

## OTi DALI 210/220-240/24 4CH DT6/8 P

24 V DALI Constant Voltage LED driver  
Dimmable range 0/0,1% - 100%

### Benefits

Long lasting and high reliability.  
From 1 to 4 channels to arbitrarily distribute the power.  
Suitable for installation under sunlight.  
Operation in DALI DT6 or DT8 in one device  
IP66/IP67, salt mist resistant and DC functionality.  
AstroDim functionality for automatic turn on/off and dimming.

### Applications

In building facades, luminous signage, public squares and architecture lighting.  
Suitable for indoor and outdoor SELV installation.

### Approvals



ENEC10 VDE, RCM, DALI-2 0.1%...100%

When not printed on product label, they are under evaluation.



Housing material: grey plastic  
\* image for information purpose only

|    |        |                    |
|----|--------|--------------------|
| L  | 330 mm | Total length       |
| L1 | 320 mm | Inter-axis spacing |
| B  | 69 mm  | Width              |
| H  | 37 mm  | Height             |



## Product Features

- 1 to 4 self-configuring DALI channels
- Lamp Failure detection
- Independent (Suitable for Class I luminaires)
- Smart Power Supply
- SELV, Vout: 24,7 V
- Wide ta range -30...+55°C
- Driver with output power range to 210 W
- Overload/Over temperature and Short circuit protection
- $t_c \text{ max} = 80 \text{ }^\circ\text{C}$
- AstroDim functionality
- Dimmable via DALI interface (DT6 or DT8)
- Very low min dimming level: 0,1%
- High level surge protection: up to 6 kV (L-N), 8 kV (L/N-PE)
- Mains voltage: 220–240 Vac / 176–276 VDC
- 50'000 h lifetime at  $t_c \text{ max}^{**}$
- 5 years guarantee\*
- High IP protection (IP66/IP67)
- Output wire length up to 50 m EMI verified

