


EATON – Conformity certificate with central battery systems

1. OTi DALI Linear SELV
 - 1.1 OTi DALI 35 /220-240/700 LT2 L
 - 1.2 OTi DALI 50/220-240/1A4 LT2 L
 - 1.3 OTi DALI 80/220-240/1A6 LT2 L
 - 1.4 OTi DALI 80/220-240/2A1 LT2 L

2. OTi DALI Linear non isolated
 - 2.1 OTi DALI 60/220-240/550 D LT2 L
 - 2.2 OTi DALI 90/220-240/1A0 LT2 L

3. OTi DALI Compact SELV
 - 3.1 OTi DALI 15/220-240/1A0 LT2
 - 3.2 OTi DALI 25/220-240/700 LT2
 - 3.3 OTi DALI 35/220-240/1A0 LT2
 - 3.4 OTi DALI 50/220-240/1A4 LT2 FAN

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Str.6 D-80807 München	Type / description: EVG-family: OTi DALI 35 /220-240/700 LT2 L		
Features:	CEAG Data:	Comment:	Complies: (yes /no)
Control gear suitable for a DC voltage range:	186V - 260V DC (with lead-battery) 186V - 275V DC (with 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.	Necessary for an individual monitoring. $\Delta I < 12,5$ mA per luminaire, with max. 20 luminaires per circuit: $\Delta I \text{ Sum} < 250$ mA	Yes
<u>only for fluorescent lamps:</u> 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
<u>only for fluorescent lamps:</u> Control gear complies with the standard:	DIN EN 61347-2-3 (inkl. Anhang J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	Not relevant
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements	Yes
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 61347-2-13	Particular requirements for DC or AC supplied electronic control gears for LED	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 similar 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 ≤ 16 A per phase)	
Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes - EMC immunity requirements	
Control gear complies with DALI standard VDE 0108 is not a standard for ECG, marking is not applicable	DIN EN 62386-101 /-102 / -207**	Control gear must have the DALI Logo	Yes
Features:	CEAG-Data:	Comment:	Manufacturer's instructions:
<u>Important for function test!</u> 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 ECG.	Ja
<u>Important for DC light output:</u> 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	locked DC [] unlocked DC [x]
<u>Important for lighting design:</u> 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!	Fixed light output level on DALI LED driver in case of a locked DC light output level.	15% on DC, value unlocked
<u>Important for the contact load SKU:</u> 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.	See OTi DALI 35 L - Overview
<u>Important for lighting design:</u> Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC-operation	-	Light output in battery operation of the ballast, for the light calculation.	15%
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 LEDdriver is 100% done via DALI-commands according to IEC 62386-101 /-102, so the DALI LED driver must sign with the DALI logo.			
max. 1 DALI-Driver to wire with V-CG-SB.1			
Stand: 20.Okt.2014			

Hersteller: OSRAM GmbH Marcel-Breuer-Str.6 D-80807 München	Typ / Bezeichnung: EVG-Typ: OTi DALI 35 /220-240/700 LT2 L	
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ECG type	Max. inrush current for ECG AC-operation	Values for load range	I_N in AC-operation (220-240 C)	I_N in DC-operation (176-276 V)	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTi DALI 35/220-240/700 LT2 L	$I_p = 32A$; TH = 100 μs	Maximum load [$I_{out} 700mA$] Minimum load [$I_{out} 200mA$]	180 mA (240V)	40mA (240V)	21 mA [220VAC] 20 mA [240VAC]	22 mA [176VDC] 20 mA [240VDC] 19 mA [276VDC]

