Light is OSRAM

OPTOTRONIC® 4DIMLT2 Familie
Applikationshinweise zum DC-Betrieb

Die 4DIM Produktfamilie der OSRAM OPTOTRONIC® Outdoor LED Treiber kann in Kombination mit Zentralbatteriesystemen 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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Requirements for dimmable DALI control gears for fluorescent lamps and LED

Manufacturer: **OSRAM GmbH** **Marcel-Breuer-Str. 6** **D-80807 München**	**Type / description:** **LED control gear: OT 40/120-277/1A0 4DIMLT2 E (IC: AA6427505DG)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S$^+$ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**Yes**
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo**	**Yes**

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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**100%**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**45A / 180 µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery opertion of the ballast, for the light calculation	**100%**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

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.

Not suitable with SKU 4x1.5A CG.S, SOU CG-S//S+ and SU S+

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 20.Oct.2014

Requirements for dimmable DALI control gears for fluorescent lamps and LED

Manufacturer: **OSRAM GmbH** **Marcel-Breuer-Str. 6** **D-80807 München**	**Type / description:** **LED control gear: OT 60/170-240/1A0 4DIMLT2E (IC: AA6748504DG)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S$^+$ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2‑13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**Yes**
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo**	**Yes**

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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**100% ***)**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**53A / 200 µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery opertion of the ballast, for the light calculation	**100% ***)**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

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 connected load is 75% of the maximum rated output power.

Not suitable with SKU 4x1.5A CG.S, SOU CG-S//S+ and SU S+

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 20.Oct.2014

Requirements for dimmable DALI control gears for fluorescent lamps and LED

Manufacturer: **OSRAM GmbH** **Marcel-Breuer-Str. 6** **D-80807 München**	**Type / description:** **LED control gear: OT 90/170-240/1A0 4DIMLT2 E (IC: AA6640806DG)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S+ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2‑13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**Yes**
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo**	**Yes**

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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**100% ***)**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**57A / 210µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery opertion of the ballast, for the light calculation	**100% ***)**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

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 DC operation a fixed output level could be set via the Tuner4Tronic software. ***) If the connected load is 75% of the maximum rated output power.

Not suitable with SKU 4x1.5A CG.S, SOU CG-S//S+ and SU S+

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 20.Oct.2014

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Requirements for dimmable DALI control gears for fluorescent lamps and LED

Manufacturer: **OSRAM GmbH** **Marcel-Breuer-Str. 6** **D-80807 München**	**Type / description:** **LED control gear: OT 165/170-240/1A0 4DIMLT2 E (IC: AA6748603DG)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S$^+$ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for fluorescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**Yes**
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo**	**Yes**

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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**100% ***)**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**62A / 330 µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	**-**	Light output In battery opertion of the ballast, for the light calculation	**100% ***)**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

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 DC operation a fixed output level could be set via the Tuner4Tronic software. ***) If the connected load is 75% of the maximum rated output power.

Not suitable with SKU 4x1.5A CG.S, SOU CG-S//S+ and SU S+

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 20.Oct.2014

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Requirements for dimmable DALI control gears for fluorescent lamps and LED — Version 0

Manufacturer: **Osram GmbH** **Marcel-Breuer-Straße 6** **D-80807 München**	**Type / description:** **ECG-type: Ot 20/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04626)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S⁺ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**(*3) Yes**
Fullfilled 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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**(*2)100%**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 4 x 1,5A CG-S => 60 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A** **SOU CG-S // S⁺ => 250 A** **SU S⁺ => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**Ip=22,5A / Th=142µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery opertion of the ballast, for the light calculation	**(*2) 100%**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*1: Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102
so the DALI LED driver must sign with the DALI logo

*2: The DC Output Level is not locked in DC Mode to 100**% of current Light Level**, it is possibe to lock with DALI magic and Tuner 4 Tronic

*3: Not to be used in high risk areas, special release required

Max. 1 DALI- Driver to wire with 1 V-CG-SB.1

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 25. Januar.2018

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED	EATON Powering Business Worldwide

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

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Powering Business Worldwide

Requirements for dimmable DALI control gears for fluorescent lamps and LED — Version 0

