QUICKTRONIC® INTELLIGENT QTi DALI GII

Highest Energy-Efficiency, Flexibility and Quality on the market!

Directorate-General for Energy and Transport

EPBD
European Building Directive

Driver product features
General

- **Supply voltage: 198-264 V(AC) / 154-276** V(DC)
- Supply frequency: 0 Hz, rectified AC, 50-60 Hz
- Suitable for use in emergency lighting systems as per EN 50172/DIN VDE 0108-100
- Energy Efficiency Index **A1 BAT**

Very low standby consumption:

- QTi DALI 1x, 2x: ≈ 0.2 W (in AC & DC mode)
- QTi DALI 3x, 4x: < 0.5 W (in AC & DC mode)

- Optimum preheating in any dimmer setting
- Dimming range: 1% to 100 % luminous flux
- **Highest Diversity and Quality.**
- Life of 100,000 hours and more
- Switching cycles of 300.000 or more
- Suitable for luminaires of protection class I
- Effective **overtemperature protection** of the dimmable ECG
- Temperature-Range: -20°C...+75°C (at full power)

Driver product features
NEW

- **Corridor Functionality** on **3 Dimming Level Basis** (1….100%) → Free parametrization of Corridor Levels, Fade- & Hold Times via DALI Magic

- **TouchDIM RELEASE (TD)**
  - Optimized Synchronity of DALI participants in one control loop
  - TD Functionality also for rectified AC Input
  - Free parametrization of min. & max. Levels, Fade- & Hold Times via DALI magic

- **Easy FIT for Emergency**
  - Automatic DC detection (On/Off switchable)
  - Re-Installation of AC Level/Configurations after DC mode
  - Parametrization via DALI Magic
- **Power2Lamp Hybrid Technology**
  - Right Power for Right Lamps: NEW Definition of EnergySaver Concept
  - Flexible Flag Setting: ES / Std. Lamp via DALI magic
- **Settable Burn-In** Timer
- **Smart Monitoring** & Management
  - Feedback of Power Consumption (High Range/Resolution)
  - Feedback of Detected Lamp & Lamp Operation Counter (Resettable)
  - Overvoltage Monitoring (Detection of up to 255 sep. OV shut down events; time integral of operation under OV condition)
  - Overtemp*Time integrator
- **Switching b/w Linear/Logarithmic Dimming Curve** for Colour Light Mixing w/ DALI Magic
- **Easy Phase In**: 100% downward compatible

Approbations:

- Safety: to EN 61347-1, 61347-2-3, 61347-2-13, 62384
- Lamp operation: to EN 60929
- DALI standard: to IEC 62386 – 101, 102, 207
- RFI requirements: to EN 55015: 2007+A1:2007 (300 MHz compliance)/CDN
- Line harmonics: to EN 61000-3-2
- Immunity: to EN 61547
- EL (Emergency Lighting): to IEC 61347-2-3 / App. J
- Emergency Installation: to EN 60598-2-22
- Suited for Central Battery Systems: to EN 50172

Dimensions in mm:

L=360/423 / B=30/30 / H=21/21 (1x/2x),
L=360 / B=40 / H=21 (3x/4x),
L=123 / B=79 / H=33 (K3)

Technical Specification

Input (Mains) Specification		
Nominal Voltage		220-240 V
Nominal Frequency		0 / 50…60 Hz / rectified AC
Min. AC Voltage for Starting		176 V
AC Operation on		198-264 V
Min. DC Voltage for Starting		198 V
DC Operation on		176-276 V
Max. allowed Input Voltage (2h)		400V
Output Specification		
Total Harmonic Distortion (THD) (@ Pmax.)		<10 %
Max. allowed cable length (SUM all Modules)		2 m
Efficiency / Stand-By Power		
Rated Load Efficiency (@ Pmax)		typ. 0,92
Stand-By Power (AC + DC Mode)		≈ 0.2 W / <0.5 W
Power Factor (@ Pmax.)		>0,95
Dimming Interface		
Dimming Range		1…100 %, DALI
Starting Timexx		<0.6 s
Temperature / Lifetime Conditions		
Ambient Temperature Range		-25…+50 °C
Max. allowed Tc - Temperature		+75 °C
Ballast Lifetime	Advanced Lifetime	Failure Rate
100.000	100.000	typ. 10%
Tc = +75 °C	Tc = +65 °C	
Protection Class		IP 20
Push In Terminals (Wago 250) Max. cable cross section for plug contact*		“s”: 0.5...1.5 mm² “f”: 0.5...1.0 mm² * “s“ = “solid“ = Single-wire conductor, “f“ = Multi-wire conductor