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / description: ECG-family: OTI DALI 50/220-240/1A4 LT2 L		
Features	CEAG data:	Comment	Complies
Operating voltage range DC:	DC: 186 V - 275 V at -10 °C	Possible voltage range of the battery in emergency mode (<i>Not necessary for AT-S+ System</i>)	YES
Switching time: from AC to DC from DC to AC	Installation switching times: 180 ms - 450 ms 180 ms - 450 ms	Typical switch over time of CEAG CPS/LPS-devices	YES
starting characteristic controlgear:	Stable current consumption lower after 1,6 s	necessary for selective control $\Delta I < 12,5 \text{ mA}$ per luminaire, at max. 20 luminaires for one current circuit: ΔI in summ $< 250 \text{ mA}$	YES
Fullfilled the standard*:	DIN EN 62384	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	YES
Fullfilled 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 $\leq 16 \text{ A}$ per phase)	YES
Fullfilled the standard*:	DIN EN 61000-3-2, Pkt. 7.3 a.)	is forceful necessary for AT-S+ Systems special for LED drivers!! (sinusoidal current draw)	YES
Fullfilled the standard*:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	YES
LED module fullfills the standard:	DIN EN 62031	LED modules for general lighting — Safety specifications	N/A
*VDE 0108 is not a standard for ECG, marking is not applicable			
Features	CEAG-Data:	Comment:	Manufacturer's instructions:
No load current of the ballast (without tube or with defect tube) in DC-operation	V-CG-S2: $>9,4 \text{ mA}$ oder $>12,7 \text{ mA} = \text{OK}$ V-CG-S: $>16 \text{ mA}$ oder $>47 \text{ mA} = \text{OK}$ V-CG-SE: $>16 \text{ mA}$ oder $>47 \text{ mA} = \text{OK}$ V-CG-SUW: $>47 \text{ mA} = \text{OK}$ CG-K: $>16 \text{ mA}$ oder $>47 \text{ mA} = \text{OK}$	selection aid for monitoring modules also for identification of the max. luminaire quantity per circuit and the required battery capacity. these values are not allowed to be failed below def. limits for the voltagerange of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 50 1A4 LT2 L"
voltage dependent = No load current of the ballast (without or with defect LED module) in DC and AC - operation*:	V-CG-S2: $<5,8 \text{ mA}$ oder $<7,9 \text{ mA} = \text{n.OK}$ V-CG-S: $<10 \text{ mA}$ oder $<28 \text{ mA} = \text{n.OK}$ V-CG-SK: $<10 \text{ mA}$ oder $<28 \text{ mA} = \text{n.OK}$ V-CG-SUW: $<28 \text{ mA} = \text{n.OK}$ CG-K: $<10 \text{ mA}$ oder $<28 \text{ mA} = \text{n.OK}$	selection aid for monitoring modules: these values are not allowed to exceed the def. limits for the voltagerange of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal (See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 50 1A4 LT2 L"
Max. inrush current each converter/luminaire in AC-operation:	Max. permitted inrush current per circuit: SKU 2 x 3A (CG) $\Rightarrow 120 \text{ A}$ SKU 1 x 6A (CG) $\Rightarrow 180 \text{ A}$ SKU 4 x 1,5A CG-S $\Rightarrow 60 \text{ A}$ SKU 2 x 3A CG-S $\Rightarrow 250 \text{ A}$ SKU 1 x 6A CG-S $\Rightarrow 250 \text{ A}$ SOU CG-S // S* $\Rightarrow 250 \text{ A}$ SU S* $\Rightarrow 250 \text{ A}$	Describes the max. inrush current of all ballasts in a circuit, to calculate the maximum contact rating of the circuit.	see "OTi DALI 50 1A4 LT2 L"
Lightoutput in DC-operation at 186 V in comparison to 230 V AC operation	-	In battery operation of the ballast, for the light calculation	
luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting) and DIN EN 62471 classification group 1 (Photobiological safety for lamps and lamp systems) Funktionsüberwachung erfolgt DALI-Seitig über den DALI-Treiber Control of function is done via DALI-Driver Max. 1 DALI- Driver OTI DALI 50 L to wire with 1 V-CG-SB.1 PFC inside OTI DALI 50 L			

Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: ECG-family: OTI DALI 50/220-240/1A4 LT2 L	
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ECG type	Max. inrush current for ECG AC-operation	Lamp type	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTI DALI 50/220-240/1A4 LT2 L	53 A pk, th = 200 μ s	Maximum load Minimum load [Iout 600mA]	164mA 83mA (240V)	154mA 71mA (240V)	36 mA [220VAC] 36 mA [240VAC]	12 mA [176VDC] 8 mA [240VDC] 7 mA [276VDC]
	53 A pk, th = 200 μ s	Maximum load Minimum load [Iout 1400mA]	262mA 158mA (240V)	252mA 147mA (240V)	36 mA [220VAC] 36 mA [240VAC]	12 mA [176VDC] 8 mA [240VDC] 7 mA [276VDC]