Manufacturer: **Osram GmbH** **Marcel-Breuer-Straße 6** **D-80807 München**	**Type / description:** **ECG-type: Ot 40/170-240/1A0 4DIMLT2 G2 CE (ident code: AM04628)**		
Features:	**CEAG data:**	**Comment:**	**Complies: (Yes/No)**
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)** **186V - 275V DC (for NiCD-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S⁺ Systems required)*	**Yes**
Control gear compatible with the switch-over time of the system?	**Switch-over time:** **180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**Yes**
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	Necessary for an individual monitoring. Δ I < 12,5 mA per luminaire, with max. 20 luminaires per circuit Δ I sum < 250 mA	**Yes**
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**not relevant**
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**not relevant**
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**Yes**
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**Yes**
Fullfilled the standard:	**DIN EN 55015** **(Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**Yes**
Fullfilled 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**
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**(*3) Yes**
Fullfilled 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

Features:	**CEAG-Data:**	**Comment:**	**Manufacturer's instructions:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver	**Yes**
Important for DC light output: Behavior in DC operation: - **Unlocked** DC light output level - **Locked** DC light output level	**DC light output settings on V-CG-SB.1 only active if control gear is unlocked!**	**In case of locked DC light output level, the DC level of V-CG-SB.1 is not active !**	**Unlocked DC [x]** **Locked DC [ ]**
Important for lighting design: If locked DC light output the lightout level in % is required	**No control of light output level from V-CG-SB.1 in DC operation possible!**	Locked light output level in %, e.g. 15%	**(*2)100%**
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 4 x 1,5A CG-S => 60 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A** **SOU CG-S // S⁺ => 250 A** **SU S⁺ => 250 A**	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	**Ip=25A / Th=161µs**
Important for lighting design: Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery opertion of the ballast, for the light calculation	**(*2) 100%**

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*1: Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102
so the DALI LED driver must sign with the DALI logo

*2: The DC Output Level is not locked in DC Mode to 100**% of current Light Level**, it is possibe to lock with DALI magic and Tuner 4 Tronic

*3: Not to be used in high risk areas, special release required

Max. 1 DALI- Driver to wire with 1 V-CG-SB.1

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 23. Januar.2018

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED

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	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 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

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Requirements for dimmable DALI control gears for fluorescent lamps and LED

Version 3

Manufacturer: **Osram GmbH** **Marcel-Breuer-Straße 6** **D-80807 München**	**Type / description:** **ECG-type: OT 75/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03550)**		**Manufacturer information Complies: YES/NO**
Features:	**CEAG data:**	**Explanation:**	
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S⁺ Systems required)*	**YES** ☒ **NO** ☐
Control gear compatible with the switch-over time of the system?	**Switch-over time: 180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**YES** ☒ **NO** ☐
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	A stable operation of the control gear after 1.6 seconds of start up is required for the right functionality of the individual monitoring. With max. 20 luminaires for one current circuit: Δ I in sum < 250 mA are allowed	**YES** ☒ **NO** ☐
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**YES** ☐ **NO** ☐
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**YES** ☐ **NO** ☐
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**YES** ☒ **NO** ☐
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**YES** ☒ **NO** ☐
Fullfilled the standard:	**DIN EN 55015 (Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**YES** ☒ **NO** ☐
Fullfilled 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** ☒ **NO** ☐
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**YES** ☒ **NO** ☐
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo***	**YES** ☒ **NO** ☐

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

Features:	**CEAG-Data:**	**Explanation:**	**Manufacturer information:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver. These DALI commands are necessary to ensure the lamp failure detection, and must be support by the control gear.	**YES** ☒ **NO** ☐
Important for DC operation: DALI light level	**In case of locked DALI light level in DC operation (EOF=Emergency Output Level), the V-CG-SB.1 can not change the light level !**	In DC-emergency case the DALI-Light Level is locked to prevent unwanted changes of the luminous flux.	**Unlocked** ☒ **Locked** ☐
Important for lighting design: If DALI-Light level is locked, the value of the preset DC-Lightlevel (in %) is required		Pre-set DC-Light Level ** e.g. 15% (DALI-value 185 for logarithmic dimming curve)	**100%**
Note: Important for the planning - Max. no. Of luminiares per circuit			
Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 4 x 1,5A CG-S => 60 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A** **SOU CG-S // S⁺ => 250 A** **SU S⁺ => 250 A**	**I-peak=42A Th=208µs** / pcs Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

** The DC-Light Level preset value ex factory (luminous flux in case of DC-voltage) can be adjusted project depending via DALI Magic and T4 Tronic in **AC-operation**
To enable the adjustment of the luminous flux via the DALI - Module V-CG-SB.1, the DC detection has to be deactivated via T4T.

