840**	423 x 40 x 30										
QT-FC 1x55/230-240	4050300**526096**	123 x 79 x 33										
QT-M 1x26-42/230-240[1)]	4050300**609256**	103 x 67 x 31									11.37	
QT-M 2x26-32/230-240[2)]	4050300**624969**	123 x 79 x 33									11.37	
QT-M 2x26-42/230-240[2)]	4008321**110022**	123 x 79 x 33										
QT-ECO 1x36/230-240	4050300**940656**	150 x 41 x 28										
QT-ECO 1x58/230-240	4050300**940632**	150 x 41 x 28										
QTIS e 1x18/220-240	4050300**775388**	360 x 30 x 30										

1) See also pages 11.42 and 11.44
2) See also pages 11.43 and 11.45

DULUX L 24 W	DULUX L 36 W	DULUX L 40 W	DULUX L 55 W	DULUX L 80 W	DULUX F 18 W	DULUX F 24 W	DULUX F 36 W	DULUX S/E 5 W	DULUX S/E 7 W	DULUX S/E 9 W	DULUX S/E 11 W	DULUX D/E 10 W	DULUX D/E 13 W	DULUX D/E 18 W	DULUX D/E 26 W	DULUX T/E 13 W	DULUX T/E 18 W	DULUX T/E 26 W	DULUX T/E 32 W	DULUX T/E 42 W	DULUX T/E 57 W	DULUX T/E 70 W	DULUX 120 W HO CONSTANT
11.26	11.26	11.26			11.26	11.26	11.26																
			11.26	11.26																			
11.27	11.27	11.27			11.27	11.27	11.27																
				11.29																			
11.33						11.33																	
		11.33																					
				11.33																			
11.34						11.34																	
		11.34																					
			11.34	11.34																			
			11.37																				
11.37	11.37	11.37			11.37	11.37	11.37								11.37			11.37	11.37	11.37			
11.37	11.37				11.37	11.37	11.37								11.37			11.37	11.37				
	11.37	11.37			11.37	11.37	11.37												11.37	11.37			

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	HO 24 W	HO 39 W	HO 49 W	HO 54 W	HO 80 W	HE 14 W	HE 21 W	HE 28 W	HE 35 W	FC 22 W	
QTIS e 1x36/220-240	4050300**940649**	360 x 30 x 30											
QTIS e 1x58/220-240	4050300**940625**	360 x 30 x 30											
QTIS e 2x18/220-240	4050300**775401**	360 x 30 x 30											
QTIS e 2x36/220-240	4050300**940663**	360 x 30 x 30											
QTIS e 2x58/220-240	4050300**940618**	360 x 30 x 30											
QTIS e 3x/4x18/220-240	4050300**940670**	360 x 30 x 30											
QTIS e 3x36/220-240 CW	4008321**104687**	423 x 40 x 30											
QT 1x18/230-240	4050300**333809**	237 x 30 x 30											
QT 1x24/230-240	4050300**333823**	237 x 30 x 30											
QT 1x36/230-240	4050300**333847**	237 x 30 x 30											
QT 1x40/230-240	4050300**290492**	360 x 30 x 30											
QT 1x55, 70/230-240	4050300**479354**	360 x 30 x 30											
QT 2x18/230-240	4050300**325910**	237 x 42 x 30											
QT 2x24/230-240	4050300**325934**	237 x 42 x 30											
QT 2x36/230-240	4050300**325958**	280 x 42 x 30											
QT 2x40/230-240	4050300**300610**	423 x 30 x 30											
QT 2x55, 70/230-240	4050300**479378**	423 x 30 x 30											
QT-D/E 1x9-13/230-240	4050300**025827**	93 x 58 x 29											
QT-T/E 1x18/230-240	4050300**326382**	103 x 67 x 31											
QT-T/E 1x57/230-240	4050300**605357**	123 x 79 x 33											
QT-T/E 1x70/230-240	4050300**792002**	123 x 79 x 33											
QTi 1x26-120[1)]	4008321**040893**	163 x 88 x 39											
QT-D/E 2x10-13/230-240	4050300**312538**	123 x 79 x 33											
QT-T/E 2x18/230-240	4050300**312576**	123 x 79 x 33											
QT-T/E 2x42-57/230-240	4050300**829814**	158 x 102 x 39											
DT-S/E 5-11/230-240 S	4050300**436852**	75 x 55 x 34											
DT-S/E 5-11/230-240 L	4050300**406367**	89 x 40 x 45											
DT-D/E 10-13/230-240 L	4050300**406381**	95 x 40 x 64											
DT-D/E 10-13/230-240 C	4050300**421445**	∅ 59 x 68											
DT-D/E 10-13/230-240 P	4050300**421407**	∅ 59 x 72											
DT-T/E 18/230-240 L	4050300**406404**	95 x 40 x 64											
DT-T/E 18/230-240 C	4050300**421384**	∅ 59 x 68											
DT-T/E 18/230-240 P	4050300**421421**	∅ 59 x 72											
QT-ECO 1x4-16/220-240 S	4050300**638584**	80 x 40 x 22						11.50					
QT-ECO 1x4-16/220-240 L	4050300**660370**	150 x 22 x 22						11.51					
QT-ECO 1x18-21/220-240 S	4050300**794907**	80 x 40 x 22							11.52				
QT-ECO 1x18-24/220-240 S	4050300**638560**	80 x 40 x 22	11.52									11.52	
QT-ECO 1x18-24/220-240 L	4050300**660417**	150 x 22 x 22	11.53									11.53	
QT-ECO 1x26/220-240 S	4008321**065971**	80 x 40 x 22											
QT-ECO 2x5-11/220-240 S	4050300**821504**	80 x 40 x 22											
QT-ECO T/E 2x18/220-240	4050300**803982**	150 x 41 x 28											
QT-ECO T/E 2x26/220-240	4050300**803999**	150 x 41 x 28											
QT-FM 1x6/230-240 L	4050300**511139**	276 x 32 x 16											
QT-FM 1x8/230-240 L	4050300**511153**	276 x 32 x 16											
QT-FM 1x11/230-240 L	4050300**511177**	276 x 32 x 16											
QT-FM 1x13/230-240 L	4050300**511191**	276 x 32 x 16											
QT-FM 1x8/230-240 LB	4050300**363523**	225 x 18 x 13											
QT-FM 1x11/230-240 LB	4050300**363547**	225 x 18 x 13											
QT-FM 1x13/230-240 LB	4050300**363561**	225 x 18 x 13											
QT-ECO FM 1x6-8/220-240	4050300**797502**	150 x 22 x 22											
QT-ECO FM 1x11-13/220-240	4050300**799780**	150 x 22 x 22											

1) See also page 11.44

FC 22 + 40 W	FC 40 W	FC 55 W	L 4 W (Ø 16 mm)	L 6 W (Ø 16 mm)	L 8 W (Ø 16 mm)	L 13 W (Ø 16 mm)	L 10 W (Ø 26 mm)	L 15 W (Ø 26 mm)	L 16 W (Ø 26 mm)	L 18 W (Ø 26 mm)	L 20 W (Ø 38 mm)	L 30 W (Ø 26 mm)	L 36 W (Ø 26 mm)	L 36 W-1 (Ø 26 mm)	L 38 W (Ø 26 mm)	L 40 W (Ø 38 mm)	L 58 W (Ø 26 mm)	L 65 W (Ø 38 mm)	L 70 W (Ø 26 mm)	L 22 W C	L 32 W C	L 40 W C	L 18 W U
													11.39										
																	11.39						
										11.39													
													11.39										
																	11.39						
										11.39													
													11.39										
								11.40		11.40	11.40												
																				11.40			
													11.40		11.40							11.40	
																			11.40				
								11.41		11.41	11.41												
													11.41	11.41									
																			11.41				
						11.42																	
						11.43																	
			11.50	11.50	11.50	11.50	11.50		11.50														
			11.51	11.51	11.51	11.51	11.51		11.51														
								11.52		11.52										11.52			11.52
								11.53		11.53										11.53			11.53
				11.54	11.54		11.54																