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / description: ECG-family: OTI DALI 80/220-240/2A1 LT2 L		
Specifications	CEAG data:	Explanation	Fullfilled (YES/NO)
Operating voltage range DC:	DC: 186 V - 275 V at -10 °C	Possible voltage range of the battery in emergency mode (<i>Not necessary for AT-S+ System</i>)	YES
Switching time: from AC to DC from DC to AC	Installation switching times: 180 ms - 450 ms 180 ms - 450 ms	Typical switch over time of CEAG CPS/LPS-devices	YES
starting characteristic controlgear:	Stable current consumption lower after 1,6 s	necessary for selective control $\Delta I < 12,5$ mA per luminaire, at max. 20 luminaires for one current circuit: ΔI in summ < 250 mA	YES
Fullfilled the standard*:	DIN EN 62384	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	YES
Fullfilled 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 61000-3-2, Pkt. 7.3 a.)	is forceful necessary for AT-S* Systems special for LED drivers!! (sinusoidal current draw)	YES
Fullfilled the standard*:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	YES
LED module fullfills the standard:	DIN EN 62031	LED modules for general lighting — Safety specifications	N/A
*VDE 0108 is not a standard for ECG, marking is not applicable			
Features	CEAG-Data:	Comment:	Manufacturer's instructions:
No load current of the ballast (without tube or with defect tube) in DC-operation	V-CG-SB.1	selection aid for monitoring modules also for identification of the max. luminaire quantity per circuit and the required battery capacity. these values are not allowed to be failed below def. limits for the voltage range of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 80 2A1 LT2"
voltage dependent = No load current of the ballast (without or with defect LED module) in DC and AC - operation*:	V-CG-SB.1	selection aid for monitoring modules: these values are not allowed to exceed the def. limits for the voltage range of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal (See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 80 2A1 LT2"
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.	see "OTi DALI 80 2A1 LT2"
Lightoutput in DC-operation at 186 V in comparison to 230 V AC operation	-	In battery operation of the ballast, for the light calculation	
luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting) and DIN EN 62471 classification group 1 (Photobiological safety for lamps and lamp systems)			
Funktionsüberwachung erfolgt DALI-Seitig über den DALI-Treiber Control of function is done via DALI-Driver			
Max. 1 DALI- Driver OTI DALI 50 L to wire with 1 V-CG-SB.1			
PFC inside OTi DALI 50 L			

Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: ECG-family: OTI DALI 80/220-240/2A1 LT2 L	
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ECG type	Max. inrush current for ECG AC-operation	Lamp type	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTI DALI 80/220-240/2A1 LT2 L	$I_{max} = 53 A$ $T_h = 200 \mu s$	Maximum load Minimum load [out 1000mA]	261mA 119mA (240V)	248mA 105mA (240V)	43 mA [220VAC] 43 mA [240VAC]	13 mA [176VDC] 9 mA [240VDC] 8 mA [276VDC]
	$I_{max} = 53 A$ $T_h = 200 \mu s$	Maximum load Minimum load [out 2100mA]	393mA 225mA (240V)	381mA 214mA (240V)	43 mA [220VAC] 43 mA [240VAC]	13 mA [176VDC] 9 mA [240VDC] 8 mA [276VDC]


Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München		Type / description: ECG-family: OTI DALI 80/220-240/1A6 LT2 L	
Specifications	CEAG data:	Explanation	Fullfilled (YES/NO)
Operating voltage range DC:	DC: 186 V - 275 V at -10 °C	Possible voltage range of the battery in emergency mode (<i>Not necessary for AT-S+ System</i>)	YES
Switching time: from AC to DC from DC to AC	Installation switching times: 180 ms - 450 ms 180 ms - 450 ms	Typical switch over time of CEAG CPS/LPS-devices	YES
starting characteristic controlgear:	Stable current consumption lower after 1,6 s	necessary for selective control $\Delta I < 12,5 \text{ mA}$ per luminaire, at max. 20 luminaires for one current circuit: ΔI in summ $< 250 \text{ mA}$	YES
Fullfilled the standard*:	DIN EN 62384	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	YES
Fullfilled 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 $\leq 16 \text{ A}$ per phase)	YES
Fullfilled the standard*:	DIN EN 61000-3-2, Pkt. 7.3 a.)	is forceful necessary for AT-S* Systems special for LED drivers!! (sinusoidal current draw)	YES
Fullfilled the standard*:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	YES
LED module fullfills the standard:	DIN EN 62031	LED modules for general lighting — Safety specifications	N/A
*VDE 0108 is not a standard for ECG, marking is not applicable			
Features	CEAG-Data:	Comment:	Manufacturer's instructions:
No load current of the ballast (without tube or with defect tube) in DC-operation	V-CG-SB.1	selection aid for monitoring modules also for identification of the max. luminaire quantity per circuit and the required battery capacity. these values are not allowed to be failed below def. limits for the voltage range of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal See DIN EN 61000-3-2, clause 7.3 a.)	see "OTI DALI 80 1A6 LT2 L"
voltage dependent = No load current of the ballast (without or with defect LED module) in DC and AC - operation*:	V-CG-SB.1	selection aid for monitoring modules: these values are not allowed to exceed the def. limits for the voltage range of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal (See DIN EN 61000-3-2, clause 7.3 a.)	see "OTI DALI 80 1A6 LT2 L"
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.	see "OTI DALI 80 1A6 LT2 L"
Lightoutput in DC-operation at 186 V in comparison to 230 V AC operation	-	In battery operation of the ballast, for the light calculation	
<p>luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting) and DIN EN 62471 classification group 1 (Photobiological safety for lamps and lamp systems)</p> <p>Funktionsüberwachung erfolgt DALI-Seitig über den DALI-Treiber Control of function is done via DALI-Driver</p> <p>Max. 1 DALI-Driver OTI DALI 80 L to wire with 1 V-CG-SB.1</p> <p>PFC inside OTI DALI 80 L</p>			

Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: ECG-family: OTI DALI 80/220-240/1A6 LT2 L	
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ECG type	Max. inrush current for ECG AC-operation	Lamp type	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTi DALI 80/220-240/1A6 LT2 L	$I_{max} = 53 A$ $T_h = 200 \mu s$	Maximum load Minimum load [Iout 600mA]	168mA 87mA (240V)	155mA 67mA (240V)	42 mA [220VAC] 43 mA [240VAC]	12 mA [176VDC] 8 mA [240VDC] 7 mA [276VDC]
	$I_{max} = 53 A$ $T_h = 200 \mu s$	Maximum load Minimum load [Iout 1550mA]	380mA 180mA (240V)	367mA 167mA (240V)	42 mA [220VAC] 43 mA [240VAC]	12 mA [176VDC] 8 mA [240VDC] 7 mA [276VDC]