\*10% cumulated failure, \*\* 24 h = 14 h ON 10 h Standby

**Electrical specification**

|                                          | Item                                          | Value          | Unit                                                                           | Remarks                                                                                     |
|------------------------------------------|-----------------------------------------------|----------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| INPUT                                    | Nominal line voltage                          | 220 - 240      | V                                                                              |                                                                                             |
|                                          | Mains line frequency                          | 0 / 50 / 60    | Hz                                                                             | DC operation with external fuse, e.g. <b>Littelfuse 04773.15MXP</b>                         |
|                                          | AC voltage range                              | 198 - 264      | V                                                                              |                                                                                             |
|                                          | DC voltage range                              | 176 – 276      | V                                                                              | DC operation with external fuse only e.g. <b>Littelfuse 04773.15MXP</b>                     |
|                                          | Nominal current                               | 1.05           | A                                                                              | Full load, 230 V <sub>ac</sub> , 50 Hz                                                      |
|                                          | Total Harmonic Distortion (THD)               | < 6            | %                                                                              | Full load, 230 V <sub>ac</sub> , 50 Hz, see graphs                                          |
|                                          | Power factor λ                                | 0.95-0.99      |                                                                                | 0.99 @ Full load, 230 V <sub>ac</sub> , 50 Hz, see graphs                                   |
|                                          | Efficiency in full load (declared value)      | 93             | %                                                                              | Typical, Full load, 230 V <sub>ac</sub> , 50 Hz, see graphs                                 |
|                                          | Device power loss                             | 18.4           | W                                                                              | Full load, 230 Vac, 50 Hz, Typical                                                          |
|                                          | Networked stand-by power (declared value)     | <0,30          | W                                                                              | 230 V <sub>ac</sub> , 50 Hz                                                                 |
|                                          | Protection class                              | I              |                                                                                |                                                                                             |
|                                          | Suitable for fixtures with prot. Class        | I              |                                                                                |                                                                                             |
|                                          | Inrush current                                | 3.7            | A                                                                              | Full Load, 240 V <sub>ac</sub> , Cold Start<br>Duration = 200 μs, 50% / 50% I <sub>pk</sub> |
|                                          | Max. units per circuit breaker:               |                |                                                                                |                                                                                             |
|                                          | Max. ECG no. on circuit breaker 10 A (B)      | 7              |                                                                                |                                                                                             |
|                                          | Max. ECG no. on circuit breaker 16 A (B)      | 11             |                                                                                |                                                                                             |
|                                          | Max. ECG no. on circuit breaker 25 A (B)      | 17             |                                                                                |                                                                                             |
| Max. ECG no. on circuit breaker 10 A (C) | 7                                             |                |                                                                                |                                                                                             |
| Max. ECG no. on circuit breaker 16 A (C) | 11                                            |                |                                                                                |                                                                                             |
| OUTPUT                                   | Nominal voltage                               | 24.7           | V                                                                              |                                                                                             |
|                                          | Voltage accuracy                              | +/- 1,2        | %                                                                              |                                                                                             |
|                                          | Voltage ripple                                | < 5            | %                                                                              | Ripple / average @ 100 Hz; Full load                                                        |
|                                          | Nominal output power                          | 0 – 210        | W                                                                              | Power factor, harmonics and EMI guaranteed between 80 – 210 W                               |
|                                          | Maximum output power (at steady state)        | 210            | W                                                                              | Smart Power to manage up to Pout_max +25%<br>Full load on one channel only is allowed       |
|                                          | Galvanic isolation                            | SELV           |                                                                                |                                                                                             |
| DIMMING                                  | Dimming interface                             | DALI 2.0       |                                                                                | DALI operations are guaranteed to work properly with a min. load of 0.25 W per channel.     |
|                                          | Dimming range                                 | 0,1 – 100      | %                                                                              |                                                                                             |
|                                          | Dimming method                                | PWM            |                                                                                |                                                                                             |
|                                          | PWM frequency                                 | >1             | kHz                                                                            | Typ 1.4 kHz                                                                                 |
|                                          | Galvanic Isolation                            | Basic / Double |                                                                                | Basic DALI to Primary /<br>Double DALI to Secondary                                         |
| ENVIRONMENTAL                            | Ambient temperature range                     | -30...+55      | °C                                                                             |                                                                                             |
|                                          | Max. temperature at t <sub>c</sub> test point | +80            | °C                                                                             | Measured on t <sub>c</sub> point indicated of the prod label, t <sub>a</sub> not exceeded   |
|                                          | Storage temperature range                     | -40...+85      | °C                                                                             |                                                                                             |
|                                          | Permitted rel. humidity during operation      | 5 – 85         | %                                                                              | Not condensing                                                                              |
|                                          | Surge capability (L vs N / LN vs PE)          | 6 / 8          | kV                                                                             | acc to. EN 61547                                                                            |
|                                          | Environmental rating                          | Outdoor        |                                                                                |                                                                                             |
|                                          | IP protection class                           | IP 67, IP 66   |                                                                                |                                                                                             |
|                                          | Mains switching cycles                        | > 10000        | cycles                                                                         | @ t <sub>a</sub> = 25°C                                                                     |
| Expected ECG lifetime                    | 30000                                         | h              | @ t <sub>a</sub> = 55°C, t <sub>c</sub> = 80°C and 10% failure rate, always ON |                                                                                             |