Summary of lamp/ECG combinations

Product reference	Product number	L x W x H in mm	L 36 W U	L 36 W UK	L 58 W U	L 58 W UK	FM 6 W	FM 8 W	FM 11 W	FM 13 W	DULUX L 18 W	
QTIS e 1x36/220-240	4050300**940649**	360 x 30 x 30										
QTIS e 1x58/220-240	4050300**940625**	360 x 30 x 30										
QTIS e 2x18/220-240	4050300**775401**	360 x 30 x 30										
QTIS e 2x36/220-240	4050300**940663**	360 x 30 x 30										
QTIS e 2x58/220-240	4050300**940618**	360 x 30 x 30										
QTIS e 3x/4x18/220-240	4050300**940670**	360 x 30 x 30										
QTIS e 3x36/220-240 CW	4008321**104687**	423 x 40 x 30										
QT 1x18/230-240	4050300**333809**	237 x 30 x 30									11.40	
QT 1x24/230-240	4050300**333823**	237 x 30 x 30										
QT 1x36/230-240	4050300**333847**	237 x 30 x 30										
QT 1x40/230-240	4050300**290492**	360 x 30 x 30										
QT 1x55, 70/230-240	4050300**479354**	360 x 30 x 30										
QT 2x18/230-240	4050300**325910**	237 x 42 x 30									11.41	
QT 2x24/230-240	4050300**325934**	237 x 42 x 30										
QT 2x36/230-240	4050300**325958**	280 x 42 x 30										
QT 2x40/230-240	4050300**300610**	423 x 30 x 30										
QT 2x55, 70/230-240	4050300**479378**	423 x 30 x 30										
QT-D/E 1x9-13/230-240	4050300**025827**	93 x 58 x 29										
QT-T/E 1x18/230-240	4050300**326382**	103 x 67 x 31										
QT-T/E 1x57/230-240	4050300**605357**	123 x 79 x 33										
QT-T/E 1x70/230-240	4050300**792002**	123 x 79 x 33										
QTi 1x26-120[1)]	4008321**040893**	163 x 88 x 39										
QT-D/E 2x10-13/230-240	4050300**312538**	123 x 79 x 33										
QT-T/E 2x18/230-240	4050300**312576**	123 x 79 x 33										
QT-T/E 2x42-57/230-240	4050300**829814**	158 x 102 x 39										
DT-S/E 5-11/230-240 S	4050300**436852**	75 x 55 x 34										
DT-S/E 5-11/230-240 L	4050300**406367**	89 x 40 x 45										
DT-D/E 10-13/230-240 L	4050300**406381**	95 x 40 x 64										
DT-D/E 10-13/230-240 C	4050300**421445**	∅ 59 x 68										
DT-D/E 10-13/230-240 P	4050300**421407**	∅ 59 x 72										
DT-T/E 18/230-240 L	4050300**406404**	95 x 40 x 64										
DT-T/E 18/230-240 C	4050300**421384**	∅ 59 x 68										
DT-T/E 18/230-240 P	4050300**421421**	∅ 59 x 72										
QT-ECO 1x4-16/220-240 S	4050300**638584**	80 x 40 x 22										
QT-ECO 1x4-16/220-240 L	4050300**660370**	150 x 22 x 22										
QT-ECO 1x18-21/220-240 S	4050300**794907**	80 x 40 x 22										
QT-ECO 1x18-24/220-240 S	4050300**638560**	80 x 40 x 22									11.52	
QT-ECO 1x18-24/220-240 L	4050300**660417**	150 x 22 x 22									11.53	
QT-ECO 1x26/220-240 S	4008321**065971**	80 x 40 x 22										
QT-ECO 2x5-11/220-240 S	4050300**821504**	80 x 40 x 22										
QT-ECO T/E 2x18/220-240	4050300**803982**	150 x 41 x 28										
QT-ECO T/E 2x26/220-240	4050300**803999**	150 x 41 x 28										
QT-FM 1x6/230-240 L	4050300**511139**	276 x 32 x 16					11.58					
QT-FM 1x8/230-240 L	4050300**511153**	276 x 32 x 16						11.58				
QT-FM 1x11/230-240 L	4050300**511177**	276 x 32 x 16							11.58			
QT-FM 1x13/230-240 L	4050300**511191**	276 x 32 x 16								11.58		
QT-FM 1x8/230-240 LB	4050300**363523**	225 x 18 x 13						11.58				
QT-FM 1x11/230-240 LB	4050300**363547**	225 x 18 x 13							11.58			
QT-FM 1x13/230-240 LB	4050300**363561**	225 x 18 x 13								11.58		
QT-ECO FM 1x6-8/220-240	4050300**797502**	150 x 22 x 22					11.57	11.57				
QT-ECO FM 1x11-13/220-240	4050300**799780**	150 x 22 x 22							11.57	11.57		

1) See also page 11.44

DULUX L 24 W	DULUX L 36 W	DULUX L 40 W	DULUX L 55 W	DULUX L 80 W	DULUX F 18 W	DULUX F 24 W	DULUX F 36 W	DULUX S/E 5 W	DULUX S/E 7 W	DULUX S/E 9 W	DULUX S/E 11 W	DULUX D/E 10 W	DULUX D/E 13 W	DULUX D/E 18 W	DULUX D/E 26 W	DULUX T/E 13 W	DULUX T/E 18 W	DULUX T/E 26 W	DULUX T/E 32 W	DULUX T/E 42 W	DULUX T/E 57 W	DULUX T/E 70 W	DULUX 120 W HO CONSTANT
					11.40																		
11.40						11.40																	
	11.40						11.40																
		11.40																					
			11.40																				
					11.41																		
11.41						11.41																	
	11.41						11.41																
		11.41																					
			11.41																				
										11.42	11.42	11.42	11.42			11.42							
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															11.42			11.42	11.42	11.42	11.42	11.42	11.42
										11.43	11.43	11.43	11.43			11.43							
														11.43			11.43						
																				11.43	11.43		
								11.47	11.47	11.47	11.47												
								11.49	11.49	11.49	11.49												
												11.49	11.49			11.49							
												11.48	11.48			11.48							
												11.48	11.48			11.48							
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														11.48			11.48						
														11.48			11.48						
								11.50	11.50	11.50	11.50	11.50	11.50			11.50							
								11.51	11.51	11.51	11.51	11.51	11.51			11.51							
														11.52			11.52						
11.52					11.52	11.52																	
11.53					11.53	11.53																	
															11.52			11.52					
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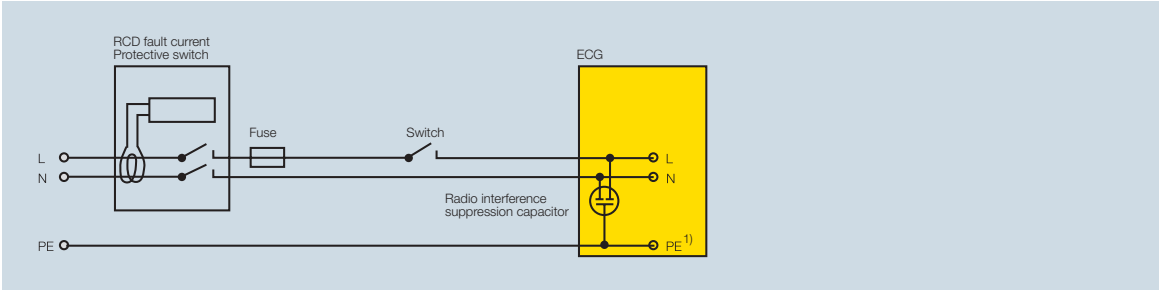
														11.55			11.55						
															11.55			11.55					



The following installation and operating instructions have been included to help you to get the most out of your electronic control gear.

Requirements:
The requirements to be met by lighting systems with luminaires operated with ECGs fall into the following categories:

1. Fault currents/RCD
2. Rating for automatic line protection systems/ in-rush currents
3. ECGs in three-phase operation (overvoltages/undervoltages/missing neutral conductor)
4. ECGs in emergency lighting systems (voltage ranges and switch-on times)
5. Power factor/compensation
6. Permissible cable lengths
7. Faults in infrared controls/transmission systems (IR remote control, sound transmission, audio frequency ripple control, paging systems)
8. Dimming
9. Luminaires for ECGs
10. Ambient and ECG temperatures
11. ECGs for outdoor lighting
12. Wiring of ECGs
13. Life and reliability of ECGs

For more detailed information see the following Technical Guides: QUICKTRONIC® (order no. 130T004E), QUICKTRONIC® DIMMABLE, HALOTRONIC® (order no. 130T005E), QUICKTRONIC® for T5 ECGs (order no. 130T015E), OSRAM ENDURA® (order no. 103T005E), QUICKTRONIC® DALI (order no. 130T011E).
For detailed technical information go to www.osram.com/Service_Center_Download_Center/Electronic_Control_Gear.html

1) Earthing requirements (PE):
- For dimmable ECGs the earth conductor must always be connected to reduce radio interference
- For Protection Class I equipment the protective earth (PE) must make contact with the casing via a serrated washer

1. Fault currents/RCD

Problem:

For ECGs with protective earth (PE) both the high short-duration in-rush current and the small leakage current from the interference suppression capacitors in the ECGs can trigger the residual current detector.