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Hersteller: OSRAM GmbH Marcel-Breuer-Str.6 D-80807 München	Type / Description: Constant current LED controlgear LED controlgear: OTi DALI 60/220-240/550 D LT2 L LED controlgear: OTi DALI 90/220-240/1A0 D LT2 L		
Specifications:	CEAG Data	Explanation:	Fulfilled: (Yes / No)
Control gear suitable for a DC voltage range:	186V - 275V DC	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. $\Delta I < 12,5 \text{ mA}$ per luminaire, with max. 20 luminaires per circuit $\Delta I \text{ sum} < 250 \text{ mA}$	Yes
Control gear complies with the standard:	DIN EN 62384	AC or DC supplied electronic control gear for LED modules - Performance requirements	Yes
Control gear complies with the standard:	DIN EN 61347-2-13 (incl. Attachment J)	Particular requirements for AC or DC supplied electronic control gear for LED modules	Yes
Control gear complies with the standard:	DIN EN 55015 (Measured in AC and DC)	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar 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 $\leq 16 \text{ A}$ per phase)	Yes
Control gear complies with the standard:	DIN EN 61000-3-2, Pkt. 7.3 a.)	Mandatory for control gears for LED modules in combination with AT-S+ Systems! (Current consumption must be sinusoidal.)	Yes
Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes - EMC immunity requirements	Yes
LED module complies with the standard:	DIN EN 62031	LED modules for general lighting - Safety specifications	N/A
The labeling "according to VDE 0108" is not meaningful, because this is not a control gear standard!			
Merkmale:	CEAG-Daten:	Erklärung:	Angabe Hersteller:
Voltage-dependent Input current of the control gear incl. LED in DC and AC operation:	V-CG-SB.1 with DALI lamp failure query	Selection guide for the monitoring modules as well as for the calculation of the max. number of luminaires per circuit and the necessary battery capacity. In the voltage range of 186 - 275V DC and 189 - 264V AC the input current must be higher. The current consumption must be sinusoidal for AT-S+ Systems. See DIN EN 61000-3-2, Pkt. 7.3 a.)	AC: see attachment converter overview list DC:
Voltage-dependent No-load current of the control gear (without or defect LED module) in DC and AC - operation*:	V-CG-SB.1 with DALI lamp failure query	Selection guide for the monitoring modules. In the voltage range of 186 - 275V DC and 189 - 264V AC the no-load current must be lower. The current consumption must be sinusoidal for AT-S+ Systems. See DIN EN 61000-3-2, Pkt. 7.3 a.)	AC: see attachment converter overview list DC:
Max. inrush current of each 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 luminaires in one circuit to calculate the maximum contact load of the circuit	IPK = 25A tHW = 240µs
Luminous flux ratio: 186 V DC operation in comparison to 230 V AC operation	-	Light output in battery operation is needed for the light calculation.	see attachment converter overview list
Luminaires for emergency lighting must comply with DIN EN 60598-2-22 (Particular requirements -Luminaires for emergency lighting) and DIN EN 62471 classification group 1 (Photobiological safety of lamps and lamp systems).			
*The modules of the V-CG-S series monitor the current consumption on the primary side of the control gear for LED modules within the specified limits. Failures of individual LEDs (low-impedance) on the secondary side do not inevitably lead to a modification of current consumption on the primary side, and in such cases cannot be detected as a failure.			
PFC inside; One OTi DALI- Driver to wire with one V-CG-SB.1; OTi DALI 90 Version AA67888			

Stand: 01.07.2012

Hersteller: OSRAM GmbH Marcel-Breuer-Str.6 D-80807 München	Typ / Bezeichnung: LED controlgear: OTi DALI 60/220-240/550 D LT2 L LED controlgear: OTi DALI 90/220-240/1A0 D LT2 L	
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ECG type	Max. inrush current for ECG AC-operation	Values for load range	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTi DALI 60/220-240/550 D LT2 L	IPK = 25 A; tHW = 240 μ s	Maximum load Minimum load [Iout 120mA]	132 mA 59 mA (230V)	27 mA 30 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]
		Maximum load Minimum load [Iout 280mA]	262 mA 98 mA (230V)	43 mA 30 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]
		Maximum load Minimum load [Iout 550mA]	277 mA 154 mA (230V)	48 mA 30 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]
OTi DALI 90/220-240/1A0 D LT2 L	IPK = 25 A; tHW = 240 μ s	Maximum load Minimum load [Iout 280mA]	299 mA 96 mA (230V)	42 mA 16 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]
		Maximum load Minimum load [Iout 600 mA]	393 mA 166 mA (230V)	66 mA 33 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]
		Maximum load Minimum load [Iout 1000 mA]	402 mA 271 mA (230V)	66 mA 48 mA (240V)	31 mA [230VAC]	<10mA [176VDC] <10mA [240VDC] <10mA [276VDC]

Note: When this ECG is operating at DC the output current is reduced to 15% by factory setup. Then I_{OUT} ratio is approx. 15%

Note: Light levels are only under control of the V-CG-SB.1 module if the DC detection is switched off.

