Light is OSRAM

OPTOTRONIC® 4DIMLT2 Familie
Applikationshinweise zum DC-Betrieb

Die 4DIM Produktfamilie der OSRAM OPTOTRONIC® Outdoor LED Treiber kann in Kombination mit Zentralbatterie-systemen verwendet werden. Die folgenden Hinweise müssen beachtet werden:

- Gültiger DC-Eingangsspannungsbereich: **176V – 276V DC**
- Im DC-Betrieb ist eine **zusätzliche DC-Sicherung** fachgerecht vor dem Gerät zu installieren. Beispiel: 477 Serie, 5×20 mm, zeitverzögerte Sicherung (Slo-Blo®), Stromstärke: 3,15 A. Hierdurch verringert sich der differentielle Überspannungsschutz auf 2kV. Ein zusätzlicher Überspanungsschutz kann die ursprüngliche Stoßspannungsfestigkeit wieder herstellen. Der asymmetrische Überspannungsschutz bleibt unverändert.
- Im DC-Betrieb reduziert der LED Treiber die **Ausgangsleistung** automatisch auf **75%** der maximal möglichen AC-Ausgangsleistung. Das Verhalten des Treibers kann mittels der Tuner4TRONIC Software angepasst werden. Während des DC-Betriebes sind DALI-Funktionen, der Dimmbetrieb und die “End-of-life”-Funktion deaktiviert.

Folgende Systemkombinationen sind freigegeben:

EATON	DALI Baustein V-CG-SB 1	Stromwertüberwachung ZB-S
INOTEC	DALI Baustein DALI SV	Stromwertüberwachung CP/SKE
GESSLER	DALI Baustein LB1/009DD	
OT 40/120-277/1A0 4DIMLT2 E (ab IC: AA6427505DG) **OT 60/170-240/1A0 4DIMLT2 E** (ab IC: AA6748504DG) **OT 90/170-240/1A0 4DIMLT2 E** (ab IC: AA6640806DG) **OT 165/170-240/1A0 4DIMLT2 E** (ab IC: AA6748603DG) **OT 20/170-240/1A0 4DIMLT2 G2 CE** **OT 40/170-240/1A0 4DIMLT2 G2 CE** **OT 75/170-240/1A0 4DIMLT2 G2 CE** **OT 110/170-240/1A0 4DIMLT2 G2 CE**	• Kompatibel mit externer DC Sicherung • LED Treiber muss auf DALI Betrieb programmiert sein	• Kompatibel mit externer DC Sicherung • Um die Genauigkeit der Stromwertüberwachung zu erhöhen, sollten max. 5 Leuchten pro Stromkreis angeschlossen werden

Die ON/OFF- Bausteine von EATON V-CG-S oder INOTEC J-SV sind nicht kompatibel mit der OT 4 DIM-Familie.

Hinweise:
Beachten Sie bei der Auslegung einer Leuchte für den DC-Betrieb die Einhaltung der Anforderungen entsprechend der Norm IEC 60598-2-22 (Norm für Leuchten für die Notbeleuchtung).
Werden kompatible Geräte für den DC-Betrieb benötigt muss die Bestellung auf IC (Ident Code) Level erfolgen. Die aktuelle Version Ihres Gerätes können Sie dem Geräteaufdruck entnehmen:

Bitte beachten Sie:
Alle Informationen in diesem Leitfaden wurden mit größter Sorgfalt erstellt. OSRAM übernimmt jedoch keine Haftung für mögliche Fehler, Änderungen und/oder Auslassungen und keine Haftung für Schäden, die durch die Verwendung oder im Vertrauen auf den Inhalt dieses Leitfadens entstehen. Die Informationen in diesem Leitfaden spiegeln den Wissensstand am Tag seiner Veröffentlichung wider. Bitte überprüfen Sie auf www.osram.de, ob eine aktualisierte Version dieses Leitfadens erhältlich ist oder wenden Sie sich hierfür an Ihren Vertriebspartner. Dieser Leitfaden dient ausschließlich zu Informationszwecken, um Sie dabei zu unterstützen, die Herausforderungen der Technologie zu meistern und die Möglichkeiten der Technologie auszuschöpfen. Bitte beachten Sie, dass dieser Leitfaden auf eigenen Messungen, Tests, spezifischen Parametern und Annahmen beruht.