Misprints and technical changes excepted

Technical Data: QT*i* (DALI)…DIM

Product description	Lamp Constant = Amalgam Lamp SLS = Seamless Lamp ES = Energy Saver Lamp XT = Longlife Lamp	IN [A]	W Lamp	W System PN100%*	W System PN1%*	λ	ta [°C] Full dimming range: 1…100%	kHz ECG	Weight [g]	Î [A]	th [µs]	n (B10) n (B16)
QTi (DALI) 1x14/24 DIM	1xHE 14W (SLS**)	0.07	13.7	15.4	5.5	0.95	+10...50 (SLS HO: +15…50)	53…120	305	24	174	17 (B10) 28 (B16)
	1xHO 24W (Constant)	0.11	22.5	25.3	5.5	0.98						
	1xDL 24W	0.11	22.5	25.3	5.5	0.98						
QTi (DALI) 1x21/39 DIM	1xHE 21W (SLS)	0.11	20.7	23.1	5.5	0.95		44…120				
	1xHO 39W (Constant, SLS)	0.18	38.0	41.8	7.0	0.98						
	1xDL 22W HE	0.11	20.7	23.1	5.5	0.95						
	1xDL 40W (Constant)	0.18	38.0	41.8	7.0	0.98						
	1xF 70W	0.29	60.0	65.2	8.5	0.99						
QTi (DALI) 1x28/54 DIM	1xHE 28W (SLS), 1xHE 25W ES	0.14	27.8	30.1	6.5	0.97						
	1xHO 50W ES	0.26	53.8	58.8	8.5	0.99						
	1xHO 54W (Constant, SLS, XT)	0.26	53.8	58.8	8.5	0.99						
	1xDL 55W (Constant, XT)	0.26	53.8	58.8	8.5	0.99						
	1xDL 26W HE	0.14	27.8	30.1	6.5	0.97						
	1xDL 28W HE	0.14	27.8	30.1	6.5	0.97						
QTi (DALI) 1x35/49/80 DIM	1xHE 35W, 1xHE 32W ES	0.17	34.8	37.8	6.5	0.95			305	28	224	12 (B10) 19 (B16)
	1xHO 45W ES	0.24	49.3	53.4	6.0	0.98						
	1xHO 49W (Constant)	0.24	49.3	53.4	6.0	0.98						
	1xHO 73W ES	0.39	80.0	88.1	8.5	0.99						
	1xHO 80W (Constant, XT)	0.39	80.0	88.1	8.5	0.99						
	1xDL 80W (Constant)***	0.39	80.0	88.1	8.5	0.99						
QTi (DALI) 2x14/24 DIM	2xHE 14W (SLS**)	0.14	13.7	30.6	8.2	0.95		53…120	370	35	180	12 (B10) 19 (B16)
	2xHO 24W (Constant)	0.22	22.5	49.3	9.8	0.98						
	2xDL 24W	0.22	22.5	49.3	9.8	0.98						
QTi (DALI) 2x21/39 DIM	2xHE 21W (SLS)	0.21	20.7	45.0	9.1	0.95		44…120	370	45	204	8 (B10) 13 (B16)
	2xHO 39W (Constant, SLS)	0.36	38.0	82.0	10.9	0.98						
	2xDL 22W HE	0.21	20.7	45.0	9.1	0.95						
	2xDL 40W (Constant)	0.36	38.0	82.0	10.9	0.98						
	2xF 70W	0.56	60.0	128.0	16.0	0.99						
QTi (DALI) 2x28/54 DIM	2xHE 28W (SLS), 2xHE 25W ES	0.27	27.8	60.2	10.7	0.97						
	2xHO 50W ES	0.51	53.8	115.0	14.5	0.99						
	2xHO 54W (Constant, SLS, XT)	0.51	53.8	115.0	14.5	0.99						
	2xDL 55W (Constant, XT)	0.51	53.8	115.0	14.5	0.99						
	2xDL 26W HE	0.27	27.8	60.2	10.7	0.97						
	2xDL 28W HE	0.27	27.8	60.2	10.7	0.97						
QTi (DALI) 2x35/49 DIM	2xHE 35W, 2xHE 32W ES	0.33	34.8	74.5	11.5	0.98						
	2xHE 32W ES	0.33	34.8	74.5	11.5	0.98						
	2xHO 49W (Constant)	0.45	49.3	103.6	13.2	0.99						