Note: Then P_{OUT} is limited to 20 W in case of $T_a < T \leq 70^\circ\text{C}$

Note: For safety luminaires acc. IEC 60598-2-22 POUT shall be limited to 40 W in order to fulfill the requirements

Note: OTi DALI 90 Version AA67888 tested

Information in this document is subject to change without notice

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: OTi DALi 15/220-240/1A0 LT2		
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. $\Delta I < 12,5 \text{ mA}$ per luminaire, with max. 20 luminaires per circuit $\Delta I \text{ sum} < 250 \text{ mA}$	Yes
<u>only for fluorescent lamps:</u> 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
<u>only for fluorescent lamps:</u> 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
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 62384	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	Yes
<u>only for LED:</u> 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 $\leq 16 \text{ A}$ 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:
<u>Important for function test!</u> 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
<u>Important for DC light output:</u> 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 [] Locked DC [X] **)
<u>Important for lighting design:</u> 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%	15% **)
<u>Important for the contact load SKU:</u> 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.	5A / 45µs
<u>Important for lighting design:</u> Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery operation of the ballast, for the light calculation	15% **)

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 lightout level is locked in DC-operation. Factory setting is 15% of the maximum level. It is possible to change the behavior of the controlgear in DC-operation. For this the software DALI magic is needed.

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: 20.Oct.2014

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: Constant current LED controlgear LED controlgear: OTI DALI 25/220-240/700 LT2 LED controlgear: OTI DALI 35/220-240/1A0 LT2		
Features	CEAG data:	Comment	Complies
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 switchover 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 lower after 1,6 s	necessary for individual monitoring $\Delta I < 12,5 \text{ mA}$ per luminaire, at max. 20 luminaires for one current circuit: ΔI in sum $< 250 \text{ mA}$	YES
<u>only for fluorescent lamps:</u> Control gear complies with the standard:	DIN EN 60929	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	N/A
<u>only for fluorescent lamps:</u> 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	N/A
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 62384	DC, Or AC supplied electronic control gear for LED modules - Performance requirements	YES
<u>only for LED:</u> 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
Fulfilled 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
Fulfilled the standard:	DIN EN 61000-3-2	Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current $\leq 16 \text{ A}$ per phase)	YES
Fulfilled the standard:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	YES
Fulfilled the DALI standards:	DIN EN 62386-101 /-102 / -207*	Control gear must have the DALI Logo	YES
*VDE 0108 is not a standard for ECG, marking is not applicable			
Features	CEAG-Data:	Comment:	Manufacturer's instructions:
<u>Important for function test!</u> 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
<u>Important for DC light output:</u> 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 []
<u>Important for lighting design:</u> 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%	15%
<u>Important for the contact load SKU:</u> 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.	IPK = 10A tHW = 100µs
<u>Important for lighting design:</u> Luminous flux ratio: DC-operation at 186 V in comparison to 230 V AC operation	-	Light output In battery operation of the ballast, for the light calculation	15%
<p>Luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting)</p> <p>*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</p> <p>Max. 1 DALI- Driver to wire with 1 V-CG-SB.1</p> <p>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.</p>			

Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: Constant current LED controlgear LED controlgear: OTi DALI 25/220-240/700 LT2 LED controlgear: OTi DALI 35/220-240/1A0 LT2	
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ECG type	Max. inrush current for ECG AC-operation	Lamp type	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTi DALI 25/220-240/700 LT2	IPK = 10 A; tHW = 100 μ s	Maximum load Minimum load [Iout 180mA]	64mA 47mA (240V)	48mA 16mA (240V)	39 mA [220VAC] 39 mA [240VAC]	12 mA [176VDC] 9 mA [240VDC] 7 mA [276VDC]
		Maximum load Minimum load [Iout 700mA]	130mA 65mA (240V)	123mA 49mA (240V)	39 mA [220VAC] 39 mA [240VAC]	12 mA [176VDC] 9 mA [240VDC] 7 mA [276VDC]
OTi DALI 35/220-240/1A0 LT2	IPK = 10 A; tHW = 100 μ s	Maximum load Minimum load [Iout 350mA]	97mA 54 mA (240V)	87mA 31 mA (240V)	40 mA [220VAC] 40 mA [240VAC]	12 mA [176VDC] 9 mA [240VDC] 7 mA [276VDC]
		Maximum load Minimum load [Iout 1050mA]	178mA 98mA (240V)	173mA 40 mA (240V)	40 mA [220VAC] 40 mA [240VAC]	12 mA [176VDC] 9 mA [240VDC] 7 mA [276VDC]


Note: When this ECG is operating at DC the output current is reduced to 15% by default.

Note: Dimming levels are only under control of the V-CG-SB.1 module if the DC detection flag in the ECGs firmware is disabled.