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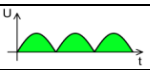
INOTEC
Sicherheitstechnik GmbH

Technical requirements for dimmable DALI control gears for fluorescent Lamps and LED

Manufacturer:	Type / Description:
OSRAM	OT 40/120-277/1A0 4DIMLT2 E (IC: AA6427505DG)
Project / Place:	Project number:
Marcel-Breuer-Straße 6, 80807 München	

Features	Techn.data / INOTEC requirements	Explanation	Fulfilled (Yes/No)
Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	**Yes**
Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	**Yes**
Control gear suitable for "Joker-Voltage"	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage (highly foldet half-wafe) 	**Yes**
Control gear compatible with change-over time of the system ?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	**Yes**
Starting behavior of the control gear in DC operation	**Stable current consumption within von 1,6s**	Necessary for individual lamp monitoring	**Yes**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps-Performance requirements	**Not relevant**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**Not relevant**
Control gear complies with the standard: (only for LED)	**DIN EN 62384**	DC or AC supplied electronic control gear for LED modules-Performance requirements	**Yes**
Control gear complies with the standard: (only for LED)	**DIN EN 61347-2-13**	Lamp control gear-Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED modules	**Yes**
Control gear complies with the standard:	**DIN EN 55015 (Measurement on AC and DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similiar equipment	**Yes**
Control gear complies with the standard:	**DIN EN 61000-3-2**	Electromagnetic compatibility (EMC) -Part 3-2:Limits- Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	**Yes**
Control gear complies with the standard:	**DIN EN 61547**	Equipment for general lighting purposes - EMC immunity requirements	**Yes**
Control gear complies with the DALI-standard:	**DIN EN 62386-101/-102/-207*1**	Control gear must have the DALI logo	**Yes**

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Features	Techn. data / INOTEC requirements	Explanation	manufacturer information
Rated current of the control gear with connected lamp in **AC operation (230V)**		Selection guide for the calculation of the max. number of luminairs per circuit	**202,29 mA**
Rated current of the control gear with connected lamp in D**C operation (216V)**		Selection guide for the calculation of the necessary battery capacity	**227,73 mA**
Behavier control gear in DC operation: -**Unlocked** light output level -**Locked** light output level (Dimming on DC)	The DC-light output settings on the DALI-SV-Module is only active if control gear is **unlocked**	In case of locked DC light output level, the DC level of the DALI-SV-Module is not active !	**unlocked**
Light output level in DC operation with **locked** light output level (Dimming on DC)	No control of light output level from DALI-SV-Module in DC operation possible	locked light output level in % Important for lighting design.	**100%**
Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver	**Yes**
Max. inrush current of the control gear with connected lamp in **AC operation (230V)**	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush cuirrent of all ballasts in a circuit, to calculate the maximum contact rating of the circuit (*2)	**45A / 180µs**
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)			

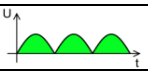
*1: Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101/-102, so the DALI driver must sign with the DALI logo.
*2: For calculation the inrush current of the monitoring module must be considered !

Note: Special LED-driver for outdoor application, which has only an integrated AC rated fuse. **For DC-operation an additional external fuse is required**. For the DC operation a fixed output level could be set via the Tuner4TRONIC software.

INOTEC
Sicherheitstechnik GmbH

Technical requirements for dimmable DALI control gears for fluorescent Lamps and LED

Manufacturer:	Type / Description:
OSRAM	OT 60/170-240/1A0 4DIMLT2 E (IC: AA6748504DG)
Project / Place:	Project number:
Marcel-Breuer-Straße 6, 80807 München	

Features	Techn.data / INOTEC requirements	Explanation	Fulfilled (Yes/No)
Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	**Yes**
Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	**Yes**
Control gear suitable for "Joker-Voltage"	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage (highly foldet half-wafe) 	**Yes**
Control gear compatible with change-over time of the system ?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	**Yes**
Starting behavior of the control gear in DC operation	**Stable current consumption within von 1,6s**	Necessary for individual lamp monitoring	**Yes**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps-Performance requirements	**Not relevant**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**Not relevant**
Control gear complies with the standard: (only for LED)	**DIN EN 62384**	DC or AC supplied electronic control gear for LED modules-Performance requirements	**Yes**
Control gear complies with the standard: (only for LED)	**DIN EN 61347-2-13**	Lamp control gear-Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED modules	**Yes**
Control gear complies with the standard:	**DIN EN 55015 (Measurement on AC and DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similiar equipment	**Yes**
Control gear complies with the standard:	**DIN EN 61000-3-2**	Electromagnetic compatibility (EMC) -Part 3-2:Limits- Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	**Yes**
Control gear complies with the standard:	**DIN EN 61547**	Equipment for general lighting purposes - EMC immunity requirements	**Yes**
Control gear complies with the DALI-standard:	**DIN EN 62386-101/-102/-207*1**	Control gear must have the DALI logo	**Yes**