QTi (DALI) 2x35/49/80 DIM	2xHE 35W, 2xHE 32W ES	0.34	34.7	74.0	11.0	0.95			370	60	230	5 (B10) 9 (B16)
	2xHO 45W ES	0.45	48.5	101.0	12.1	0.97						
	2xHO 49W (Constant)	0.45	48.5	101.0	12.1	0.97						
	2xHO 73W ES	0.72	77.0	165.0	17.4	0.99						
	2xHO 80W (Constant, XT)	0.72	77.0	165.0	17.4	0.99						
	2xDL 80W (Constant)***	0.72	77.0	165.0	17.4	0.99						
QTi (DALI) 3x14/24 DIM	3xHE 14W	0.2	13.7	44.6	10.6	0.97		40…100	420	35	180	12 (B10) 19 (B16)
	3xHO 24W (Constant)	0.32	22.5	72.9	13.7	0.99						
	3xDL 24W	0.32	22.5	72.9	13.7	0.99						
QTi (DALI) 4x14/24 DIM	4xHE 14W	0.27	13.7	60.2	14.9	0.97			420	45	205	8 (B10) 13 (B16)
	4xHO 24W (Constant)	0.43	22.5	97.9	18.2	0.99						
	4xDL 24W	0.43	22.5	97.9	18.2	0.99						
QTi (DALI) 1x18 DIM	1xL 18W	0.08	16.0	18.3	5.5	0.97	-20...50	51…120	305	24	174	17 (B10) 28 (B16)
	1xDL 18W	0.08	16.0	18.3	5.5	0.97	+10...50					
QTi (DALI) 1x36 DIM	1xL 36W	0.16	32.0	36.0	6.5	0.98	-20...50	48…120				
	1xDL 36W (XT)	0.16	32.0	36.0	6.5	0.98	+10...50					
QTi (DALI) 1x58 DIM	1xL 58W	0.25	50.0	55.6	8.0	0.99	-20...50	46…120				
QTi (DALI) 2x18 DIM	2xL 18W	0.16	16.0	36.5	8.5	0.97	-20...50	51…120	370	35	180	12 (B10) 19 (B16)
	2xDL 18W	0.16	16.0	36.5	8.5	0.97	+10...50					
QTi (DALI) 2x36 DIM	2xL 36W	0.31	32.0	69.0	11.0	0.98	-20...50	48…120	370	45	204	8 (B10) 13 (B16)
	2xDL 36W (XT)	0.31	32.0	69.0	11.0	0.98	+10...50					
QTi (DALI) 2x58 DIM	2xL 58W	0.47	50.0	108.0	14.4	0.99	-20...50	46…120				
QTi (DALI) 3x18 DIM	3xL 18W	0.24	16.0	54.1	11.6	0.98		40…100	420	35	180	12 (B10) 19 (B16)
QTi (DALI) 4x18 DIM	4xL 18W	0.31	16.0	70.6	15.9	0.99						
QTi (DALI)-T/E 1x18-57 DIM (3…100%)	1xT/E 18W	0.09	17.7	20.0	4.5	0.95	+10...50	42…130	206	28	224	12 (B10) 19 (B16)
	1xT/E 26W (Constant)	0.13	25.1	29.0	5.8	0.97						
	1xT/E 32W (Constant)	0.16	32.0	36.0	6.2	0.98						
	1xT/E 42W (Constant)	0.21	42.7	47.0	6.6	0.99						
	1xT/E 57W (Constant)	0.27	56.1	61.0	7.0	0.99						
	1xFC 22W	0.12	21.9	26.0	5.2	0.96						
	1xFC 40W	0.20	40.0	45.0	6.5	0.98						
	1xDL 24W	0.12	21.9	26.0	5.2	0.96						
	1xDL 40W	0.20	40.0	45.0	6.5	0.98						
QTi (DALI)-T/E 2x18-42 DIM (3…100%)	2xT/E 18W	0.17	16.7	38.0	8.8	0.95			222	45	204	8 (B10) 13 (B16)
	2xT/E 26W (Constant)	0.25	24.4	56.0	10.0	0.98						
	2xT/E 32W (Constant)	0.30	30.8	69.0	11.0	0.99						
	2xT/E 42W (Constant)	0.39	41.0	90.0	12.4	0.99						
	2xFC 22W	0.22	22.2	51.0	9.7	0.97						
	2xFC 40W	0.38	39.6	87.0	12.1	0.99						
	2xDL 24W	0.22	22.2	51.0	9.7	0.97						
	2xDL 40W	0.38	39.6	87.0	12.1	0.99						
	1xFC 22W+1xFC 40W	0.30	31.2	70.0	10.9	0.98						