Note: Then P_{OUT} is limited to 20W in case of $T_a < T \leq 70^\circ\text{C}$

Information in this document is subject to change without notice

Requirements for dimmable DALI control gears for fluorescent lamps and LED			Version 0
Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / description: ECG-family: OTI DALI 50/220-240/1A4 LT2 FAN		
Specifications	CEAG data:	Explanation	Fullfilled (YES/NO)
Operating voltage range DC:	DC: 186 V - 275 V at -10 °C	Possible voltage range of the battery in emergency mode (<i>Not necessary for AT-S+ System</i>)	YES
Switching time: from AC to DC from DC to AC	Installation switching times: 180 ms - 450 ms 180 ms - 450 ms	Typical switch over time of CEAG CPS/LPS-devices	YES
starting characteristic controlgear:	Stable current consumption lower after 1,6 s	necessary for selective control $\Delta I < 12,5$ mA per luminaire, at max. 20 luminaires for one current circuit: ΔI in summ < 250 mA	YES
Fullfilled the standard*:	DIN EN 62384	DC. Or AC supplied electronic control gear for LED modules - Performance requirements	YES
Fullfilled 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 61000-3-2, Pkt. 7.3 a.)	is forceful necessary for AT-S+ Systems special for LED drivers!! (sinusoidal current draw)	YES
Fullfilled the standard*:	DIN EN 61547	Equipment for general lighting purposes — EMC immunity requirements	YES
LED module fullfills the standard:	DIN EN 62031	LED modules for general lighting — Safety specifications	N/A
*VDE 0108 is not a standard for ECG, marking is not applicable			
Features	CEAG-Data:	Comment:	Manufacturer's instructions:
No load current of the ballast (without tube or with defect tube) in DC-operation	V-CG-SB.1	selection aid for monitoring modules also for identification of the max. luminaire quantity per circuit and the required battery capacity. these values are not allowed to be failed below def. limits for the voltagerange of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 50 220-240 1A4 LT2 FAN"
voltage dependent = No load current of the ballast (without or with defect LED module) in DC and AC - operation*:	V-CG-SB.1	selection aid for monitoring modules: these values are not allowed to exceed the def. limits for the voltagerange of: 186 - 275V DC und 189 - 264 V AC (for AT-S+ Systems must be the current draw sinusoidal (See DIN EN 61000-3-2, clause 7.3 a.)	see "OTi DALI 50 220-240 1A4 LT2 FAN"
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.	see "OTi DALI 50 220-240 1A4 LT2 FAN"
Lightoutput in DC-operation at 186 V in comparison to 230 V AC operation	-	In battery operation of the ballast, for the light calculation	
<p>luminaires, which are used for emergency lighting, must be according to the standard DIN EN 60598-2-22 (particular requirements - Luminaires for emergency lighting) and DIN EN 62471 classification group 1 (Photobiological safety for lamps and lamp systems)</p> <p>Control of function is done via DALI-Driver In case of defective LED-module, the DALI- Driver OTI DALI 50 22-240 1A4 LT2 FAN has to be switched off via DALI command "0" to prevent possible disturbances of CEAG-communication</p> <p>Max. 1 DALI- Driver OTI DALI 50 L to wire with 1 V-CG-SB.1</p> <p>PFC inside OTI DALI 50 L</p>			

Manufacturer: OSRAM GmbH Marcel-Breuer-Straße 6 80807 München	Type / Description: ECG-family: OTI DALI 50/220-240/1A4 LT2 FAN	
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ECG type	Max. inrush current for ECG AC-operation	Lamp type	I_N in AC-operation	I_N in DC-operation	I_{NoLoad} in AC-operation	I_{NoLoad} in DC-operation
OTi DALI 50 220-240 1A4 LT2 FAN	Ip = 24 A; TH = 190 µs	Maximum load Minimum load [Iout 600mA]	160mA 116 mA (240V)	203 mA 160 mA (240V)	39 mA [220VAC] 36 mA [240VAC]	10 mA [176VDC] 10 mA [240VDC] 9,5 mA [276VDC]
		Maximum load Minimum load [Iout 1400mA]	265 mA 126 mA (240V)	261 mA 174mA (240V)		