Solution:

- Divide the luminaires across the three phases and use three-phase RCDs
- Use surge-current-resistant short-delay RCDs
- If permissible, use 30 mA RCDs
- Connect a maximum of 45 ECGs per phase and RCD
- For a 3-phase RCD, a maximum of 3 x 45 = 135 ECGs can be connected

2. Ratings for automatic line protection systems

In a choke/starter circuit the lamps do not all ignite simultaneously; in an ECG circuit all the fluorescent lamps ignite simultaneously.

On switch-on at peak voltage, the storage capacitors of electronic control gear cause a high but very brief current pulse.

In this case, the simultaneous charging of these capacitors in ECG operation can mean a higher system switch-on current than with a choke/starter circuit.

This reduces the maximum number of luminaires allowed per automatic line protection unit (see tables on the following pages).

For example, the maximum number of luminaires allowed on a 10 A automatic system reduces from 15 luminaires with 2 x 58 W lamps with conventional control gear in a twin circuit to 8 luminaires in an ECG circuit.

10 A circuit breaker

Maximum permissible number of ECGs for operating T8 fluorescent lamps (L 18W, L 36W, L 58W) with an N circuit breaker 10 A, single-pole, type B (made by Siemens).

	ECG type 1-lamp	Max. no. of ECGs	LLG 1-lamp uncomp.	LLG 1-lamp parallel comp.	ECG type 2-lamp	Max. no. of ECGs	LLG 2-lamp DUO
L 18W	HF 1x18 … DIM	37	27	32	HF 2x18 … DIM	17	23
	QTi 1x14/24/21/39	26	27	32	QTi 2x14/24/21/39	19	23
	QTP 1x18 …	36	27	32	QTP 2x18 …	25	23
	QTP8 1x18 …	36	27	32	QTP8 2x18 …	25	23
	QTIS e 1x18 …	17	27	32	QTIS e 2x18	17	23
L 36W	HF 1x36 … DIM	25	23	32	HF 2x36 … DIM	17	23
	QTi 1x14/24/21/39	26	23	32	QTi 2x14/24/21/39	19	23
	QTP 1x36 …	25	23	32	QTP 2x36 …	17	23
	QTP8 1x36 …	25	23	32	QTP8 2x36 …	17	23
	QTIS e 1x36 …	17	23	32	QTIS e 2x36 …	5	23
	QT-ECO 1x36 …	17	23	32	–		
L 58W	HF 1x58 … DIM	17	15	20	HF 2x58 … DIM	8	15
	QTi 1x28/54	26	15	20	QTi 2x28/54	19	15
	QTP 1x58 …	17	15	20	QTP 2x58 …	8	15
	QTP8 1x58 …	17	15	29	QTP8 2x58 …	8	15
	QTIS e 1x58 …	8	15	20	QTIS e 2x58 …	5	15
	QT-ECO 1x58 …	17	15	20	–		

	ECG type 3-lamp	Max. no. of ECGs	ECG type 4-lamp	Max. no. of ECGs
L 18W	QTP 3x18, 4x18	17	QTP 3x18, 4x18…	17
	QTP8 3x18, 4x18	17	QTP8 3x18, 4x18…	17
	QTIS e 3x18, 4x18	8	QTIS e 3x18, 4x18	8

16 A circuit breaker

Maximum permissible number of ECGs for operating T8 fluorescent lamps (L 18W, L 36W, L 58W) with an N circuit breaker 16 A, single-pole, type B (made by Siemens).

	ECG type 1-lamp	Max. no. of ECGs	LLG 1-lamp uncomp.	LLG 1-lamp parallel comp.	ECG type 2-lamp	Max. no. of ECGs	LLG 2-lamp DUO
L 18W	HF 1x18 … DIM	61	43	51	HF 2x18 … DIM	28	
	QTi 1x14/24/21/39	41	43	51	QTi 2x14/24/21/39	31	
	QTP 1x18 …	59	43	51	QTP 2x18 …	41	
	QTP8 1x18 …	59	43	51	QTP8 2x18 …	31	
	QTIS e 1x18 …	28	43	51	QTIS e 2x18	28	
L 36W	HF 1x36 … DIM	41	43	51	HF 2x36 … DIM	28	
	QTi 1x14/24/21/39	41	43	51	QTi 2x14/24/21/39	31	
	QTP 1x36 …	41	43	51	QTP 2x36 …	28	
	QTP8 1x36 …	41	43	51	QTP8 2x36 …	28	
	QTIS e 1x36 …	28	43	51	QTIS e 2x36 …	8	
	QT-ECO 1x36 …	28	43	51	–		
L 58W	HF 1x58 … DIM	28	24	33	HF 2x58 …DIM	13	
	QTi 1x28/54	41	24	33	QTi 2x28/54	31	
	QTP 1x58 …	28	24	33	QTP 2x58 …	13	
	QTP8 1x58 …	28	24	33	QTP8 2x58 …	13	
	QTIS e 1x58 …	13	24	33	QTIS e 2x58 …	8	
	QT-ECO 1x58 …	28	24	33	–		

	ECG type 3-lamp	Max. no. of ECGs	ECG type 4-lamp	Max. no. of ECGs
L 18W	QTP 3x18, 4x18	28	QTP 3x18, 4x18…	28
	QTP8 3x18, 4x18	28	QTP8 3x18, 4x18…	28
	QTIS e 3x18, 4x18	13	QTIS e 3x18, 4x18	13

Installation and operating instructions

Ratings for automatic line protection systems

10 A circuit breaker

Maximum permissible number of ECGs for operating HO (T5/Ø 16 mm) fluorescent lamps (HO 24W, HO 39W, HO 49W, HO 54W, HO 80W) with an N circuit breaker 10 A, single-pole, type B (made by Siemens).
(CCG operation is not possible with HO (T5/Ø 16 mm) fluorescent lamps).

	ECG type 1-lamp	Max. no. of ECGs	ECG type 2-lamp	Max. no. of ECGs
HO 24W	QT-FQ 1x24-39 … F/CW	25	QT-FQ 2x24-39 … F/CW	17
	QTP5 1x24-39	17	QTP5 2x24-39	8
HO 39W	QT-FQ 1x24-39 … F/CW	25	QT-FQ 2x24-39 … F/CW	17
	QTP5 1x24-39	17	QTP5 2x24-39	8
HO 49W	QTP5 1x49	17	QTP5 2x49	8
HO 54W	QT-FQ 1x54 … F/CW	17	QT-FQ 2x54 … F/CW	10
	QTP5 1x54	11	QTP5 2x54	8
HO 80W	QT-FQ 1x80 … F/CW	17	QT-FQ 2x80	8
	QTP5 1x80	8		

16 A circuit breaker

Maximum permissible number of ECGs for operating HO (T5/Ø 16 mm) fluorescent lamps (HO 24W, HO 39W, HO 49W, HO 54W, HO 80W) with an N circuit breaker 16 A, single-pole, type B (made by Siemens).
(CCG operation is not possible with HO (T5/Ø 16 mm) fluorescent lamps).