* At +25 °C Ambient Lamp Temperature ** Max. Distance to luminaire reflector 1cm *** Dimming time 1 % --> 100 % > 1 s

OSRAM

Misprints and technical changes excepted

Installation Instructions

a) Radio interference suppression of dimmable luminaires

General hints:

- Mains cables and control lines may be routed together and should be laid close to the luminaire wall
- Mains and control cables must not be laid close to the lamp cables
- If crossovers of mains and lamp cables are unavoidable, they should cross perpendicularly
- Do not lay the PE conductor together with the lamp cables
- Do not use shielded lamp cables (reduction of capacity leakage currents)
- The OSRAM DALI/DIM ECG must always be installed near the lamp(s) so that the lamp cables can be kept short in the interests of good radio interference protection
- Lay the lamp cables close together and close to the lamp
- Lamp cables must not be laid in metal pipes and must not be shielded cables
- Guide the cables of the different lamp ends separately
- In the case of multi-lamp OSRAM DALI/DIM ECGs, the cables to the respective lamp ends must be of the same length to prevent differences in the brightness
- When dimming flourescent lamps the maximum lamp voltage is reached at the lowest dimmer setting (3 % - 10 %) due to the negative current-voltage characteristic

Operation of multiple ECGs in a luminaire:

There should be a minimum spacing of 12 cm between the lamp circuits (lamp and cables) of different ECGs. If this is not possible, the lamp wiring must be carefully installed so coupling between the lamp circuits is reduced to a minimum:

- Lay the lamp cables close to the appropriate lamps so that the area covered by the lamp circuit is as small as possible. The lamp circuits of the two ECGs must not overlap. This is particularly important for color control if adjacent ECGs are dimmed to different levels.
- There should be a spacing of several centimeters between the lamp cables of two ECGs
- The "short" (hot) lamp cables (see also ECG imprint) should lead to one side of the lamp and should be as short as possible. The "long“ (cold) lamp cables to the other side of the lamp.
- Mains and control cables should not be laid close to the lamp cables (prevents undesired couplings into the control cable)
- All the mains and control cables may be routed together. To ensure that radio interference suppression is not impaired, there should be a gap of several centimeters to the lamp cables.
- In the "worst case" twist the cables of the heating circuits together, hence ensuring they lie close together. With 1-lamp ECGs these are the 21-22 and 26-27 cables, with 2-lamp ECGs; 21-22 and 21-23, 24-25 and 26-27. This is particularly important if adjacent ECGs are operated at the lowest dimmer setting (1(3)%).

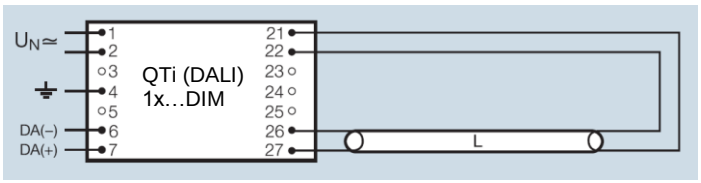
Line lengths and –capacities

Maximum line lengths between dimmable ECG (QTi DALI/DIM) and lamps		
	cold ends	hot ends
	1-lamp 21, 22	1-lamp 26,27
	2-lamp 21, 22, 23	2-lamp 24, 25, 26, 27
T5	1.5 m	1.0 m
T8	1.5 m	1.0 m
Dulux D/E, T/E	all 0.5 m	

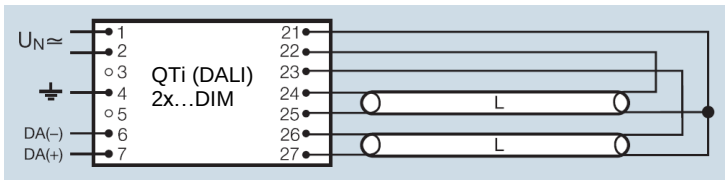
	T5	T8
Maximum capacitance of a filament cable pair to ground:	75 pF	150 pF
Maximum capacitance between "hot" and "cold":	15 pF	30 pF