|                   |                                |         |    |                                                                                                        |
|-------------------|--------------------------------|---------|----|--------------------------------------------------------------------------------------------------------|
|                   |                                | 50000   | h  | @ t <sub>a</sub> = 55°C, t <sub>c</sub> = 80°C and 10% failure rate, 14 h ON and 10 h stand-by per day |
|                   | No-load proof                  | Yes     |    | Auto recovery                                                                                          |
|                   | Intended for no-load operation | No      |    |                                                                                                        |
|                   | Overheating protection         | Yes     |    | Auto recovery                                                                                          |
|                   | Overload protection            | Yes     |    | Auto recovery + Smart Power                                                                            |
|                   | Short-circuit protection       | Yes     |    | Auto recovery                                                                                          |
|                   | Type of connection             | Cables  |    |                                                                                                        |
| <b>DIMENSIONS</b> | Height                         | 37      | mm |                                                                                                        |
|                   | Length                         | 330     | mm | Overall including fixing brackets                                                                      |
|                   | Width                          | 69      | mm |                                                                                                        |
|                   | Weight                         | 1310    | g  |                                                                                                        |
|                   | Casing material                | Plastic |    | Light grey / RAL 7035                                                                                  |
|                   | Mounting hole spacing, length  | 320     | mm | On two side                                                                                            |

### Protection

Over temperature, Overload, Short-circuit, Input overvoltage, Output overvoltage. Reversible.

Full load on one channel only is allowed.



|              |                         |                                                            |                 |                                                                                                      |
|--------------|-------------------------|------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------|
| INPUT        | Colour L, N and PE      | Blue, Brown and Green/Yellow                               |                 |                                                                                                      |
|              | Wire cross section      | 1.0                                                        | mm <sup>2</sup> | H05RN-F 3G1.0 mm <sup>2</sup>                                                                        |
|              | Wire preparation length | 90                                                         | mm              | Overall unsheathed                                                                                   |
|              | Wire peeling length     | 10                                                         | mm              |                                                                                                      |
|              | Cable length            | 300                                                        | mm              |                                                                                                      |
| OUTPUT       | Colour LED+ and LED-    | Orange, Blue & and Light Purple / Orange, Black and Purple |                 | 24 V x 2 (Orange)<br>CH1 x 1 (Blue)<br>CH2 x 1 (Light Purple)<br>CH3 x 1 (Black)<br>CH4 x 1 (Purple) |
|              | Wire cross section      | 1.5                                                        | mm <sup>2</sup> | H07RN-F/3x1.5 mm <sup>2</sup>                                                                        |
|              | Wire preparation length | 90                                                         | mm              | Overall unsheathed                                                                                   |
|              | Wire peeling length     | 15                                                         | mm              |                                                                                                      |
|              | Cable length            | 300                                                        | mm              |                                                                                                      |
| DALI DIMMING | Colour DALI cable       | Black and Black                                            |                 |                                                                                                      |
|              | Wire cross section      | 1.0                                                        | mm <sup>2</sup> | H05RN-F/2x1.0 mm <sup>2</sup>                                                                        |
|              | Wire preparation length | 90                                                         | mm              | Overall unsheathed                                                                                   |
|              | Wire peeling length     | 10                                                         | mm              |                                                                                                      |
|              | Cable length            | 300                                                        | mm              |                                                                                                      |

### Led cable length

The cable length from the ECG to the LED module at full load can reach 50 m.

Some combinations of cable length / section don't allow full power output. See below table for reference.

Choose a proper wire section to ensure that the LED module input voltage is at least 23 V.

Example with Pout = 210 W connected to only one channel.

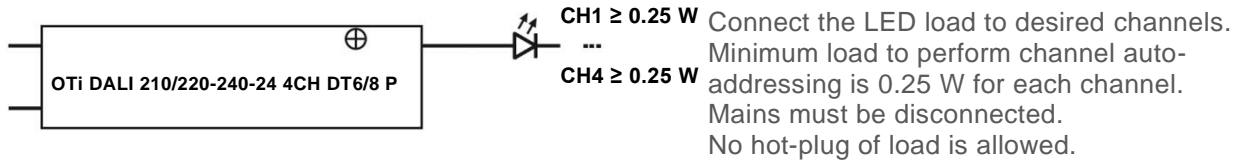
|                                 |      | Cable length [m] 24.7 V |     |     |     |     |     |
|---------------------------------|------|-------------------------|-----|-----|-----|-----|-----|
|                                 |      | 5                       | 10  | 20  | 30  | 40  | 50  |
| Wire section [mm <sup>2</sup> ] | 0,5  | 118                     | 60  | 30  | 20  | 15  | 12  |
|                                 | 0,75 | 178                     | 89  | 45  | 30  | 22  | 18  |
|                                 | 1    | 210                     | 118 | 60  | 40  | 30  | 23  |
|                                 | 1,5  | 210                     | 178 | 89  | 59  | 44  | 36  |
|                                 | 2,5  | 210                     | 210 | 148 | 100 | 74  | 59  |
|                                 | 4    | 210                     | 210 | 210 | 158 | 118 | 95  |
|                                 | 6    | 210                     | 210 | 210 | 210 | 178 | 142 |
|                                 | 10   | 210                     | 210 | 210 | 210 | 210 | 210 |
|                                 | 16   | 210                     | 210 | 210 | 210 | 210 | 210 |