	ECG type 1-lamp	Max. no. of ECGs	ECG type 2-lamp	Max. no. of ECGs
HO 24W	QT-FQ 1x24-39 … F/CW	41	QT-FQ 2x24-39 … F/CW	28
	QTP5 1x24-39	28	QTP5 2x24-39	13
HO 39W	QT-FQ 1x24-39 … F/CW	41	QT-FQ 2x24-39 … F/CW	28
	QTP5 1x24-39	28	QTP5 2x24-39	13
HO 49W	QTP5 1x49	28	QTP5 2x49	13
HO 54W	QT-FQ 1x54 … F/CW	28	QT-FQ 2x54 … F/CW	17
	QTP5 1x54	19	QTP5 2x54	13
HO 80W	QT-FQ 1x80 … F/CW	28	QT-FQ 2x80	14
	QTP5 1x80	13		

When using the values given in these tables please note the following:

- In ECG operation the load data relates to switching on at peak voltage
- The type and characteristics of the circuit breaker:
  The specified load from fluorescent lamps and the associated control gear applies to N circuit breakers of Type 5 SN1-6 and 5 SX with B characteristics. If the above circuit breaker types with C characteristics are used the number of permitted luminaires for ECG operation can be doubled. (Note in particular VDE 0100 Part 410.)
- Circuit breaker design:
  The specified loading is for single-pole circuit breakers. When multi-pole circuit breakers are employed (2-pole, 3-pole) the number of permitted luminaires is reduced by 20%.
- Lamp switch-on:
  The specified load applies:
  – to the joint and group-wise starting of the relevant number of luminaires in “choke operation”
  – to the maximum permissible number of luminaires switched (with one switching operation) in the case of “ECG operation”
- Circuit impedance:
  The specified loading applies with reference to a line impedance of 800 mΩ.
  (This corresponds to a 15 m, 1.5 mm^2 cable from the distribution board to the first luminaire and a further distance of 20 m to the middle of the circuit. At a line impedance of 400 mΩ, the permitted values are reduced by 10%, and by 20% for a line impedance of 200 mΩ.)

In-rush currents for ECGs
Measured at $U_N = 230V_{AC}$

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® INTELLIGENT dimmable (DALI/DIM) for T5 and T8 fluorescent lamps				
QTi (DALI) 1x14/24 DIM	25	175	17	28
QTi (DALI) 1x18 DIM	25	175	17	28
QTi (DALI) 1x21/39 DIM	25	175	17	28
QTi (DALI) 1x28/54 DIM	25	175	17	28
QTi (DALI) 1x35/49/80 DIM	30	225	12	19
QTi (DALI) 1x36 DIM	25	175	17	28
QTi (DALI) 1x58 DIM	25	175	17	28
QTi (DALI) 2x14/24 DIM	35	180	12	19
QTi (DALI) 2x18 DIM	35	180	12	19
QTi (DALI) 2x21/39 DIM	45	205	8	13
QTi (DALI) 2x28/54 DIM	45	205	8	13
QTi (DALI) 2x35/49 DIM	45	205	8	13
QTi (DALI) 2x36 DIM	45	205	8	13
QTi (DALI) 2x58 DIM	45	205	8	13
QTi (DALI) 2x35/49/80 DIM	60	230	5	9
QTi (DALI) 3x14/24 DIM	35	180	12	19
QTi (DALI) 4x14/24 DIM	45	205	8	13
QTi (DALI) 3x18 DIM	25	175	17	28
QTi (DALI) 4x18 DIM	35	180	12	19
QUICKTRONIC® T5 for HO (T5) fluorescent lamps				
QTP5 1x24-39	24	240	17	28
QTP5 1x49	33	180	17	28
QTP5 1x54	50	160	11	19
QTP5 1x80	57	150	8	13
QTP5 2x54	50	160	8	13

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® INTELLIGENT QTi				
QTi 1x14/24/21/39	1	155	26	41
QTi 1x28/54	1	155	26	41
QTi 1x35/49/80	1	155	26	41
QTi 2x14/24/21/39	1	200	19	31
QTi 2x28/54	1	200	19	31
QTi 2x35/49	1	200	19	31
QT-FQ 2x80	60	230	5	9
QUICKTRONIC® for HO (T5) fluorescent lamps				
QT-FQ 1x24/230-240 CW	17	155	25	41
QT-FQ 1x39/230-240 CW	17	155	25	41
QT-FQ 1x49/230-240 CW	20	210	17	28
QT-FQ 1x54/230-240 CW	20	210	17	28
QT-FQ 1x80/230-240 CW	28	230	8	13
QT-FQ 2x24/230-240 CW	20	210	17	28
QT-FQ 2x39/230-240 CW	28	230	8	13
QT-FQ 2x49/230-240 CW	28	230	8	13
QT-FQ 2x54/230-240 CW	28	230	8	13
QUICKTRONIC® Flat for HO (T5) fluorescent lamps				
QT-FQ 1x24-39/230-240 F/CW	17	155	25	41
QT-FQ 1x54/230-240 F/CW	27	170	17	28
QT-FQ 1x80/230-240 F/CW	27	170	17	28
QT-FQ 2x24-39/230-240 F/CW	27	170	17	28
QT-FQ 2x54/220-240 F/CW	32	210	10	17
QT-FQ 2x80/230-240 F/CW	39	260	8	14

In-rush currents for ECGs
Measured at $U_N = 230V_{AC}$

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® for HE (T5) fluorescent lamps				
QT-FH 1x14/230-240	17	155	25	41
QT-FH 1x21/230-240	17	155	25	41
QT-FH 3x14/230-240 CW	20	230	17	28
QT-FH 4x14/230-240 CW	20	230	17	28
QUICKTRONIC® MULTIWATT for HE (T5) fluorescent lamps				
QT-FH 1x14-35/230-240 CW	20	210	17	28
QT-FH 1x14-35/230-240 F/CW	17	155	25	41
QTP5 1x14-35	24	230	16	43
QT-FH 2x14-35/230-240 CW	20	210	17	28
QT-FH 2x14-28/230-240 F/CW	20	210	17	28
QTP5 2x14-35	20	210	11	19
QUICKTRONIC® DIMMABLE with 1-10 V interface for T8 fluorescent lamps				
HF 1x18/230-240 DIM	14	140	37	61
HF 1x36/230-240 DIM	17	170	25	41
HF 1x58/230-240 DIM	20	210	17	28
HF 2x18/230-240 DIM	25	165	17	28
HF 2x36/230-240 DIM	25	165	17	28
HF 2x58/230-240 DIM	40	230	8	13
QUICKTRONIC® PROFESSIONAL for T8 fluorescent lamps				
QTP8 1x18/230-240	14	140	36	59
QTP8 1x36/230-240	17	155	25	41
QTP8 1x58/230-240	20	210	17	28
QTP8 2x18/230-240	17	155	25	41
QTP8 2x36/230-240	20	210	17	28
QTP8 2x58/230-240	28	230	8	13
QTP8 3x18, 4x18/230-240	20	210	17	28

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® ECO for T8 fluorescent lamps				
QT-ECO 1x36/230-240	15	200	17	28
QT-ECO 1x58/230-240	15	200	17	28
QUICKTRONIC® QTIS e				
QTIS e 1x18	20	210	17	28
QTIS e 1x36	20	210	17	28
QTIS e 1x58	28	230	8	13
QTIS e 2x18	20	210	17	28
QTIS e 2x36	48	260	5	8
QTIS e 2x58	48	260	5	8
QTIS e 3x18, 4x18	28	230	8	13
QUICKTRONIC® for FC (T5) ring lamps				
QT-FC 1x55/230-240 S	28	230	8	13
QUICKTRONIC® for other tubular fluorescent lamps				
QT 1x18/230-240	13	240	25	41
QT 1x24/230-240	13	240	25	41
QT 1x36/230-240	13	240	25	41
QT 1x40/230-240	20	210	17	28
QT 1x55, 70/230-240	20	210	17	28
QT 2x18/230-240	13	320	17	28
QT 2x24/230-240	13	320	17	28
QT 2x36/230-240	28	230	8	13
QT 2x40/230-240	28	230	8	13
QT 2x55, 70/230-240	28	230	8	13
QUICKTRONIC® DALI and QUICKTRONIC® DIMMABLE with 1-10 V interface for T/E compact fluorescent lamps				
QT (DALI)-T/E 1x18/230-240 DIM	20	160	11	18
QT (DALI)-T/E 1x26-42/ 230-240 DIM	36	220	11	18
QT (DALI)-T/E 2x18/230-240 DIM	20	160	11	18
QT (DALI)-T/E 2x26-42/ 230-240 DIM	36	220	7	12