Misprints and technical changes excepted

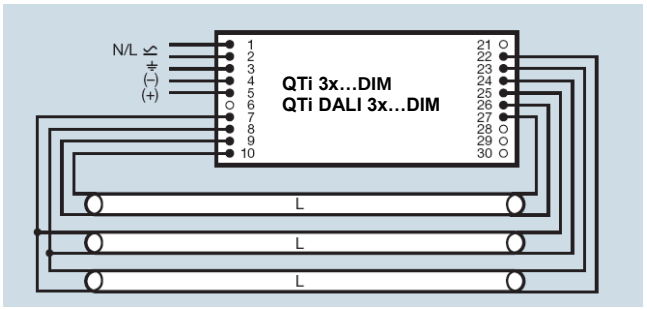
b) Lamp wiring QT*i* (DALI)…DIM

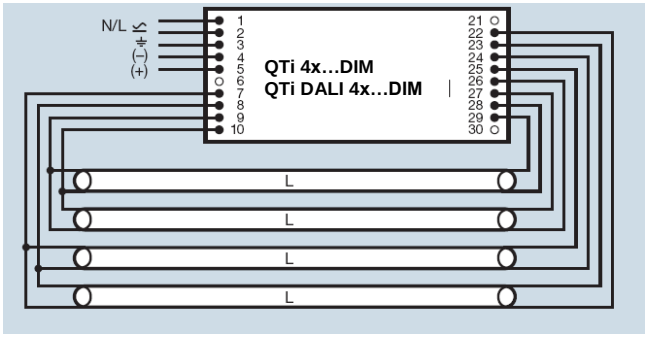


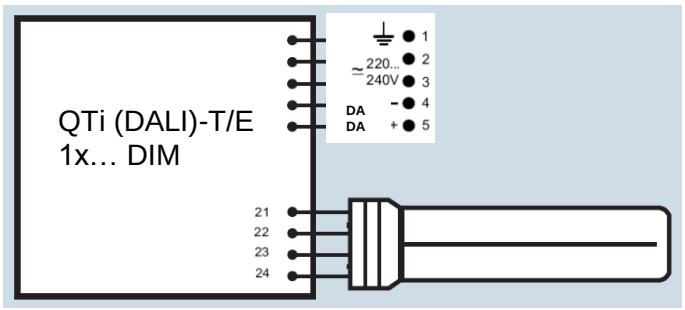
lines 26 and 27 max. 1 m length



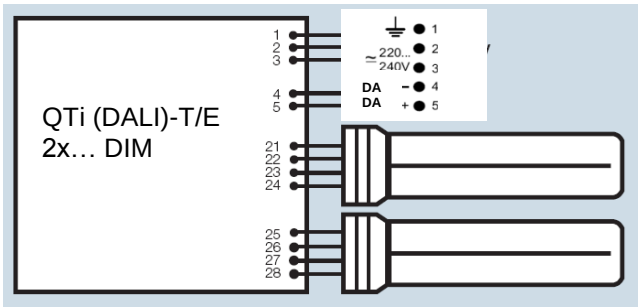
lines 24, 25 and 26, 27 max. 1 m length







lines 21-24 max. 0.5 m length



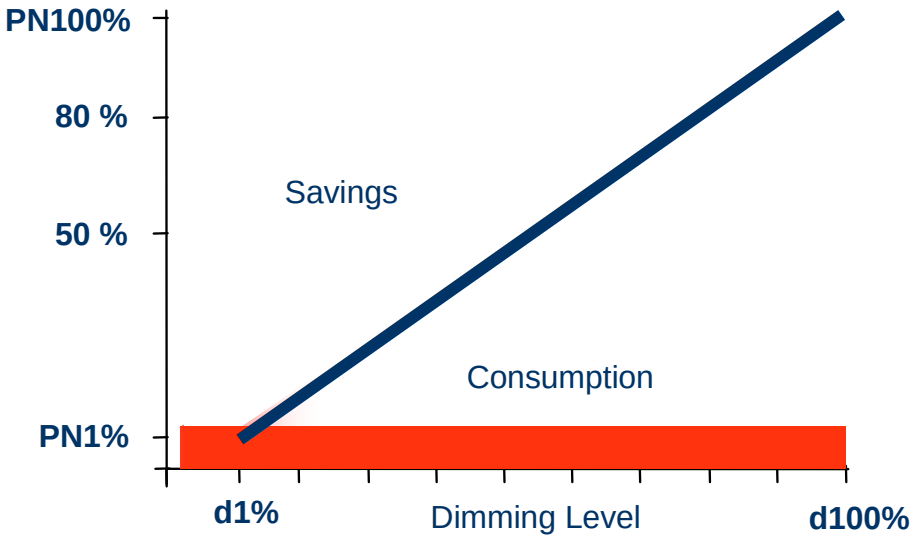
lines 21-28 max. 0.5 m length

Misprints and technical changes excepted

System energy consumption and dimmer setting

Because there is a largely linear relationship between the power consumption of the DALI/DIM systems (lamp and ECG) and the dimmer setting, the power consumption PN(d) can be calculated for each dimmer setting d (in percent) from the values PN100% (100% nominal power, PN = Power Nominal) and PN1% (nominal power of 1 %) (depending on ECG lamp combination, s. page 3):

$$PN(d) = PN1\% + \frac{PN100\% - PN1\%}{99\%} \bullet (d - 1\%)$$



Misprints and technical changes excepted