Max. 1 DALI- Driver to wire with 1 V-CG-SB.1

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 16.July.2018

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED	EATON Powering Business Worldwide

Table 1:

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

EATON
Powering Business Worldwide

Requirements for dimmable DALI control gears for fluorescent lamps and LED

Version 3

Manufacturer: **Osram GmbH** **Marcel-Breuer-Straße 6** **D-80807 München**	**Type / description:** **ECG-type: OT 110/170-240/1A0 4DIMLT2 G2 CE (ident code: AM03548)**		**Manufacturer information Complies: YES/NO**
Features:	**CEAG data:**	**Explanation:**	
Control gear suitable for a DC voltage range:	**186V - 260V DC (for Lead-Battery)**	Possible voltage range of the battery in emergency mode. *(Not for AT-S⁺ Systems required)*	**YES** ☒ **NO** ☐
Control gear compatible with the switch-over time of the system?	**Switch-over time: 180 ms - 450 ms**	Typical switch-over time of CEAG systems between mains supply and emergency power supply	**YES** ☒ **NO** ☐
Starting behavior of the control gear:	**Stable current consumption after less than 1.6 sec. maximum.**	A stable operation of the control gear after 1.6 seconds of start up is required for the right functionality of the individual monitoring. With max. 20 luminaires for one current circuit: ∆ I in sum < 250 mA are allowed	**YES** ☒ **NO** ☐
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 60929**	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	**YES** ☐ **NO** ☐
only for flourescent lamps: Control gear complies with the standard:	**DIN EN 61347-2-3 (incl. Attachment J)**	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	**YES** ☐ **NO** ☐
only for LED: Control gear complies with the standard:	**DIN EN 62384**	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	**YES** ☒ **NO** ☐
only for LED: Control gear complies with the standard:	**DIN EN 61347-2-13**	Lamp controlgear — Part 2-13: Particular requirements for d. c. or a. c. supplied electronic controlgear for LED modules	**YES** ☒ **NO** ☐
Fullfilled the standard:	**DIN EN 55015 (Measurement on AC And DC)**	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	**YES** ☒ **NO** ☐
Fullfilled 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** ☒ **NO** ☐
Fullfilled the standard:	**DIN EN 61547**	Equipment for general lighting purposes — EMC immunity requirements	**YES** ☒ **NO** ☐
Fullfilled the DALI standards:	**DIN EN 62386-101 /-102 / -207***	**Control gear must have the DALI Logo***	**YES** ☒ **NO** ☐

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

Features:	**CEAG-Data:**	**Explanation:**	**Manufacturer information:**
Important for function test! According to IEC 62386 Part 102 Support of : **DALI command 145** (Query Control Gear) **DALI command 146** (Query Lamp Failure)	**According to IEC 62386 Part 102**	To detect a lamp failure, the V-CG-SB.1 module send DALI command queries (145/146) to the DALI LED driver. These DALI commands are necessary to ensure the lamp failure detection, and must be support by the control gear.	**YES** ☒ **NO** ☐
Important for DC operation: DALI light level	**In case of locked DALI light level in DC operation (EOF=Emergency Output Level), the V-CG-SB.1 can not change the light level !**	In DC-emergency case the DALI-Light Level is locked to prevent unwanted changes of the luminous flux.	**Unlocked** ☒ **Locked** ☐
Important for lighting design: If DALI-Light level is locked, the value of the preset DC-Lightlevel (in %) is required		Pre-set DC-Light Level ** e.g. 15% (DALI-value 185 for logarithmic dimming curve)	**100%**

Note: Important for the planning - Max. no. Of luminiares per circuit

Important for the contact load SKU: Max. inrush current each converter/luminaire in AC-operation:	**Max. permitted inrush current per circuit:** **SKU 2 x 3A (CG) => 120 A** **SKU 1 x 6A (CG) => 180 A** **SKU 4 x 1,5A CG-S => 60 A** **SKU 2 x 3A CG-S => 250 A** **SKU 1 x 6A CG-S => 250 A** **SOU CG-S // S⁺ => 250 A** **SU S⁺ => 250 A**	**I-peak=60A Th=155µs** / pcs Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.

Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)

*Control of V-CG-SB.1 to the DALI LED driver is 100% done via DALI-commands according to IEC 62386-101 /-102 so the DALI LED driver must sign with the DALI logo

** The DC-Light Level preset value ex factory (luminous flux in case of DC-voltage) can be adjusted project depending via DALI Magic and T4 Tronic in **AC-operation**
To enable the adjustment of the luminous flux via the DALI - Module V-CG-SB.1, the DC detection has to be deactivated via T4T.

Max. 1 DALI- Driver to wire with 1 V-CG-SB.1

In use of manifold ballasts, the different lamp failure detection of the manufacturer must be consider! Some devices don`t detect a failure if one lamp is defect.

Date: 16.July.2018

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED	EATON Powering Business Worldwide

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	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 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