In-rush currents for ECGs
Measured at $U_N = 230V_{AC}$

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® MULTIWATT QT-M				
QT-M 1x26-42/230-240	20	210	17	28
QT-M 2x26-32/230-240	20	210	17	28
QT-M 2x26-42/220-240	45	205	8	13
QUICKTRONIC® for OSRAM DULUX S/E, D/E and T/E				
QT-D/E 1x9-13/230-240	11	310	17	28
QT-T/E 1x18/230-240	11	310	17	28
QT-T/E 1x57/230-240	20	210	17	28
QT-T/E 2x10-13/230-240	13	320	17	28
QT-T/E 2x18/230-240	13	320	17	28
QT-T/E 2x42-57/230-240	28	230	8	13
QUICKTRONIC® ECONOMIC				
QT-ECO 1x4-16/220-240	10	75	68	112
QT-ECO 1x18-21/220-240	13	100	36	59
QT-ECO 1x18-24/220-240	13	100	36	59
QT-ECO 1x26/220-240	14	120	31	50
QT-ECO 1x36/230-240	15	200	17	28
QT-ECO 1x58/230-240	15	200	17	28
QT-ECO 2x5-11/220-240	12	100	52	84
QT-ECO T/E 2x18/220-240	11	150	35	56
QT-ECO T/E 2x26/220-240	16	200	23	37

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers 10A	16A
QUICKTRONIC® for FM (T2) fluorescent lamps				
QT-FM 1x6/230-240 L	7.5	190	36	59
QT-FM 1x8/230-240 L	7.5	190	36	59
QT-FM 1x11/230-240 L	7.5	190	36	59
QT-FM 1x13/230-240 L	7.5	190	36	59
QT-ECO FM 1x6-8/220-240	7	70	80	130
QT-ECO FM 1x11-13/220-240	13.5	90	40	65
DULUXTRONIC® for OSRAM DULUX S/E, D/E, T/E with integrated lampholder				
DT-S/E 5-11/230-240	3.5	590	15	25
DT-D/E 10-13/230-240	3.5	590	15	25
DT-T/E 18/230-240	3.5	590	15	25
POWERTRONIC®				
PTi 35/220-240/S/I	30	150	15	26
PTi 70/220-240/S/I	40	250	7	13
PTi 2x35/220-240/S/I	40	250	7	13
POWERTRONIC®				
PTU 20/220-240	14	620	7	12
PTU 70/220-240	45	130	11	18
PTU 150/220-240	90	140	6	10

16 A circuit breaker

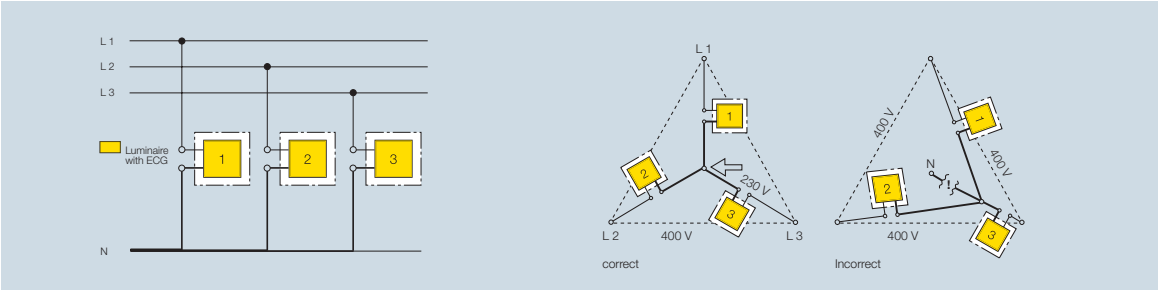
Maximum permissible number of HALOTRONIC® units on an automatic circuit breaker.

Circuit breaker		HTM 70	HT 70 L	HTN 75 I/S	HTM 105	HT 105 L
HALOTRONIC®						
Characteristic B	B 10	37	37	33	23	19
	B 16	59	59	53	38	31

Circuit breaker		HT 120 LF	HTM 150	HT 150 L	HT 210 L
HALOTRONIC®					
Characteristic B	B 10	16	16	14	7
	B 16	21	26	22	11

Maximum permissible number of OPTOTRONIC® units on an automatic circuit breaker.

ECG	I_P/A	T_H/µs	Max. no. of ECGs on circuit breakers	
			10 A	16 A
OPTOTRONIC®				
OT 06 10	4	400	11	17
OT 06 24	4	400	11	17
OT 10 L	16.3	108	23	38
OT 12	6	95	90	135
OT 20	10	170	42	68
OT 20 S	45	150	7	11
OT 50	33	195	7	12
OT 75	35	165	7	11
OT DALI 25	–	–	66	112



The diagram above shows the wiring for luminaires or luminaire groups in 3-phase circuits and with a common neutral conductor. If the common neutral conductor is interrupted in a 3-phase star configuration and voltage is present, then luminaires or groups of luminaires operated with electronic control gear may be exposed to unacceptably high voltages and the ECG itself may be destroyed.

3. ECGs in three-phase operation
– Overvoltages/undervoltages/no neutral conductor

1. Check whether the mains voltage is within the application range of the ECG. (DC/AC range from 198 V to 254 V).
2. The line connection should only be made to the luminaire terminal. For luminaires or groups of luminaires in 3-phase circuits.
3. Make absolutely sure that the neutral conductor is correctly connected to all the ECG luminaires and that it is making proper contact.
4. Cables should only be disconnected or connected when no voltage is present.
5. For 3 x 230/240 V supply networks in triangular circuit arrangements, protection by way of common disconnection of the phase conductor is necessary.

Important:

- In new systems the loads must not be connected when the insulation resistance is measured with 500 V DC, since according to VDE 0100 T600 Section 9 the test voltage is also applied between the neutral conductor (N) and all three external lines (L1, L2, L3). In existing systems it is sufficient to carry out an insulation test between the external lines (L1, L2, L3) and the protective earth without disconnecting the loads. The neutral conductor (N) and the protective earth (PE) must not be electrically connected in any way when this is done. For this insulation measurement (500 V DC to earth) the neutral conductor disconnection terminal may only be opened with the mains voltage switched off.

- Before the equipment is put into operation, make sure that the N conductor is correctly connected.

- During operation do not disconnect the N conductor under any circumstances.

4. ECGs in emergency lighting systems with DC voltage

Permitted battery voltage	Upper limit	Lower limit[1)]
QUICKTRONIC® INTELLIGENT DALI…DIM	264 V	154 V
QUICKTRONIC® INTELLIGENT DIM	264 V	154 V
QUICKTRONIC® INTELLIGENT	264 V	176 V
QUICKTRONIC® DIMMBAR (HF … DIM)	264 V	154 V
QUICKTRONIC® DIMMBAR (T/E)	254 V	176 V
QUICKTRONIC® FQ (T5)	264 V	176 V
QUICKTRONIC® FH (T5)	264 V	176 V
QUICKTRONIC® T5 (FQ + FH)	254 V	176 V
QUICKTRONIC® … F/CW	Not permitted for dc operation	
QUICKTRONIC® PROFESSIONAL T8	264 V	154 V
QUICKTRONIC® INSTANT START economic	Not permitted for dc operation	
QUICKTRONIC MULTIWATT®	264 V	176 V
QUICKTRONIC®	264 V	176 V
QUICKTRONIC® FM	Not permitted for dc operation	
QUICKTRONIC® ECONOMIC	254 V	176 V
DULUXTRONIC®	254 V	176 V
QUICKTRONIC® ENDURA S	290 V	176 V
QUICKTRONIC® ENDURA L	276 V	154 V
HALOTRONIC®[3)]	264 V	154 V
OPTOTRONIC®	264 V	176 V
POWERTRONIC®[2)]	Not permitted for dc operation	

