

## PRODUCT DATASHEET

### OT 90/170...240/1A0 4DIMLT2 E

OT 4DIM IP20 | DALI, AstroDIM, StepDIM, MainsDIM – constant current LED drivers



#### Areas of application

- Street and urban lighting
- Industry
- Suitable for outdoor applications in luminaires with IP > 54
- Suitable for use in outdoor luminaires of protection class I and II

#### Product benefits

- 4DIM functionality in one device (StepDIM, AstroDIM, MainsDIM, DALI)
- Very high efficiency
- High surge protection: up to 10 kV (1 pulse) / 8 kV, in protection class I or II
- Low luminous efficacy tolerance through low output current tolerance of  $\pm 3\%$
- Great flexibility due to wide operating temperature range of  $-40\ldots55\text{ }^{\circ}\text{C}$  or  $60\text{ }^{\circ}\text{C}$
- Protection through double isolation between mains input and LED output

#### Product features

- Available with different wattage: 40 W, 60 W, 90 W, 165 W
- Input voltage: 120...277 V (40 W), 220...240 V (60 W, 90 W, 165 W)
- Current output range: 70...1,050 mA
- Flexible current setting with one additional wire (LEDset2)
- AstroDIM for autonomous dimming with five independent levels (astro, time mode)
- Allows for energy saving in twilight phases
- MainsDIM function for dimming via reduction of line voltage amplitude
- Isolated DALI interface for bidirectional telemanagement systems
- Standby power consumption: < 0.5 W
- Constant Lumen Output (CLO)
- Overtemperature protection via external NTC

## TECHNICAL DATA

### Electrical data

|                                          |                           |
|------------------------------------------|---------------------------|
| Nominal wattage                          | 90.00 W                   |
| Nominal output power                     | 90 W <sup>1)</sup>        |
| Nominal voltage                          | 220...240 V               |
| Nominal output voltage                   | 57...186 V                |
| Input voltage AC                         | 170...264 V <sup>2)</sup> |
| U-OUT (working voltage)                  | 200 V                     |
| Nominal current                          | 0.46 A                    |
| Nominal output current                   | 70...1050 mA              |
| Inrush current                           | 57 A                      |
| Output current tolerance                 | ±3 % <sup>3)</sup>        |
| Output ripple current (100 Hz)           | 15 %                      |
| Mains frequency                          | 50/60 Hz                  |
| Total harmonic distortion                | 10 % <sup>4)</sup>        |
| Power factor $\lambda$                   | 0.95 <sup>5)</sup>        |
| ECG efficiency                           | 91.5 % <sup>6)</sup>      |
| Device power loss                        | 9.6 W <sup>7)</sup>       |
| Max. ECG no. on circuit breaker 10 A (B) | 8 <sup>8)</sup>           |
| Max. ECG no. on circuit breaker 16 A (B) | 12 <sup>8)</sup>          |
| Max. ECG no. on circuit breaker 25 A (B) | 20 <sup>8)</sup>          |
| Surge capability (L/N-Ground)            | 10 kV <sup>9)</sup>       |
| Surge capability (L-N)                   | 6 kV <sup>10)</sup>       |
| Galvanic isolation                       | double/reinforced         |
| Power loss in stand-by mode              | < 0.5 W                   |

1) Partial load 20...90 W / Not dimmed

2) Permitted voltage range

3) Within nominal output current range

4) Max. output power at 230 V<sub>AC</sub>

5) Minimum/Full load at 230 V/Half load at 230 V

6) At full load and 230 V

7) Maximum

8) Type B

9) Single pulse 10kV / 12 Ohm (1.2/50 µs)