OSRAM DALI magic/wizard: Diagnostics, Analysis & Parametrization of DALI Installations

The **ONE Parametrization-, Analysis- & Diagnostics Tool**.
Suited for ALL DALI ECGs BUT specialized for OSRAM DALI (GII) models.

Dimensions [mm] 120 x 79 x 28
L=120 / B=79 / H=28 (DALI magic)

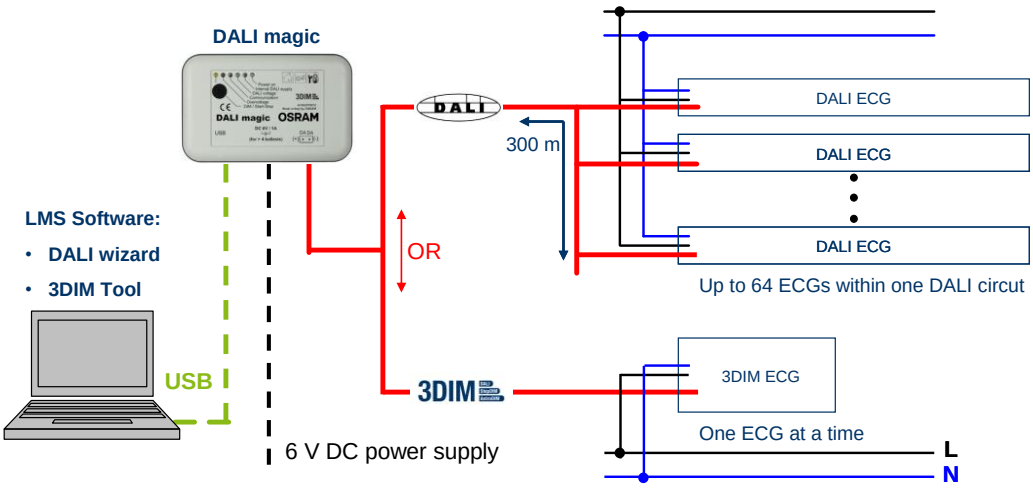
ONE System – ONE Solution – Highest Flexibility in Applications.

- Easy **Diagnostics/Analysis/Parametrization** of DALI Installations
- Fast Search of Failures in Addressing/Programming
- Easy Programming of OSRAM 3DIM ECG

NEW

- Corridor Functionality & TouchDIM Configuration Tool: GUI based setting of dimming levels + Fade Timing via Drag & Drop
- Emergency Package Tooling: Setting of Emergency Level (DC, AC), Locking Flag, DALI System Failure Level etc.
- Power2Module Functionality: Optimized operation of T5 Energy Saver / Standard Lamps via Flag Setting
- DALI magic **EAN40 (1 pc.): 4008321582768** / Software Download: **www.osram.com/lms-magic**