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Features	Techn. data / INOTEC requirements	Explanation	manufacturer information
Rated current of the control gear with connected lamp in **AC operation (230V)**		Selection guide for the calculation of the max. number of luminairs per circuit	**292.37 mA**
Rated current of the control gear with connected lamp in D**C operation (216V)**		Selection guide for the calculation of the necessary battery capacity	**277.04 mA**
Behavier control gear in DC operation: -**Unlocked** light output level -**Locked** light output level (Dimming on DC)	The DC-light output settings on the DALI-SV-Module is only active if control gear is **unlocked**	In case of locked DC light output level, the DC level of the DALI-SV-Module is not active !	**unlocked**
Light output level in DC operation with **locked** light output level (Dimming on DC)	No control of light output level from DALI-SV-Module in DC operation possible	locked light output level in % Important for lighting design.	**100% ***)**
Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver	**Yes**
Max. inrush current of the control gear with connected lamp in **AC operation (230V)**	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush cuirrent of all ballasts in a circuit, to calculate the maximum contact rating of the circuit (*2)	**53A / 200µs**
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)			

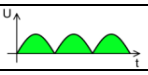
*1: Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101/-102, so the DALI driver must sign with the DALI logo.
*2: For calculation the inrush current of the monitoring module must be considered !

Note: Special LED-driver for outdoor application, which has only an integrated AC rated fuse. **For DC-operation an additional external fuse is required**. For the DC operation a fixed output level could be set via the Tuner4TRONIC software.
***) If the connect load is 75% of the maximum rated output power.

INOTEC
Sicherheitstechnik GmbH

Technical requirements for dimmable DALI control gears for fluorescent Lamps and LED

Manufacturer:	Type / Description:
OSRAM	OT 90/170-240/1A0 4DIMLT2 E (IC: AA6640806DG)
Project / Place:	Project number:
Marcel-Breuer-Straße 6, 80807 München	

Features	Techn.data / INOTEC requirements	Explanation	Fulfilled (Yes/No)
Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	**Yes**
Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	**Yes**
Control gear suitable for "Joker-Voltage"	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage (highly foldet half-wafe) 	**Yes**
Control gear compatible with change-over time of the system ?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	**Yes**
Starting behavior of the control gear in DC operation	**Stable current consumption within von 1,6s**	Necessary for individual lamp monitoring	**Yes**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps-Performance requirements	**Not relevant**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**Not relevant**
Control gear complies with the standard: (only for LED)	**DIN EN 62384**	DC or AC supplied electronic control gear for LED modules-Performance requirements	**Yes**
Control gear complies with the standard: (only for LED)	**DIN EN 61347-2-13**	Lamp control gear-Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED modules	**Yes**
Control gear complies with the standard:	**DIN EN 55015 (Measurement on AC and DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similiar equipment	**Yes**
Control gear complies with the standard:	**DIN EN 61000-3-2**	Electromagnetic compatibility (EMC) -Part 3-2:Limits- Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	**Yes**
Control gear complies with the standard:	**DIN EN 61547**	Equipment for general lighting purposes - EMC immunity requirements	**Yes**
Control gear complies with the DALI-standard:	**DIN EN 62386-101/-102/-207*1**	Control gear must have the DALI logo	**Yes**

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Features	Techn. data / INOTEC requirements	Explanation	manufacturer information
Rated current of the control gear with connected lamp in **AC operation (230V)**		Selection guide for the calculation of the max. number of luminairs per circuit	**443.37 mA**
Rated current of the control gear with connected lamp in D**C operation (216V)**		Selection guide for the calculation of the necessary battery capacity	**388.88 mA**
Behavier control gear in DC operation: -**Unlocked** light output level -**Locked** light output level (Dimming on DC)	The DC-light output settings on the DALI-SV-Module is only active if control gear is **unlocked**	In case of locked DC light output level, the DC level of the DALI-SV-Module is not active !	**unlocked**
Light output level in DC operation with **locked** light output level (Dimming on DC)	No control of light output level from DALI-SV-Module in DC operation possible	locked light output level in % Important for lighting design.	**100% ***)**
Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver	**Yes**
Max. inrush current of the control gear with connected lamp in **AC operation (230V)**	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush cuirrent of all ballasts in a circuit, to calculate the maximum contact rating of the circuit (*2)	**57A / 210µs**
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)			

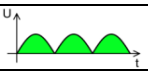
*1: Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101/-102, so the DALI driver must sign with the DALI logo.
*2: For calculation the inrush current of the monitoring module must be considered !