Switch-on times	Maintained Supply is switched from AC to DC	Non-maintained Emergency luminaires are switched on from cold
QUICKTRONIC® INTELLIGENT DALI…DIM	< 0.6 s	< 0.6 s
QUICKTRONIC® INTELLIGENT DIM	< 0.6 s	< 0.6 s
QUICKTRONIC® INTELLIGENT	< 1 s	< 1 s
QUICKTRONIC® DIMMBAR (HF … DIM)	< 0.6 s	< 0.6 s
QUICKTRONIC® DIMMBAR (T/E)	< 2 s	< 2 s
QUICKTRONIC® FQ (T5)	< 0.5 s	< 0.5 s
QUICKTRONIC® FH (T5)	< 0.5 s	< 2 s
QUICKTRONIC® T5 (FQ + FH)	< 0.5 s	< 1 s
QUICKTRONIC® … F/CW	–	–
QUICKTRONIC® PROFESSIONAL T8	< 0.5 s	< 2 s
QUICKTRONIC® INSTANT START	–	–
QUICKTRONIC MULTIWATT®	< 0.5 s	< 1 s
QUICKTRONIC®	< 0.5 s	< 2 s
QUICKTRONIC® FM	–	–
QUICKTRONIC® ECONOMIC	< 0.5 s	< 2 s
DULUXTRONIC®	< 0.5 s	< 2 s
QUICKTRONIC® ENDURA S	< 0.5 s	< 0.5 s
HALOTRONIC®	< 0.5 s	< 0.5 s
OPTOTRONIC®	< 0.2 s	< 1 s
POWERTRONIC®[2)]	–	–

1) The lamps must be ignited at over 198 V however.
2) If POWERTRONIC® is switched on from cold, it takes 1 to 2 minutes for the lamp to reach 70% of the luminous flux.
3) For suitable types see page 11.87

5. Power factor/compensation

The power factor λ for an electrical load is the ratio of the effective power (P_{eff} = voltage x effective current) to the apparent power (P_{app} = voltage x current). This value is affected both by the phase displacement cos φ between the current and the voltage and by the current distortion ε.

$$\lambda = \frac{P_{eff}}{P_{app}} = \varepsilon \cdot \cos \varphi$$

In contrast to conventional control gear (inductive, 50 Hz), there is hardly any phase displacement (cos φ = 0.95) with electronic control gear (high frequency).
This means that correction is not required.
However distortion in the sine-wave current supply occurs during operation of electronic control gear. Generally speaking, these distortions are classified by integer multiples of the line frequency (harmonics).
The harmonic content of the line current is strictly controlled by national and international standards (IEC 610003-2).
OSRAM ECGs have integrated active electronic harmonic filters for this purpose, which ensure a value for ε of more than 0.95 and therefore a power factor λ greater than 0.9. (Exception: QT-ECO, DT, QT 1x6-13 < 25 W).

6. Permissible cable lengths

QUICKTRONIC®:
When ECGs are used in luminaires the cables, if correctly routed within the luminaires, produce little interference. When ECGs are used in master/slave circuits the maximum permissible cable length between the ECG and the lamp must not be exceeded.

HALOTRONIC®:
The maximum 12 V cable length must be less than 2 m to comply with radio interference limit values. This means that luminaires can be installed within a radius of 2 m around HALOTRONIC®. The recommended minimum cross-section is 1 mm².

Cable routing:
The supply cable should not be routed alongside the HALOTRONIC® casing nor alongside the high-frequency 12 V secondary cable. This avoids high-frequency interference on the supply cable.
Instruments for measuring the secondary voltage:
An instrument for measuring the secondary voltage must be a true RMS meter and have a bandwidth greater than or equal to 250 kHz (–3 dB). Any other instrument will give false readings.

OPTOTRONIC®:
Maximum low-voltage cable length from OPTOTRONIC® to the LED module:

	Max. cable length for AC operation
OT 06/100-240/10cos	10 m
OT 06/100-240/24cos	10 m
OT 10/220-240/10 L	8 m
OT 12/230-240/10	4 m
OT 20/230-240/24	10 m
OT 20/120-240/24 S	10 m
OT 50/120-240/10	10 m
OT 75/220-240/24	10 m

In DC operation the maximum length may have to be shortened. The cable lengths are determined by the interference suppression threshold values.
Cable routing:
For reasons of interference suppression, the mains cable should not be laid parallel to the casing and/or the secondary cable. This will avoid high-frequency coupling effects.
Measurement of the secondary voltage:
Standard multimeters with appropriate accuracy can be used.

POWERTRONIC®:
The maximum cable lengths between the lamp and POWERTRONIC® depend on the type of cable and how it is routed. For all PTUs the maximum permitted cable capacitance of the ECG/lamp is 200 pF. For all PTis the maximum permitted cable capacitance of the ECG/lamp is 120 pF. The following maximum cable lengths can be used as guidelines:

	Max. cable length for AC operation
PTU 20/220-240	0.6 m
PTU 70/220-240	3 m
PTU 150/220-240	3 m
PTi 35/220-240 S/I	1.5 m
PTi 70/220-240 S/I	1.5 m
PTi 2x35/220-240 S/I	1.5 m
PTi 2x70/220-240 S/I	1.5 m

7. Faults in infrared control/transmission systems

Fluorescent lamps have an emission in the wavelength range which is also used for infra-red transmission and which can be affected by the lamp. Since the IR receivers used are largely non-selective, interference may occur in the IR system. The operating frequency of the ECGs is between 20 and 120 kHz. The light emitted from the fluorescent lamp is modulated at twice the operating frequency. Interference is produced by signals in the same frequency range.
POWERTRONIC®, HALOTRONIC® and OPTOTRONIC® are exceptions since they do not cause any disturbance.
IR remote control:
Systems operating at a sufficiently high carrier frequency (400 to 1500 kHz) are unlikely to suffer interference.
Sound transmission:
Up to now the carrier signal frequency for sound transmission has been 95 kHz and higher, which has led to serious disturbance from the 3rd, 5th and 7th harmonics of the ECG operating frequency (20 to 120 kHz in normal operation and up to 100 kHz with dimming). Headphone manufacturers have adopted higher and higher frequencies such as 2.3 MHz and 2.8 MHz.
Simultaneous interpreting systems also operate in the 95 kHz to 250 kHz range so it is best not to use the first six transmission channels, particularly channel 1, of the 32 available channels since these are likewise affected by the harmonics of the basic ECG frequencies.
High-frequency ripple control:
The carrier frequencies used are around 120 kHz. Transmission can be adversely affected by radio interference suppression capacitors which are included in all ECGs and other electronic loads, such as the power supplies of PCs.
Paging systems:
Generally only HF paging systems (operating in the MHz range) should be used. If inductive paging systems are used (25 to 40 kHz) reliable operation is not possible.
Electronic merchandise security systems:
In many shops nowadays, merchandise such as CDs, hifi equipment and clothing is protected against theft by electronic security systems. These systems typically operate with resonance frequencies in the kHz range (e.g. a pulse is emitted which causes an amorphous metal in the security tag to resonate; one of the largest suppliers uses a security system that operates at 58 kHz).
In unfavourable conditions, these systems may suffer from interference if the operating frequency is between 30 kHz and 150 kHz. Such interference can be eliminated by increasing the distance between the luminaires and the transmitting/receiving system and by using luminaires with metallic louvres.

8. Dimming

a) QUICKTRONIC® units that can be dimmed have the letters ...DIM in their references. They are dimmed via the 1-10 V interface (QTi-...DIM), or via the DALI interface (QTi DALI ... DIM) or via ***Touch DIM®*** (also with QTi DALI ... DIM), see pp. 11.82 ff. For special technical data, such as wiring and associated control components, please refer to the technical guides for QUICKTRONIC® DIMMABLE (for the 1-10 V interface) or QUICKTRONIC® DALI DIMMABLE (for the DALI interface and ***Touch DIM®***). Allow new lamps to burn in for 100 hours at 100% luminous flux since only after this time will they exhibit stable values. A master/slave circuit (one ECG for two separate luminaires with wiring) is not permitted for dimmable ECGs.
b) HALOTRONIC® can be controlled with various dimmers (see page 11.86) or dimming modules (see page 11.90). Since the interface between the dimmer and the electronic transformer is not standardised, there may be malfunctions in individual cases.
c) POWERTRONIC® ECGs are not suitable for dimming since the metal halide lamps that they operate cannot be dimmed for functional and photometric reasons.
d) OPTOTRONIC® must not be dimmed with standard dimmers. There are special dimming modules to be connected on the secondary side (p. 11.96).

9. Luminaires with ECGs

The following general points apply to luminaires with electronic control gear:

a) The temperature limits of the electronic control gear as regards ambient temperature and measuring point temperature on the ECG must not be exceeded (see 10. Ambient and ECG temperatures).
b) The maximum permissible radio interference suppression values (EN 55015) must not be exceeded. Make sure the protective conductor and the function earth are correctly connected. Running the lamp cables and protective conductor together (e.g. NYM cables) may lead to problems due to high-frequency interference.
c) After being installed or replaced, the lamps must be burned in at full load for 100 hours to stabilise the discharge process.