10) @ 2 Ohm, acc. to EN61547

### Dimensions & Weight

|        |           |
|--------|-----------|
| Length | 133.00 mm |
|--------|-----------|

|                                      |                                          |
|--------------------------------------|------------------------------------------|
| Mounting hole spacing, length        | 122,5 mm                                 |
| Width                                | 77.00 mm                                 |
| Height                               | 40.00 mm                                 |
| Cable cross-section, input side      | 0,25...2,5 mm <sup>2</sup> <sup>1)</sup> |
| Cable cross-section, output side     | 0,25...1,5 mm <sup>2</sup> <sup>2)</sup> |
| Wire preparation length, input side  | 10...11 mm <sup>3)</sup>                 |
| Wire preparation length, output side | 8.5...9.5 mm                             |
| Product weight                       | 340.00 g                                 |

1) Flexible / Solid leads / Equipotential pole only 0.2...1.5 mm<sup>2</sup>

2) Flexible / Solid leads

3) Equipotential pole 8.5...9.5

### Colors & materials

|                 |       |
|-----------------|-------|
| Casing material | Metal |
| Body material   | Metal |

### Temperatures & operating conditions

|                                          |                        |
|------------------------------------------|------------------------|
| Ambient temperature range                | -40...+55 °C           |
| Maximum temperature at tc test point     | 90 °C <sup>1)</sup>    |
| Max.housing temperature in case of fault | 120 °C                 |
| Permitted rel. humidity during operation | 5...85 % <sup>2)</sup> |

1) Maximum at the T<sub>c</sub>-point

2) Non condensing, absolute humidity: 36g/m<sup>3</sup>

### Lifespan

|              |                       |
|--------------|-----------------------|
| ECG lifetime | 85000 h <sup>1)</sup> |
|--------------|-----------------------|

1) At T<sub>case</sub> = 80°C at T<sub>c</sub> point / 10% failure rate

### Capabilities

|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| Dimmable                               | Yes                                         |
| Dimming interface                      | 4DIM / DALI / StepDIM / AstroDIM / MainsDIM |
| Dimming range                          | 10...100 % <sup>1)</sup>                    |
| Overheating protection                 | Automatic reversible                        |
| Overload protection                    | Automatic reversible                        |
| No-load proof                          | Yes                                         |
| Short-circuit protection               | Automatic reversible                        |
| Max. cable length to lamp/LED module   | 2,0 m                                       |
| Suitable for fixtures with prot. class | I / II                                      |
| Type of connection, output side        | Push terminal                               |

1) For  $\geq 700$  mA nominal output current

## Certificates & Standards

|                           |                                                                                                                                                                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approval marks – approval | CE / ENEC 10 / VDE / VDE-EMC / CQC                                                                                                                                                                                                                         |
| Standards                 | Acc. to EN 61347-1 / Acc. to EN 61347-2-13 / Acc. to EN 62384 /<br>Acc. to EN 55015:2006 + A1:2007 + A2:2009 / Acc. to EN 61547 /<br>Acc. to IEC 61000-3-2 / Acc. to IEC 61000-3-3 / Acc. to IEC 62386-101 / Acc. to IEC 62386-102 / Acc. to IEC 62386-207 |
| Protection class          | II                                                                                                                                                                                                                                                         |
| Type of protection        | IP20                                                                                                                                                                                                                                                       |

## LOGISTICAL DATA

|                              |             |
|------------------------------|-------------|
| Temperature range at storage | -25...80 °C |
|------------------------------|-------------|

## EQUIPMENT / ACCESSORIES

- DALI magic hardware for configuring 4DIM ECGs necessary
- Programmable via Tuner4TRONIC software