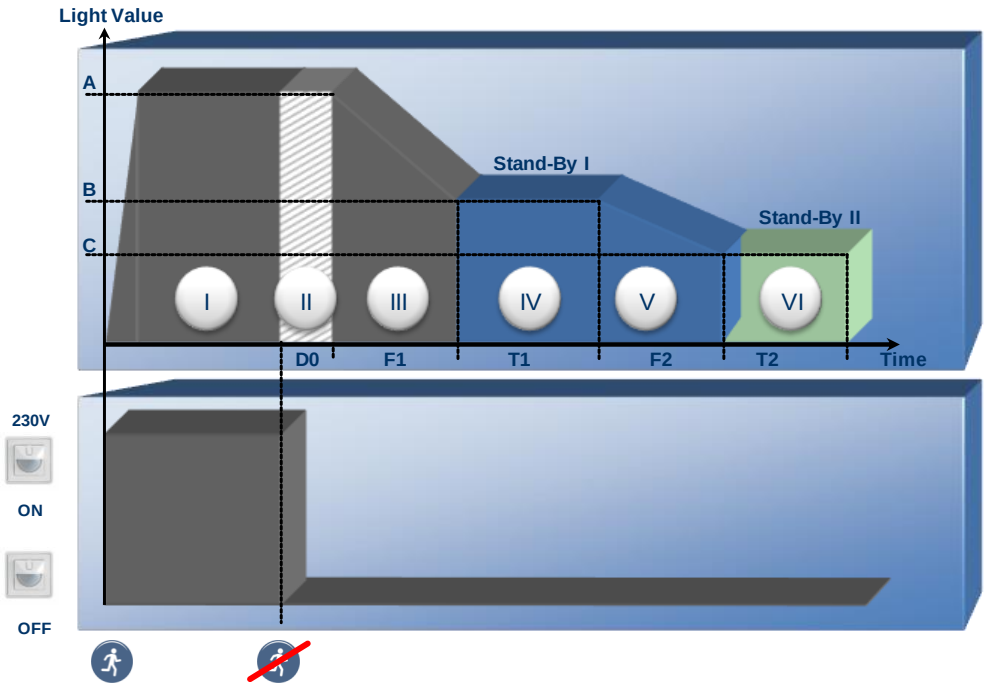
DALI magic: Wiring Topology



Misprints and technical changes excepted

DALI (GII) Corridor-/TouchDIM Functionality

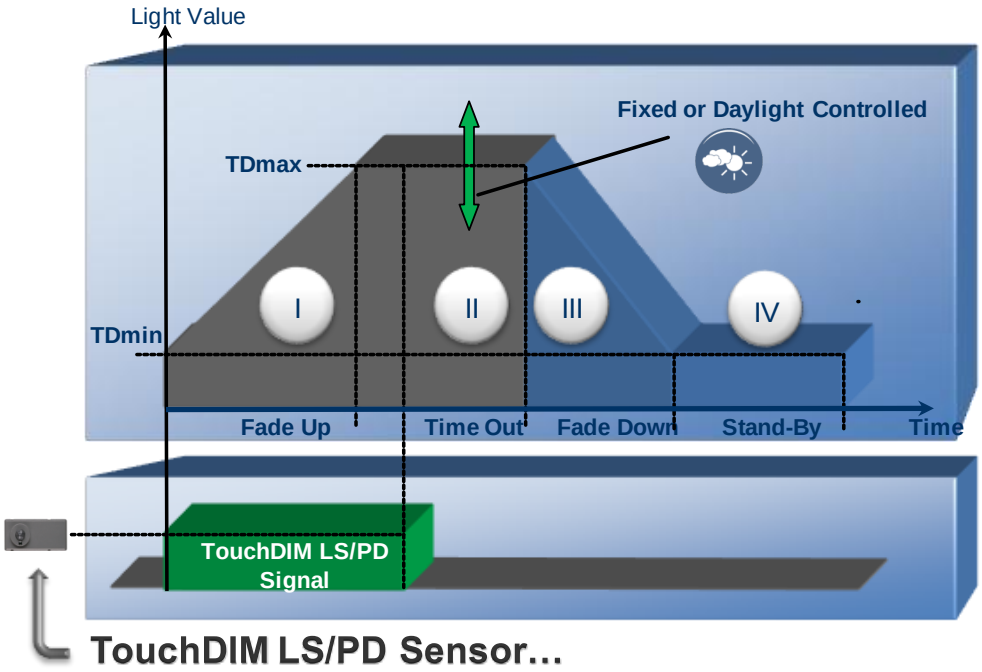
Corridor Function & Parametrization Possibilities



3 Dimming levels (1….100%)
Free parameterization (I…VI) via DALI magic

DEFAULT Values:
A: 100%, D0: 120s, F1: 32s
B: 10%, T1: Endless
C: OFF

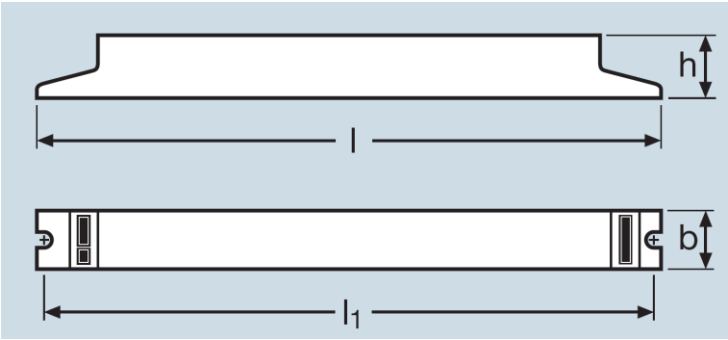
TouchDIM Function & Parametrization Possibilities