10. Ambient and ECG temperatures

The temperature ranges specified for the relevant control gear must be maintained to enable the ECG to operate reliably. Generally speaking, lower operating temperatures extend the life of electronic control gear.

When ECGs are built into luminaires the measuring point temperature T_c on the casing is the crucial parameter. The maximum permissible value specified for the ECG concerned must not be exceeded.

11. ECGs for outdoor luminaires

When using electronic control gear in outdoor luminaires it must be remembered that the electronic control gear may be exposed to humidity depending on the luminaire.

1. For luminaires of protection type 5 (protected against water jets, IP65 for example) standard ECGs can be used since moisture cannot penetrate this type of luminaire, so there is little chance of ECG corrosion.
2. For luminaires of protection type 3 (protected against splash water, IP43 for example) it is likely that water droplets will penetrate and thus cause corrosion and failure of unprotected standard ECGs. In cases of doubt (e.g. bollard luminaires, outdoor displays), additional protective measures should be taken such as using OUTKIT (see page 11.59).

12. Wiring of ECGs

Parallel connection of HALOTRONIC® and OPTOTRONIC® is not permitted on the secondary side. Series connection of HALOTRONIC® and OPTOTRONIC® to increase the voltage or for voltage matching is not permitted on the secondary side. Lamp-side connection is not recommended.
For details see the Technical Guides.

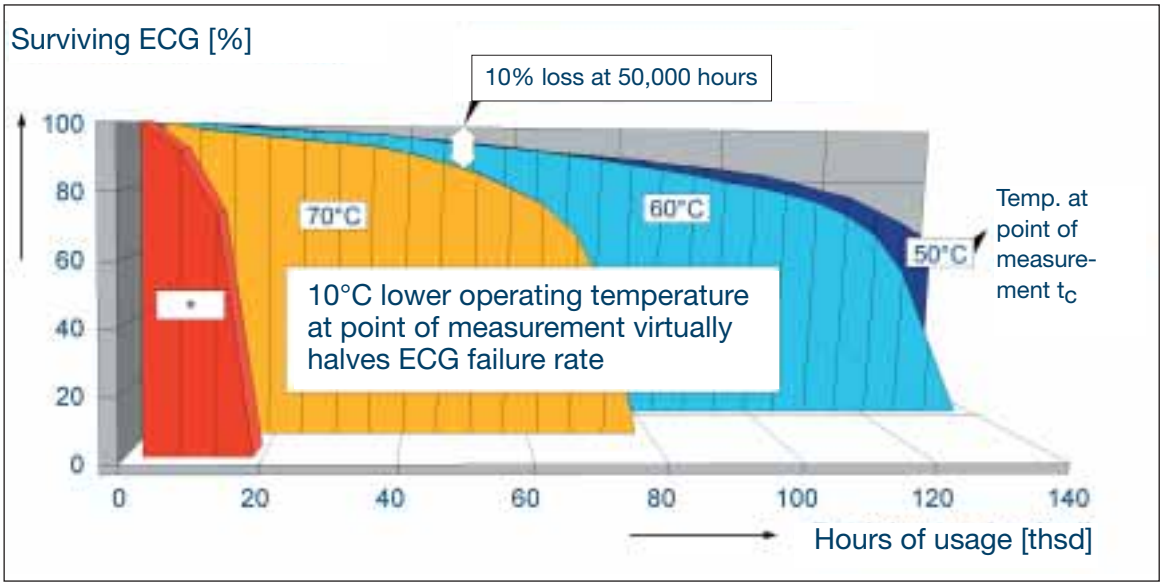
13. Life and reliability of ECGs

The failure rate of electronic components depends not only on the component specification and quality but also very considerably on the operating temperature. OSRAM's ECGs are designed so that at the maximum permissible ECG temperature ($T_{c\,max.}$) a failure rate of fewer than 2 per thousand ECGs per 1000 hours of operation can be expected. This corresponds to an ECG life of 50,000 hours at a percentage ECG failure rate of 10%.
The following have different lives:

1. 30,000 hours for QUICKTRONIC® QT-ECO and QTIS e, HALOTRONIC® HTM Mouse®, HTN and OPTOTRONIC® at a failure rate of < 10%
2. 60,000 hours for QT ENDURA at a failure rate of < 10%

Subject to change without notice. Errors and omission excepted.
This catalogue information supersedes all previous information.

Special applications, such as operation in corrosive atmospheres, strong vibrations, impermissible voltage conditions etc., may necessitate further protection measures.



* If the maximum permissible temperature at the T_c point is exceeded the failure rate may increase dramatically.

Overview of ECGs (cable lengths in metres, wiring by PIN)

	Wiring Sequence	PIN 21	PIN 22	PIN 23	PIN 24	PIN 25	PIN 26	PIN 27	Type
QUICKTRONIC INTELLIGENT DALI/1-10 V interface									
QTi (DALI) 1x14/24/220-240 DIM	21-27	1.5	1.5				1	1	W1
QTi (DALI) 1x18/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 1x21/39/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 1x28/54/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 1x35/49/80/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 1x36/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 1x58/220-240 DIM	21-24	1.5	1.5				1	1	W1
QTi (DALI) 2x14/24/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x18/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x21/39/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x28/54/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x35/49/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x36/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x58/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1
QTi (DALI) 2x35/49/80/220-240 DIM	21-27	1.5	1.5	1.5	1	1	1	1	W1

	Wiring Sequence	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	Type
QUICKTRONIC DALI/1-10 V interface for T/E/T4/Ø 12 mm fluorescent lamps										
QT (DALI)-T/E 1x18/230-240 DIM	4-7				1	1	1	1		M
QT (DALI)-T/E 1x26-42/230-240 DIM	4-7				1	1	1	1		M
QT (DALI)-T/E 2x18/230-240 DIM	1-7	1	1	1	1	1	1	1		M
QT (DALI)-T/E 2x26-42/230-240 DIM	1-7	1	1	1	1	1	1	1		M

	Wiring Sequence	PIN 21	PIN 22	PIN 23	PIN 24	PIN 25	PIN 26	PIN 27	Type
QUICKTRONIC INTELLIGENT									
QTi 1x14/24/21/39/220-240	21-27	2	2				1	1	W1
QTi 1x28/54/220-240	21-27	2	2				1	1	W1
QTi 1x35/49/80/220-240	21-27	2	2				1	1	W1
QTi 2x14/24/21/39/220-240	21-27	2	2	2	1	1	1	1	W1
QTi 2x28/54/220-240	21-27	2	2	2	1	1	1	1	W1
QTi 2x35/49/220-240	21-27	2	2	2	1	1	1	1	W1
QT-FQ 2x80	21-27	0.5	0.5	0.5		1.5	1.5	1.5	W1

For the latest data go to www.osram.com
M: Type Metalluk
W: Type WAGO 250
W1: Type WAGO 251 mini
W2: Type WAGO 251

Overview of ECGs (cable lengths in metres, wiring by PIN)