Note: Special LED-driver for outdoor application, which has only an integrated AC rated fuse. **For DC-operation an additional external fuse is required**. For the DC operation a fixed output level could be set via the Tuner4TRONIC software.
***) If the connect load is 75% of the maximum rated output power.

INOTEC
Sicherheitstechnik GmbH

Technical requirements for dimmable DALI control gears for fluorescent Lamps and LED

Manufacturer:	Type / Description:
OSRAM	OT 165/170-240/1A0 4DIMLT2 E (IC: AA6748603DG)
Project / Place:	Project number:
Marcel-Breuer-Straße 6, 80807 München	

Features	Techn.data / INOTEC requirements	Explanation	Fulfilled (Yes/No)
Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	**Yes**
Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	**Yes**
Control gear suitable for "Joker-Voltage"	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage (highly foldet half-wafe) 	**Yes**
Control gear compatible with change-over time of the system ?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	**Yes**
Starting behavior of the control gear in DC operation	**Stable current consumption within von 1,6s**	Necessary for individual lamp monitoring	**Yes**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps-Performance requirements	**Not relevant**
Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**Not relevant**
Control gear complies with the standard: (only for LED)	**DIN EN 62384**	DC or AC supplied electronic control gear for LED modules-Performance requirements	**Yes**
Control gear complies with the standard: (only for LED)	**DIN EN 61347-2-13**	Lamp control gear-Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED modules	**Yes**
Control gear complies with the standard:	**DIN EN 55015 (Measurement on AC and DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similiar equipment	**Yes**
Control gear complies with the standard:	**DIN EN 61000-3-2**	Electromagnetic compatibility (EMC) -Part 3-2:Limits- Limits for harmonic current emissions (equipment input current ≤ 16A per phase)	**Yes**
Control gear complies with the standard:	**DIN EN 61547**	Equipment for general lighting purposes - EMC immunity requirements	**Yes**
Control gear complies with the DALI-standard:	**DIN EN 62386-101/-102/-207*1**	Control gear must have the DALI logo	**Yes**

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Features	Techn. data / INOTEC requirements	Explanation	manufacturer information
Rated current of the control gear with connected lamp in **AC operation (230V)**		Selection guide for the calculation of the max. number of luminairs per circuit	**774 mA**
Rated current of the control gear with connected lamp in D**C operation (216V)**		Selection guide for the calculation of the necessary battery capacity	**674 mA**
Behavier control gear in DC operation: -**Unlocked** light output level -**Locked** light output level (Dimming on DC)	The DC-light output settings on the DALI-SV-Module is only active if control gear is **unlocked**	In case of locked DC light output level, the DC level of the DALI-SV-Module is not active !	**unlocked**
Light output level in DC operation with **locked** light output level (Dimming on DC)	No control of light output level from DALI-SV-Module in DC operation possible	locked light output level in % Important for lighting design.	**100% ***)**
Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver	**Yes**
Max. inrush current of the control gear with connected lamp in **AC operation (230V)**	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush cuirrent of all ballasts in a circuit, to calculate the maximum contact rating of the circuit (*2)	**62A / 330µs**
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)			

*1: Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101/-102, so the DALI driver must sign with the DALI logo.
*2: For calculation the inrush current of the monitoring module must be considered !

Note: Special LED-driver for outdoor application, which has only an integrated AC rated fuse. **For DC-operation an additional external fuse is required**. For the DC operation a fixed output level could be set via the Tuner4TRONIC software.
***) If the connect load is 75% of the maximum rated output power.

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH **Marcel-Breuer-Str. 6** **D-80807 Munich**	Luminaire:
	EVG: Ot 20/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04626)
	LED:
Project / Place / Project ID:	Specified by:
	Name: D.Graser
	Company: OSRAM GmbH
	Date: 25.01.2018