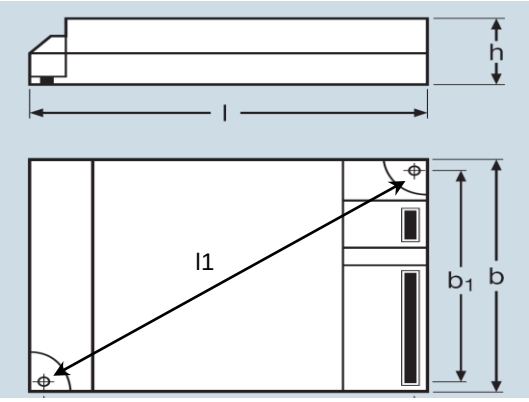


Free parameterization of **ALL TouchDIM Parameters** (I…VI) via DALI magic

Misprints and technical changes excepted

Housing dimensions/article numbers QT*i* (DALI)…DIM





Product description	l [mm]	b [mm]	h [mm]	l1 [mm]	DALI EAN10 1 pc.	DALI EAN40 20 pcs.	1…10V EAN10 1 pc.	1…10V EAN40 20 pcs.
QTi (DALI) 1x14/24 DIM	360	30	**21**	350	4050300870380	4050300870397	4050300870922	4050300870939
QTi (DALI) 1x21/39 DIM	360	30	**21**	350	4050300870366	4050300870373	4050300870564	4050300870571
QTi (DALI) 1x28/54 DIM	360	30	**21**	350	4050300870809	4050300870816	4050300870588	4050300870595
QTi (DALI) 1x35/49/80 DIM	360	30	**21**	350	4050300870342	4050300870359	4050300870540	4050300870557
QTi (DALI) 2x14/24 DIM	423	30	**21**	415	4050300870861	4050300870878	4050300870946	4050300870953
QTi (DALI) 2x21/39 DIM	423	30	**21**	415	4050300870489	4050300870496	4050300870694	4050300870700
QTi (DALI) 2x28/54 DIM	423	30	**21**	415	4050300870502	4050300870519	4050300870717	4050300870724
QTi (DALI) 2x35/49 DIM	423	30	**21**	415	4050300870465	4050300870472	4050300870670	4050300870687
QTi (DALI) 2x35/49/80 DIM	423	30	**21**	415	4050300870441	4050300870458	4050300870984	4050300870991
QTi (DALI) 3x14/24 DIM	360	40	**21**	350	4008321069955	4008321069962	4008321069719	4008321069924
QTi (DALI) 4x14/24 DIM	360	40	**21**	350	4008321070036	4008321070043	4008321069993	4008321070005
QTi (DALI) 1x18 DIM	360	30	**21**	350	4050300870403	4050300870410	4050300870601	4050300870618
QTi (DALI) 1x36 DIM	360	30	**21**	350	4050300870427	4050300870434	4050300870625	4050300870632
QTi (DALI) 1x58 DIM	360	30	**21**	350	4050300870823	4050300870830	4050300870908	4050300870915
QTi (DALI) 2x18 DIM	423	30	**21**	415	4050300870526	4050300870533	4050300870960	4050300870977
QTi (DALI) 2x36 DIM	423	30	**21**	415	4050300870885	4050300870892	4050300870755	4050300870762
QTi (DALI) 2x58 DIM	423	30	**21**	415	4050300870847	4050300870854	4050300870731	4050300870748
QTi (DALI) 3x18 DIM	360	40	**21**	350	4008321069979	4008321069986	4008321069931	4008321069948
QTi (DALI) 4x18 DIM	360	40	**21**	350	4008321070050	4008321070067	4008321070012	4008321070029
QTi (DALI)-T/E 1x18-57 DIM	123	79	33	130	4008321060808	4008321060815	4008321060860	4008321060877
QTi (DALI)-T/E 2x18-42 DIM	123	79	33	130	4008321060822	4008321060839	4008321060846	4008321060853

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