### Channel addressing procedure

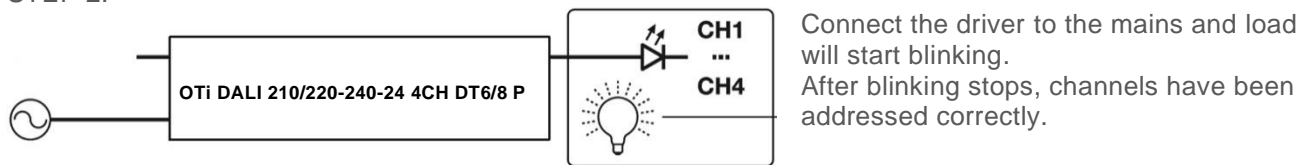
#### AUTO ADDRESSING ON FIRST POWER UP

Driver performs auto channel detection on first power up. No magnet is needed for this operation.

#### STEP 1:

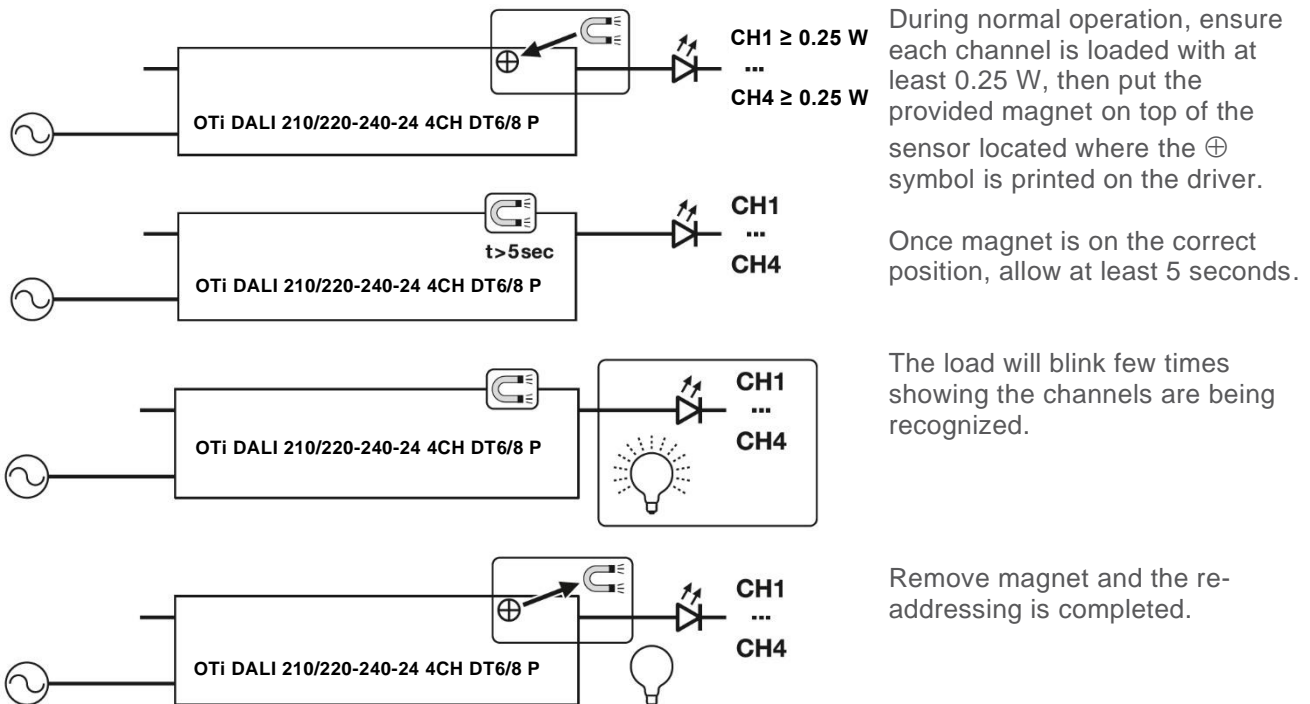


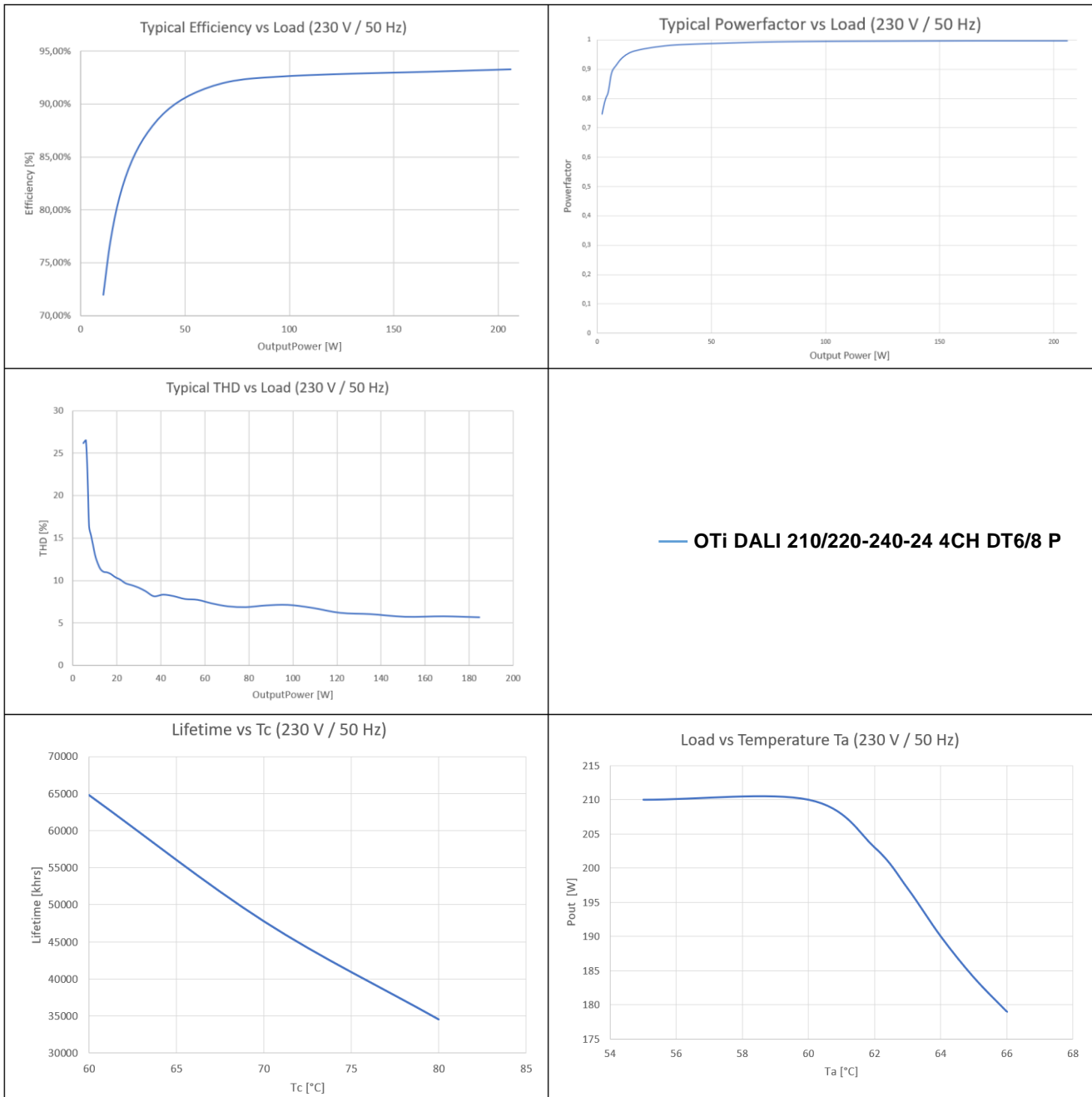
#### STEP 2:



#### ADDRESS ERROR FIXING OR RESET

Next procedure is needed only for re-addressing in case of installation error or reset. Driver must be under operation (not in stand-by).





## Remarks

- **Product performances below minimal load condition:** the output power is still generated if the load is below the minimum output power (80 W on single channel or distributed), without any safety risk, but performances regarding THD, harmonics, EMI, etc. are not guaranteed. See typical operation window graph for details.
- **Output short circuit protection:** short circuit current is limited without damaging the unit. The short circuit protection is self-restoring.
- **Output overload protection:** in case of overload (< 25%), the device automatically dims down the output to keep the power within 210 W and let the LED load to warm-up. When the overload exceeds the 25% of maximum nominal output power, the LED load will blink to manifest a fault condition.
- **Lamp failure detection:** minimum load per channel that doesn't trigger open circuit detection is 0.25 W.
- **No load operation:** do not put a switch between ECG and load.
- Intended for use with LED modules.
- The forward voltage of the LED light source shall be within the defined operating window of the control gear in all operating conditions including dimming if applicable.
- **Over temperature protection:** the driver is protected against temporary overheating, so it automatically dims down when  $t_c$  is exceeded. The protection is self-restoring.
- **Emergency lighting:** this LED power supply is suitable for emergency lighting fixtures acc. to EN 60598-2-22 except those used in high-risk task areas, with emergency output factor  $EOF_p=0,18$  (default  $EOF_p=0.15$ ) and related duration time of 1 h at least. Function in emergency is ensured up to  $t_a=80^\circ\text{C}$ . The DC operation is allowed only adding an external fuse rated for DC.
- **Exit cables:** the supplied, internally wired cables cannot be replaced; if the cord is damaged, the LED driver must be replaced.
- **Waterproof:** the driver is designed for outdoor installation with IP66 / IP67 protection grade. Input and output cables must be connected by means of a sealed cable clamp.
- **Ecodesign regulation information:**  
Intended for use with LED modules. The forward voltage of the LED light source shall be within the defined operating window of the control gear in all operating conditions including dimming if applicable.  
Separate control gear and light sources must be disposed of at certified disposal companies in accordance with Directive 2012/19/EU (WEEE) in the EU and with Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 in the UK. For this purpose, collection points for recycling centres and take-back systems (CRSO) are available from retailers or private disposal companies, which accept separate control gear and light sources free of charge. In this way, raw materials are conserved and materials are recycled.

**Standards**

**Ordering information**

EN 61347-1

EN 61347-2-13

EN 55015

EN 61547

EN 61000-3-2

EN 61000-3-3

EN 60598-1

EN 62384

| Product name                        | EAN 10        | EAN 40        | Pieces / Box | Pieces / Shipping carton |
|-------------------------------------|---------------|---------------|--------------|--------------------------|
| OTi DALI 210/220-240/24 4CH DT6/8 P | 4062172364263 | 4062172364270 | 1            | 6                        |

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OSRAM Digital System is now Inventronics