	Features	Techn. data / INOTEC requirements	Expla	Fullfilled (Yes / No)
1	Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	YES
2	Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	YES
3	Control gear suitable for "Joker-Voltage" ?	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage 	YES
4	Control gear compatible with change-over time of the system?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	YES
5	Starting behavior of the control gear in DC operation	**Stable current consumption within 1,6s**	Necessary for individual lamp monitoring (SV)	YES
6	**DC detection completely deactivalable ?**	**The DC detection of the input voltage must be completely deactivated**	The control gear may not respond to a change of the input voltage (DC or "Joker"). The control of the control gear is taken by the DALI-SV-module in this case.	YES
7	Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	not relevant
8	Control gear complies with the standard: (only for fluorescent lamps)	DIN EN 61347-2-3 (incl. Attachment J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	not relevant
9	Control gear complies with the standard: (only for LED)	DIN EN 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements	YES
10	Control gear complies with the standard: (only for LED)	DIN EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED	YES
11	Control gear complies with the standard:	DIN EN 55015 (Measurement on AC and DC)	Limits and methods of measurement of radio interference	YES
12	Control gear complies with the standard:	DIN EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	YES
13	Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	(*3) YES
14	Control gear complies with the DALI-standards:	DIN EN 62386-101 /-102 / -207	Control gear must have the DALI Logo	(*1) YES

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC
Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH **Marcel-Breuer-Str. 6** **D-80807 Munich**	Luminaire:
	EVG: Ot 20/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04626)
	LED:
Project / Place / Project ID:	Specified by:
	Name: D.Graser
	Company: OSRAM GmbH
	Date: 25.01.2018

	Features	Techn. data / INOTEC requirements	Explanation	Manufacturer information
15	Nominal current of the control gear with connected illuminant in AC- operation (230V)		Selection guide for the calculation of the max. number of luminairs per circuit	See Table1
16	Projected light output level **at DC- or Joker-voltage**		The light output level for DC- or Joker-voltage can be set at the DALI-SV-module. Important for lighting design of the emergency lighting	(*4) 100%
17	Nominal current of the control gear with connected illuminant in **DC- operation (216V) and with set light output level**		Selection guide for the calculation of the necessary battery capacity	See Table1
18	Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver Attention: The query is made after 2 / 2,5 / 3 seconds	YES
19	Max. inrush current of the control gear with connected illuminant in AC operation (230V)	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit	22,5A / 142 µs (*2)
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)				

Notes:
(*1): Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101 /-102, so the DALI driver must sign with the DALI logo.
(*2): For calculation the inrush current of the monitoring module must be taken into consideration!
(*3): Not to be used in high risk areas, special release required
(*4): The light input level is not locked in DC-operation. Factory setting is **100%** of the current level. It is possible to change the behavior of the controlgear in DC-operation.

For the correctness:

Munich, 25.01.2018

Place, Date

DS D SST
Dr. Kay Schmidtmann
Signature

DS QM LAB&SQM
Bernhard Schandert

Table1:

Manufacturer: OSRAM GmbH Marcel-Breuer Str. 6 D-80807 München	Product: **Ot 20/170-240/1A0 4DIMLT2 G2 CE**	OSRAM

LED controller type	Values for load range	I_N in AC-operation (230V) / mA (trms)	I_N in AC-operation (240V) / mA (trms)	I_N in DC-operation (186V) / mA (trms)	I_N in DC-operation (216V) / mA (trms)	I_N in DC-operation (240V) / mA (trms)	I_N in DC-operation (260V) / mA (trms)
Ot 20/170-240/1A0 4DIMLT2 G2 CE	Umin, Imin	25,08	25,07	20,87	18,10	16,37	15,35
	Umin, Imax	50,11	47,08	57,46	49,84	44,55	41,14
	Umax, Imin	49,56	48,31	56,30	48,53	43,61	40,33
	Umax, Imax	127,70	120,69	119,73	102,90	92,08	85,17
	Open Load	12,95	15,50	2,25	2,22	2,25	2,26
	Short Load	14,25	17,58	6,03	4,80	4,83	7,78

Maximum inrush current for ECG in AC Operation Ipeak= 22,5 A
TH= 142 µs

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH Marcel-Breuer-Str. 6 D-80807 Munich	Luminaire:
	EVG: Ot 40/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04628)
	LED:
Project / Place / Project ID:	Specified by:
	Name: D.Graser
	Company: OSRAM GmbH
	Date: 23.01.2018