	Wiring Se-quence	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	Type
QUICKTRONIC DE LUXE DIMMABLE										
HF 1x18/230-240 DIM	1-4	2	2				1.5	1.5		W
HF 1x36/230-240 DIM	1-4	2	2				1.5	1.5		W
HF 1x58/230-240 DIM	1-4	2	2				1.5	1.5		W
HF 2x18/230-240 DIM	1-7	2	2	2	1.5	1.5	1.5	1.5		W
HF 2x36/230-240 DIM	1-7	2	2	2	1.5	1.5	1.5	1.5		W
HF 2x58/230-240 DIM	1-7	2	2	2	1.5	1.5	1.5	1.5		W
QUICKTRONIC for HO lamps										
QTP5 1x24-39	1-7	2	2				1	1		W1
QT-FQ 1x24/230-240 CW	4-1	2	2	1	1	1	1			W2
QT-FQ 1x24-39/230-240 F/CW	1-7	2	2	1		1	1	1		W1
QT-FQ 1x39/230-240 CW	4-1	2	2	1	1	1	1			W2
QTP5 1x49	1-7	2	2				1	1		W1
QT-FQ 1x49/230-240 CW	4-1	2	2	1	1	1	1			W2
QTP5 1x54	1-7	2	2				1	1		W1
QT-FQ 1x54/230-240 CW	4-1	2	2	1	1	1	1			W2
QT-FQ 1x54/230-240 F/CW	1-7	2	2	1		1	1	1		W1
QTP5 1x80	1-7	2	2				1	1		W1
QT-FQ 1x80/230-240 CW	4-1	2	2	1	1	1	1			W2
QT-FQ 1x80/230-240 F/CW	1-7	2	2	1		1	1	1		W1
QTP5 2x24-39	1-7	2	2	1	1	1	1	1		W1
QT-FQ 2x24/230-240 CW	6-1	2	2	2	2	1	1			W2
QT-FQ 2x24-39/230-240 F/CW	1-7	2	2	1		1	1	1		W1
QT-FQ 2x39/230-240 CW	6-1	2	2	2	2	1	1			W2
QTP5 2x49	1-7	2	2	1	1	1	1	1		W1
QT-FQ 2x49/230-240 CW	6-1	2	2	2	2	1	1			W2
QTP5 2x54	1-7	2	2	1	1	1	1	1		W1
QT-FQ 2x54/230-240 CW	6-1	2	2	2	2	1	1			W2
QT-FQ 2x54/230-240 F/CW	1-7	2	2	1		1	1	1		W1
QT-FQ 2x80	1-7	0.5	0.5	0.5		1.5	1.5	1.5		W1

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W1: Type WAGO 251 mini
W2: Type WAGO 251

Overview of ECGs (cable lengths in metres, wiring by PIN)

	Wiring Se-quence	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	Type
QUICKTRONIC for HE lamps										
QT-FH 1x14/230-240	1-4	2	2	1	1					W
QT-FH 1x21/230-240	1-4	2	2	1	1					W
QT-FH 3x14/230-240 CW	1-6	1.5	1.5	1.5	1.5	1	1	1	1	W2
	3-8									
QT-FH 4x14/230-240 CW[1)]	1-10	1.5	1.5	1.5	1.5	1.5	1.5	1	1	W2
	3-8									
QTP5 1x14-35	1-7	2	2				1	1		W1
QT 5 1x14-35	1-7	2	2				1	1		W1
QT-FH 1x14-35/230-240 CW	6-1	1	1			2	2			W2
QTP5 2x14-35	1-7	2	2	1	1	1	1	1		W1
QT 5 2x14-35	1-7	2	2	1	1	1	1	1		W1
QT-FH 1x14-35/230-240 F/CW	1-7	2	2				1	1		W1
QT-FH 2x14-35/230-240 CW	6-1	1	1	2	2	2	2			W2
QT-FH 2x14-28/230-240 F/CW	1-7	1	1	2		2	2	2		W1
QUICKTRONIC PROFESSIONAL										
QTP 1x18/230-240	1-4	3	3	1.5	1.5					W
QTP 1x36/230-240	1-4	3	3	1.5	1.5					W
QTP 1x58/230-240	1-4	3	3	1.5	1.5					W
QTP 2x18/230-240	1-7	3	3	3	1.5	1.5	1.5	1.5		W
QTP 2x36/230-240	1-7	3	3	3	1.5	1.5	1.5	1.5		W
QTP 2x58/230-240	1-7	3	3	3	1.5	1.5	1.5	1.5		W
QTP 3x/4x18/230-240[1)]	1-11	1.5	1.5	3	3	3	3	3	3	W

	Wiring Se-quence	PIN 21	PIN 22	PIN 23	PIN 24	PIN 25	PIN 26	PIN 27	PIN 28	Type
QUICKTRONIC PROFESSIONAL										
QTP8 1x18/230-240	21-24	3	3	1.5	1.5					W1
QTP8 1x36/230-240	21-24	3	3	1.5	1.5					W1
QTP8 1x58/230-240	21-24	3	3	1.5	1.5					W1
QTP8 2x18/230-240	21-27	3	3	3	1.5	1.5	1.5	1.5		W1
QTP8 2x36/230-240	21-27	3	3	3	1.5	1.5	1.5	1.5		W1
QTP8 2x58/230-240	21-27	3	3	3	1.5	1.5	1.5	1.5		W1
QTP8 3x18/4x18/230-240[2)]	21-31	1	1	1.5	1.5	1.5	1.5	1.5	1.5	W1

For the latest data go to www.osram.com
1) PIN 9: 1 m; PIN 10: 1 m
2) PIN 29, 30, 31: 1.5 m

M: Type Metalluk
W: Type WAGO 250
W1: Type WAGO 251 mini
W2: Type WAGO 251

Overview of ECGs (cable lengths in metres, wiring by PIN)

	Wiring Se-quence	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	Type
QUICKTRONIC ECONOMIC for T8 lamps										
QT-ECO 1x36/230-240	1-4	3	3	1.5	1.5					W
QT-ECO 1x58/230-240	1-4	3	3	1.5	1.5					W
QUICKTRONIC INSTANT START ECONOMIC										
QTIS e 1x18/220-240	1-3	3	3	1.5						W
QTIS e 1x36/220-240	1-3	3	3	1.5						W
QTIS e 1x58/220-240	1-3	3	3	1.5						W
QTIS e 2x18/220-240	1-4	2	2	1	1					W
QTIS e 2x36/220-240	1-4	2	2	1	1					W
QTIS e 2x58/220-240	1-4	2	2	1	1					W
QTIS e 3x/4x18/220-240	1-4	2	2	1	1					W
QTIS e 3x36/220-240	1-7	3	1.5	1.5	1.5	1.5	1.5	1.5		W2

For the latest data go to www.osram.com
M: Type Metalluk
W: Type WAGO 250
W1: Type WAGO 251 mini
W2: Type WAGO 251

Overview of ECGs (cable lengths in metres, wiring by PIN)
Tender documents

	Wiring								
	Se-quence	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	Type
QUICKTRONIC for (compact) fluorescent lamps										
QT 1x18/230-240	4-1	3	3	1.5	1.5					W
QT 1x24/230-240	4-1	3	3	1.5	1.5					W
QT 1x36/230-240	4-1	3	3	1.5	1.5					W
QT 1x40/230-240	1-4	3	3	1.5	1.5					M
QT 1x55, 70/230-240	1-4	3	3	1.5	1.5					M
QT 2x18/230-240	6-1	3	3	3	3	1.5	1.5			W
QT 2x24/230-240	6-1	3	3	3	3	1.5	1.5			W
QT 2x36/230-240	1-6	3	3	3	3	1.5	1.5			M
QT 2x40/230-240	1-7	3	3	3	1.5	1.5	1.5	1.5		M
QT 2x55, 70/230-240	1-7	3	3	3	1.5	1.5	1.5	1.5		M
QT-D/E 1x9-13/230-240	1-4	2	2	1	1					M
QT-T/E 1x18/230-240	4-1	2	2	1	1					M
QT-M 1x26-42/230-240	1-4	2	2	1	1					M
QT-T/E 1x57/230-240	1-4	2	2	1	1					M
QT-T/E 1x70/230-240	1-4	2	2	1	1					M
QT-D/E 2x10-13/230-240	1-7	2	2	2	2	2	1	1		
QT-T/E 2x18/230-240	1-7	2	2	2		2	1	1		M
QT-M 2x26-32/230-240	1-7	2	2	2		2	1	1		M
QT-M 2x26-42/220-240	1-7	2	2	2		2	1	1		M
QT-T/E 2x42-57/230-240	1-7	2	2	2	2	2	1	1		M
QTi 1x26-120	1-4	2	2	1	1					S
QT-FC 1x55/230-240 S	1-4	2	2	1	1					M
QUICKTRONIC ECONOMIC for (compact) fluorescent lamps										
QT-ECO 1x4-16	1-4	1	1	0.5	0.5					W
QT-ECO 1x18-21	1-4	1	1	0.5	0.5					W
QT-ECO 1x18-24	1-4	1	1	0.5	0.5					W
QT-ECO 1x26	1-4	1	1	0.5	0.5					W
QT-ECO 2x5-11	1-6	1	1	1	1	0.5	0.5			W
QT-ECO T/E 2x18	1-6	1	1	1	1	0.5	0.5			W
QT-ECO T/E 2x26	1-6	1	1	1	1	0.5	0.5			W

Tender documents

The tender documents are available in pdf format at www.osram.com Products –> Electronic Control Gear –> Tender Documents.