## ADDITIONAL PRODUCT INFORMATION

- Default output current is 700 mA without any resistor connected to the LEDset port. As soon as the driver detects one time a resistor value within the resistor range of 2.37 kOhm (1050 mA) and 24.9 kOhm (200 mA) for more than 3 s, the driver activates the LEDset2 mode.
- The driver withstands an input voltage of up to 350 Vac for a maximum of two hours. Shut down of output load might occur in case the supply voltage exceeds the declared input voltage range.
- Shut down of output load happens if the input voltage of the load is below the allowed minimum output voltage of the driver. The driver automatically tries to switch on the load cyclically.
- In case the input voltage of the load exceeds the output voltage range of the driver, it automatically reduces the output current to keep the output voltage controlled to the maximum allowed output voltage.
- The driver automatically reduces the output current in case the maximum allowed output power is exceeded.
- The driver automatically adjusts the output voltage to the maximum output voltage if no load is connected and switches off the load after some seconds. Hot-plug of the load or external switching on the secondary side is not allowed.
- The driver is protected against temporary overheating by automatic reduction of the output current down to 30 % and then switches off.
- The EQUI pin shall be connected to the heat sink of the LED module to improve the surge withstand capability of the system and EMI in critical luminaires.
- Several external NTCs are supported for temperature protection of the LED module or luminaire. The type of NTC can be selected in the programming software in the temperature based mode. By default the resistor based mode is activated with following values: start derating: 6.3 kOhm, end derating 5.0 kOhm, shut off: 4.3 kOhm, derating level 50 %.
- The default dimming mode is StepDIM / AstroDIM / DALI (wiring selection) with following values for: - StepDIM: 100 % on, 50 % dimming level if SD port is active, fade time 180 s- AstroDIM: 100 % on, 50 % dimming level, 6 h dimming duration, start of dimming duration 2 h before the middle of the average switched-on time, fade time 180 s
- The constant lumen feature is disabled by default.
- For MainsDIM dimming mode and for 170 Vac input voltage condition the output power should not exceed 85 % of the maximum declared output power.
- For input voltage of 170...190 Vac, the maximum allowed output power is linear limited starting from 100 % at 190 Vac down to 85 % at 170 Vac, except for the 40 W type.
- If any output level is below the physical min level, the physical min level will be used.
- In case the 3DIM and 4DIMLT2 devices are operated on one common control phase connected to SD input the 3DIM devices needs to have a relay as described in the 3DIM application guide.
- The SD port is suitable for three phase systems with 220...240 Vac, for other input voltages only single phase systems are supported.
- For further details please consult the 4DIMLT2 application guide.

## DOWNLOAD DATA

| Documents and certificates                                                             | Document name                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  PDF   | Declarations of conformity 712567_Declaration of Conformity OT 4 DIM LT2 E                       |
|  PDF   | Declarations of conformity OT 4DIMLT2E CE 3667769 211119                                         |
|  PDF   | Declarations of conformity 607414_Synergrid Conformity 4DIMLT2                                   |
|  PDF   | Declarations of conformity EATON(CEAG)-Conformity declaration AA66408_OT90_170-240_1A0_4DIMLT2_E |
|  PDF   | Declarations of conformity INOTEC- Conformity declaration AA66408_OT90_170-240_1A0_4DIMLT2_E     |
|  PDF   | Certificates VDE ENEC Certificate 40043863 appendix                                              |
|  PDF   | Certificates OT outdoor ENEC 40050684 100220                                                     |
|  PDF  | Certificates VDE EMC Certificate 40038827                                                        |
|  PDF | Certificates 541182_CB certificate 40W 60W 90W 4DIM                                              |
|  PDF | Certificates VDE ENEC Certificate 40043863                                                       |
|  PDF | Certificates OT 4DIM LT2 E CB DE1 63483 060520                                                   |
|  PDF | Certificates 725973_Certificate OT90 4DIM                                                        |

## LOGISTICAL DATA

| Product code  | Packaging unit (Pieces/Unit) | Dimensions (length x width x height) | Gross weight | Volume                |
|---------------|------------------------------|--------------------------------------|--------------|-----------------------|
| 4052899925205 | Unpacked<br>1                |                                      | 340.00 g     |                       |
| 4052899173729 | Shipping box<br>20           | 500 mm x 335 mm x 150 mm             | 7834.00 g    | 25.13 dm <sup>3</sup> |

The mentioned product code describes the smallest quantity unit which can be ordered. One shipping unit can contain one or more single products. When placing an order, for the quantity please enter single or multiples of a shipping unit.

## DISCLAIMER

Subject to change without notice. Errors and omission excepted. Always make sure to use the most recent release.