	Features	Techn. data / INOTEC requirements	Expla	Fullfilled (Yes / No)
1	Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	YES
2	Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	YES
3	Control gear suitable for "Joker-Voltage" ?	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage 	YES
4	Control gear compatible with change-over time of the system?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	YES
5	Starting behavior of the control gear in DC operation	**Stable current consumption within 1,6s**	Necessary for individual lamp monitoring (SV)	YES
6	**DC detection completely deactivalable ?**	**The DC detection of the input voltage must be completely deactivated**	The control gear may not respond to a change of the input voltage (DC or "Joker"). The control of the control gear is taken by the DALI-SV-module in this case.	YES
7	Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	not relevant
8	Control gear complies with the standard: (only for fluorescent lamps)	DIN EN 61347-2-3 (incl. Attachment J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	not relevant
9	Control gear complies with the standard: (only for LED)	DIN EN 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements	YES
10	Control gear complies with the standard: (only for LED)	DIN EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED	YES
11	Control gear complies with the standard:	DIN EN 55015 (Measurement on AC and DC)	Limits and methods of measurement of radio interference	YES
12	Control gear complies with the standard:	DIN EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	YES
13	Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	(*3) YES
14	Control gear complies with the DALI-standards:	DIN EN 62386-101 /-102 / -207	Control gear must have the DALI Logo	(*1) YES

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH Marcel-Breuer-Str. 6 D-80807 Munich	Luminaire: EVG: Ot 40/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04628) LED:
Project / Place / Project ID:	Specified by: Name: D.Graser Company: OSRAM GmbH Date: 23.01.2018

	Features	Techn. data / INOTEC requirements	Explanation	Manufacturer information
15	Nominal current of the control gear with connected illuminant in AC- operation (230V)		Selection guide for the calculation of the max. number of luminairs per circuit	See Table1
16	Projected light output level **at DC- or Joker-voltage**		The light output level for DC- or Joker-voltage can be set at the DALI-SV-module. Important for lighting design of the emergency lighting	(*4) 100%
17	Nominal current of the control gear with connected illuminant in **DC- operation (216V) and with set light output level**		Selection guide for the calculation of the necessary battery capacity	See Table1
18	Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver Attention: The query is made after 2 / 2,5 / 3 seconds	YES
19	Max. inrush current of the control gear with connected illuminant in AC operation (230V)	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit	25A / 161 µs (*2)
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)				

Notes:
(*1): Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101 /-102, so the DALI driver must sign with the DALI logo.
(*2): For calculation the inrush current of the monitoring module must be taken into consideration!
(*3): Not to be used in high risk areas, special release required
(*4): The light input level is not locked in DC-operation. Factory setting is **100%** of the current level. It is possible to change the behavior of the controlgear in DC-operation.

For the correctness:

Munich, 23.01.2018
Place, Date

DS D SST
Dr. Kay Schmidtmann
Signature

DS QM LAB&SQM
Bernhard Schetzmeier

Table1:

Manufacturer: OSRAM GmbH Marcel-Breuer Str. 6 D-80807 München	Product: **Ot 40/170-240/1A0 4DIMLT2 G2 CE**	OSRAM

LED controller type	Values for load range	IN in AC-operation (230V) / mA (trms)	IN in AC-operation (240V) / mA (trms)	IN in DC-operation (186V) / mA (trms)	IN in DC-operation (216V) / mA (trms)	IN in DC-operation (240V) / mA (trms)	IN in DC-operation (260V) / mA (trms)
Ot 40/170-240/1A0 4DIMLT2 G2 CE	Umin, Imin	33,00	32,96	27,14	24,06	22,22	20,70
	Umin, Imax	99,22	88,80	118,42	101,81	91,10	83,79
	Umax, Imin	67,32	65,52	79,02	68,51	60,61	56,17
	Umax, Imax	219,19	209,16	205,14	173,24	156,13	143,57
	Open Load	15,39	19,23	2,62	2,43	2,43	2,47
	Short Load	16,20	20,78	6,87	5,86	4,36	4,75

Maximum inrush current for ECG in AC Operation Ipeak= 25 A
TH= 161 µs

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH Marcel-Breuer-Str. 6 D-80807 Munich	Luminaire: EVG: OT 75/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03550) LED:
Project / Place / Project ID:	Specified by: Name: D.Graser Company: OSRAM GmbH Date: 17.07.2018

	Features	Techn. data / INOTEC requirements	Expla	Fullfilled (Yes / No)
1	Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	YES
2	Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	YES
3	Control gear suitable for "Joker-Voltage" ?	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage 	YES
4	Control gear compatible with change-over time of the system?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	YES
5	Starting behavior of the control gear in DC operation	**Stable current consumption within 1,6s**	Necessary for individual lamp monitoring (SV)	YES
6	**DC detection completely deactivalable ?**	**The DC detection of the input voltage must be completely deactivated**	The control gear may not respond to a change of the input voltage (DC or "Joker"). The control of the control gear is taken by the DALI-SV-module in this case.	YES
7	Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	not relevant
8	Control gear complies with the standard: (only for fluorescent lamps)	DIN EN 61347-2-3 (incl. Attachment J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	not relevant
9	Control gear complies with the standard: (only for LED)	DIN EN 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements	YES
10	Control gear complies with the standard: (only for LED)	DIN EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED	YES
11	Control gear complies with the standard:	DIN EN 55015 (Measurement on AC and DC)	Limits and methods of measurement of radio interference	YES
12	Control gear complies with the standard:	DIN EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	YES
13	Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	(*3) YES
14	Control gear complies with the DALI-standards:	DIN EN 62386-101 /-102 / -207	Control gear must have the DALI Logo	(*1) YES

