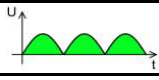


**Technical requirements for electronic control gears for LED and fluorescent luminaires (dimmable or non-dimmable) for operation on INOTEC central battery systems (CPS 220 / CPS FUSION) and emergency power supply systems (NEA)**

**- General requirements -**

|                                                                         |                                             |
|-------------------------------------------------------------------------|---------------------------------------------|
| Manufacturer:<br>LEDVANCE GmbH<br>Parkring 1-5, 85748 Garching, Germany | Type / Description:                         |
|                                                                         | Luminaire:                                  |
|                                                                         | EVG:                                        |
| Project / Place / Project ID:                                           | LED: LED TUBE T8 EM PFM 1500 mm 19.3W/23.1W |
|                                                                         | Specified by:                               |
|                                                                         | Name:                                       |
|                                                                         | Company: LEDVANCE GmbH                      |
| Date:                                                                   |                                             |

| Features |                                                                       | Techn. data / INOTEC requirements                      | Explanation                                                                                                                                                 | Fullfilled (Yes / No)                 |
|----------|-----------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1        | Voltage range AC                                                      | 230V ± 10%                                             | Voltage range in normal mains operation                                                                                                                     | Yes <input type="checkbox"/>          |
| 2        | Voltage range DC                                                      | 186V - 260V                                            | Possible voltage range in emergency operation                                                                                                               | Yes <input type="checkbox"/>          |
| 3        | Control gear suitable for "Joker-Voltage" ?                           | B2-rectification of the AC voltage (without smoothing) | Pulsating DC voltage                                                     | Yes <input type="checkbox"/>          |
| 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 <input type="checkbox"/>          |
| 5        | Starting behavior of the control gear in AC and DC operation          | Stable current consumption within 1.6s                 | Necessary for individual lamp monitoring (SV). The nominal current of the control gear must be reached within this time if the lamp is intact or defective. | Yes <input type="checkbox"/>          |
| 6        | 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 <input type="checkbox"/> |
| 7        | 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 <input type="checkbox"/> |
| 8        | Control gear complies with the standard: (only for LED)               | DIN EN 62384                                           | DC or AC supplied electronic control gear for LED modules - Performance requirements                                                                        | Not relevant <input type="checkbox"/> |
| 9        | 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 <input type="checkbox"/>          |
| 10       | Control gear complies with the standard:                              | DIN EN 55015 (Measurement on AC and DC)                | Limits and methods of measurement of radio interference                                                                                                     | Yes <input type="checkbox"/>          |
| 11       | 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 <input type="checkbox"/>          |
| 12       | Control gear complies with the standard:                              | DIN EN 61547                                           | Equipment for general lighting purposes — EMC immunity requirements                                                                                         | Yes <input type="checkbox"/>          |
| 13       | Control gear complies with the DALI-standards:                        | DIN EN 62386-101 / -102 / -207                         | The control and status information for monitoring the luminaire is provided via DALI commands. The DALI commands must be 100% compatible.                   | No <input type="checkbox"/>           |

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

**Technical requirements for electronic control gears for LED and fluorescent luminaires (dimmable or non-dimmable) for operation on INOTEC central battery systems (CPS 220 / CPS FUSION) and emergency power supply systems (NEA)**  
**- Technical specifications -**

|                                                                         |                                             |
|-------------------------------------------------------------------------|---------------------------------------------|
| Manufacturer:<br>LEDVANCE GmbH<br>Parkring 1-5, 85748 Garching, Germany | Type / Description:                         |
|                                                                         | Luminaire:                                  |
|                                                                         | EVG:                                        |
|                                                                         | LED: LED TUBE T8 EM PFM 1500 mm 19.3W/23.1W |
| Project / Place / Project ID:                                           | Specified by:                               |
|                                                                         | Name:                                       |
|                                                                         | Company: LEDVANCE GmbH                      |
|                                                                         | Date:                                       |

| Features |                                                                                                                                                                                                                 | Explanation                                                                                                                                                                                                                                                                                                                                | Manufacturer spec. |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 14       | Nominal current of the control gear with connected illuminant in <b>AC- operation (230V)</b>                                                                                                                    | Selection guide for the calculation of the max. number of luminaires per circuit                                                                                                                                                                                                                                                           | 110 mA             |
| 15       | Nominal current of the control gear with connected illuminant in <b>DC- operation (186V / 216V / 240V)</b>                                                                                                      | Selection guide for the calculation of the necessary battery capacity and selection guide for determination of the monitoring module to recognise a normal working lamp correctly.                                                                                                                                                         | 122 mA (186V)      |
|          |                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            | 105 mA (216V)      |
|          |                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            | 96 mA (240V)       |
| 16       | Nominal current of the control gear with connected illuminant <b>at set dimming level</b> in <b>DC-operation (186V / 216V / 240V)</b> (for dimmable control gear)                                               | Selection guide for determination of the monitoring module to recognise a normal working lamp correctly.                                                                                                                                                                                                                                   | - mA (186V)        |
|          |                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            | - mA (216V)        |
|          |                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            | - mA (240V)        |
| 17       | Current consumption of the control gear <b>without</b> or with <b>defective</b> illuminant in <b>DC- operation (186V and 240V)</b>                                                                              | Selection guide for determination of the monitoring module to recognise a lamp failure correctly.                                                                                                                                                                                                                                          | <5 mA (186V)       |
|          |                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            | <5 mA (240V)       |
| 18       | Current consumption of the control gear <b>without</b> or with <b>defective</b> illuminant in <b>AC- operation (230V)</b>                                                                                       | Selection guide for determination of the monitoring module to recognise a lamp failure correctly.                                                                                                                                                                                                                                          | <5 mA              |
| 19       | Dimming level in emergency mode (DC or "Joker") (for dimmable control gear, if activated)                                                                                                                       | Important for the safety lighting design                                                                                                                                                                                                                                                                                                   | - %                |
| 20       | DC detection <b>completely</b> deactivable ? (for dimmable control gear)                                                                                                                                        | To ensure correct operation, the control gear should not react to a change of the input voltage (DC or "Joker"). In this case, the INOTEC DALI module (DALI-SV module or FMD 230/DALI) controls the control gear.                                                                                                                          | Not relevant       |
| 21       | Max. inrush current of the control gear with connected illuminant in <b>AC- operation (230V)</b>                                                                                                                | Important for determining the maximum permissible number of luminaires per circuit in order to take account of the maximum contact load capacity of the circuit changeover circuit or monitoring module.                                                                                                                                   | 7.52 A / $\mu$ s   |
| 22       | Use of DALI commands according to IEC 62386 part 102:<br>- DPAC (level)<br>- RECALL MAX LEVEL 0x05<br>- RECALL MIN LEVEL 0x06<br>- QUERY STATUS 0x90<br>- QUERY ACTUAL LEVEL 0xA0<br>- QUERY LAMP POWER ON 0x93 | Control and status information for monitoring the luminaires:<br>- Direct setting of a dimming value<br>- Set maximum level<br>- Set minimum level<br>- Requests status telegram<br>- Requests current dimming value<br>- Requests status whether lamp is switched on<br><b>(after 2 / 2.5 / 3 seconds and cyclically every 3 seconds)</b> | Not relevant       |

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:

For the correctness:

Place, Date

Stand: Apr. 2021

Signature