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC
Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH Marcel-Breuer-Str. 6 D-80807 Munich	Luminaire:
	EVG: OT 75/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03550)
	LED:
Project / Place / Project ID:	Specified by: Name: D.Graser
	Company: OSRAM GmbH
	Date: 17.07.2018

	Features	Techn. data / INOTEC requirements	Explanation	Manufacturer information
15	Nominal current of the control gear with connected illuminant in AC- operation (230V)		Selection guide for the calculation of the max. number of luminairs per circuit	See Table1
16	Projected light output level at **DC- or Joker-voltage**		The light output level for DC- or Joker-voltage can be set at the DALI-SV-module. Important for lighting design of the emergency lighting	(*4) 100%
17	Nominal current of the control gear with connected illuminant in **DC- operation (216V) and with set light output level**		Selection guide for the calculation of the necessary battery capacity	See Table1
18	Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver Attention: The query is made after 2 / 2,5 / 3 seconds	**YES**
19	Max. inrush current of the control gear with connected illuminant in AC operation (230V)	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit	**42A / 208 µs (*2)**
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)				

Notes:
(*1): Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101 /-102, so the DALI driver must sign with the DALI logo.
(*2): For calculation the inrush current of the monitoring module must be taken into consideration!
(*3): Not to be used in high risk areas, special release required
(*4): The light input level is not locked in DC-operation. Factory setting is **100%** of the current level. It is possible to change the behavior of the controlgear in DC-operation.

For the correctness:

Munich, 17.07.2018
Place, Date

DS D SST Dr. Kay Schmidtmann
DS QM LAB&SQM Bernhard Schemmel
Signature

Table1:

Manufacturer: OSRAM GmbH Marcel-Breuer Str. 6 D-80807 München	Product: **OT 75/170-240/1A0 4DIMLT2 G2 CE**	OSRAM

LED controller type	Values for load range	IN in AC-operation (230V) / mA (trms)	IN in AC-operation (240V) / mA (trms)	IN in DC-operation (186V) / mA (trms)	IN in DC-operation (216V) / mA (trms)	IN in DC-operation (240V) / mA (trms)	IN in DC-operation (260V) / mA (trms)
OT 75/170-240/1A0 4DIMLT2 G2 CE	Umin, Imin	62,04	63,12	45,81	39,31	35,83	33,54
	Umin, Imax	191,36	172,42	228,66	196,39	175,87	161,84
	Umax, Imin	124,33	121,73	139,64	119,27	107,12	99,10
	Umax, Imax	346,08	328,61	361,87	308,05	276,41	254,21
	Open Load	34,77	42,64	12,34	11,75	11,47	11,24
	Short Load	12,11	11,45	12,14	11,78	11,45	11,25

Maximum inrush current for ECG in AC Operation Ipeak= 42 A
TH= 208 µs

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH **Marcel-Breuer-Str. 6** **D-80807 Munich**	Luminaire: EVG: OT 110/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03548) LED:
Project / Place / Project ID:	Specified by: Name: D.Graser Company: OSRAM GmbH Date: 17.07.2018

	Features	Techn. data / INOTEC requirements	Expla	Fullfilled (Yes / No)
1	Voltage range AC	**230V ± 10%**	Voltage range in normal mains operation	YES
2	Voltage range DC	**186V - 260V**	Possible voltage range in emergency operation	YES
3	Control gear suitable for "Joker-Voltage" ?	**B2-rectification of the AC voltage (without smoothing)**	Pulsating DC voltage 	YES
4	Control gear compatible with change-over time of the system?	**Change-over time: 150 - 1000ms**	Typical change-over time of INOTEC systems between mains- and battery operation	YES
5	Starting behavior of the control gear in DC operation	**Stable current consumption within 1,6s**	Necessary for individual lamp monitoring (SV)	YES
6	**DC detection completely deactivalable ?**	**The DC detection of the input voltage must be completely deactivated**	The control gear may not respond to a change of the input voltage (DC or "Joker"). The control of the control gear is taken by the DALI-SV-module in this case.	YES
7	Control gear complies with the standard: (only for fluorescent lamps)	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	not relevant
8	Control gear complies with the standard: (only for fluorescent lamps)	DIN EN 61347-2-3 (incl. Attachment J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	not relevant
9	Control gear complies with the standard: (only for LED)	DIN EN 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements	YES
10	Control gear complies with the standard: (only for LED)	DIN EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for DC or AC supplied electronic control gear for LED	YES
11	Control gear complies with the standard:	DIN EN 55015 (Measurement on AC and DC)	Limits and methods of measurement of radio interference	YES
12	Control gear complies with the standard:	DIN EN 61000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	YES
13	Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	(*3) YES
14	Control gear complies with the DALI-standards:	DIN EN 62386-101 /-102 / -207	Control gear must have the DALI Logo	(*1) YES

Note: VDE 0108 is not a standard for ECG, marking is not applicable

Technical requirements for dimmable DALI control gears for fluorescent lamps and LED

INOTEC Sicherheitstechnik GmbH

Manufacturer:	Type / Description:
OSRAM GmbH Marcel-Breuer-Str. 6 D-80807 Munich	Luminaire: EVG: OT 110/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03548) LED:
Project / Place / Project ID:	Specified by: Name: D.Graser Company: OSRAM GmbH Date: 17.07.2018

	Features	Techn. data / INOTEC requirements	Explanation	Manufacturer information
15	Nominal current of the control gear with connected illuminant in AC- operation (230V)		Selection guide for the calculation of the max. number of luminairs per circuit	See Table1
16	Projected light output level **at DC- or Joker-voltage**		The light output level for DC- or Joker-voltage can be set at the DALI-SV-module. Important for lighting design of the emergency lighting	(*4) 100%
17	Nominal current of the control gear with connected illuminant in **DC- operation (216V) and with set light output level**		Selection guide for the calculation of the necessary battery capacity	See Table1
18	Using the DALI command 146 (Query Lamp Failure) acc. IEC 62386 Part 102	According to IEC 62386 Part 102	Important for function test: To detect a lamp failure, the DALI-SV-Module send the DALI command query 146 to the DALI driver Attention: The query is made after 2 / 2,5 / 3 seconds	YES
19	Max. inrush current of the control gear with connected illuminant in AC operation (230V)	Max. permitted inrush current per circuit: SK 4x2A: 250A / 500µs SK 2x4A: 250A / 500µs SK 2x3A: 250A / 500µs SK 1x6A: 250A / 500µs	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit	60A / 155 µs (*2)
Luminaires, which should work as emergency lighting, have to be in accordance with DIN EN 60598-2-22. (Particular requirements - Luminaires for emergency lighting)				

Notes:
(*1): Control of DALI-SV-Module to the DALI driver is 100% done via DALI-commands according to IEC 62386-101 /-102, so the DALI driver must sign with the DALI logo.
(*2): For calculation the inrush current of the monitoring module must be taken into consideration!
(*3): Not to be used in high risk areas, special release required
(*4): The light input level is not locked in DC-operation. Factory setting is **100%** of the current level. It is possible to change the behavior of the controlgear in DC-operation.

For the correctness:

Munich, 17.07.2018

Place, Date

DS D SST
Dr. Kay Schmidtmann
Signature

DS QM LAB&SQM
Bernhard Schemmel

Table1:

Manufacturer: OSRAM GmbH Marcel-Breuer Str. 6 D-80807 München	Product: **OT 110/170-240/1A0 4DIMLT2 G2 CE**	OSRAM

LED controller type	Values for load range	IN in AC-operation (230V) / mA (trms)	IN in AC-operation (240V) / mA (trms)	IN in DC-operation (186V) / mA (trms)	IN in DC-operation (216V) / mA (trms)	IN in DC-operation (240V) / mA (trms)	IN in DC-operation (260V) / mA (trms)
OT 110/170-240/1A0 4DIMLT2 G2 CE	Umin, Imin	107,93	107,47	109,48	93,52	84,57	78,12
	Umin, Imax	420,04	370,58	538,34	457,19	412,21	376,57
	Umax, Imin	212,60	196,77	259,10	215,54	199,34	181,40
	Umax, Imax	480,67	457,74	507,48	432,39	386,53	355,49
	Open Load	39,80	49,34	12,09	11,59	11,21	10,96
	Short Load	41,87	50,31	12,00	11,60	11,23	10,96

Maximum inrush current for ECG in AC Operation Ipeak= 60 A
TH= 155 µs