

# LED FlatPanel Gen. 2 DALI

ULTRA FLAT LIGHT PANEL



## LED FlatPanel Gen. 2 – DALI

### LED Recessed Mounted FlatPanels

The use of state-of-the-art LED technology in conventional office and hall illumination provides a lot of advantages like an optimal light distribution and an increased lifetime all at an affordable price. LED FlatPanels are fully compatible with existing conventional lighting infrastructure, and are the perfect choice for both new and replacement markets.

#### ■ FlatPanel

- With external connected LED DALI driver
- High efficiency of up to 117 lm/W
- Flat design for easy installation in low false ceiling
- High colour rendering index CRI:  $\geq 80$



#### LED FlatPanel

- **LONG SERVICE LIFE TIME: 50,000 h (L70/B50)**
- **WITH SEPARATE DALI DRIVER**
- **ANALOGUE DIMMING**
- **SELECTABLE CURRENT VIA DIP SWITCH**
- **STANDARD AND UGR19 VERSION**
- **5 YEARS GUARANTEE**

## LED FlatPanel Gen. 2 – DALI

### Built-in LED light panel

Dimensions:

- FP2-6060: 595x595x12.5 mm
- FP2-6262: 620x620x12.5 mm
- FP2-12030: 1195x295x12.5 mm

Frame colour: white (RAL 9003)

Light diffuser material: PMMA

Degree of protection: IP40

(casing: IP20, front part: IP40)

Impact rating: IK04

Colour accuracy initially: typ. 3 SDCM

Minimum order quantity: 48 pcs.

### With external LED driver 186763

For mains voltage: 220–240 V, 50–60 Hz

DC operation: 170–280 V, 0 Hz

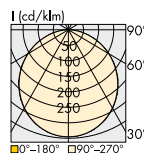
Flicker: < 1%

Power factor: > 0.95

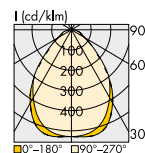
Output current: 300–1050 mA

Dimming range: 1–100%

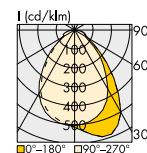
Suitable for central battery system for emergency lighting acc. to EN 50172



Standard



UGR19

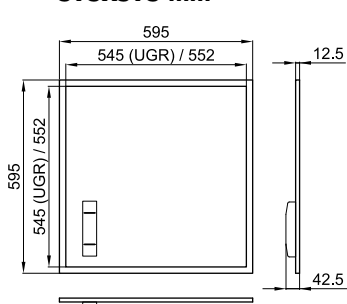


UGR19 – 1195x295

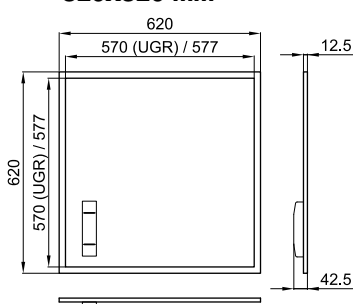
### Applied standards

- EN 60598-1:2015
- EN 60598-2-2:1989
- EN 60598-2-2:2012
- EN 62471:2008
- EN 62493:2010
- EN 55015:2013
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 61547:2009
- IEC 62386 ed. 2 part 102/103/107

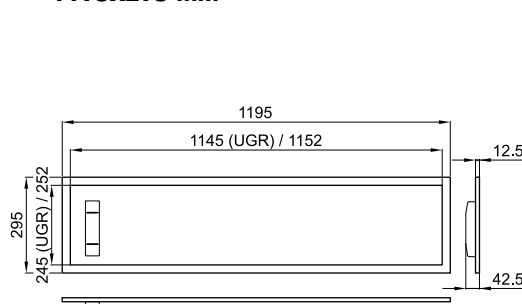
**595x595 mm**



**620x620 mm**



**1195x295 mm**



### Maximum ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the panels.

Values are only for the FlatPanel with LED driver 186763.

Type	Max. operating current mA	Allowed operating temperature = $t_a$		Allowed storage temperature = $t_a$	
		min. °C	max. °C	min. °C	max. °C
All types	1050	-10	40	-20	60

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.



## LED FlatPanel Gen. 2 – DALI

### Standard version – incl. driver

Type	Ref. No. With driver K33.3	Colour	Correlated colour temperature [K]	Power consumption* at 1050 mA W	Typ. luminous flux* and efficiency at 1050 mA		Typ. UGR 4H-8H	Beam angle °	Typ. CRI R <sub>a</sub>
					lm	lm/W			
<b>595x595 mm</b>									
FP2-6060-38-830-DA	<b>568439</b>	warm white	3000	38	4300	116	22	113	80
FP2-6060-38-840-DA	<b>568440</b>	neutral white	4000	38	4300	116	22	113	80
<b>620x620 mm</b>									
FP2-6262-38-830-DA	<b>568442</b>	warm white	3000	38	4400	117	22	113	80
FP2-6262-38-840-DA	<b>568443</b>	neutral white	4000	38	4400	117	22	113	80
<b>1195x295 mm</b>									
FP2-12030-38-830-DA	<b>568445</b>	warm white	3000	38	4100	112	22	113	80
FP2-12030-38-840-DA	<b>568446</b>	neutral white	4000	38	4100	112	22	113	80

\* Production tolerance of luminous flux and power consumption: ±10%

### UGR19 version – incl. driver

Low glare, especially suitable for office illumination

Type	Ref. No. With driver K33.3	Colour	Correlated colour temperature [K]	Power consumption* at 1050 mA W	Typ. luminous flux* and efficiency at 1050 mA		Typ. UGR 4H-8H	Beam angle °	Typ. CRI R <sub>a</sub>
					lm	lm/W			
<b>595x595 mm</b>									
FP2-6060-38-830-U-DA	<b>568448</b>	warm white	3000	38	4000	105	18	84	80
FP2-6060-38-840-U-DA	<b>568449</b>	neutral white	4000	38	4000	105	18	84	80
<b>620x620 mm</b>									
FP2-6262-38-830-U-DA	<b>568451</b>	warm white	3000	38	4200	110	18	84	80
FP2-6262-38-840-U-DA	<b>568452</b>	neutral white	4000	38	4200	110	18	84	80
<b>1195x295 mm</b>									
FP2-12030-38-830-U-DA	<b>568454</b>	warm white	3000	38	3800	100	18	84	80
FP2-12030-38-840-U-DA	<b>568455</b>	neutral white	4000	38	3800	100	18	84	80

\* Production tolerance of luminous flux and power consumption: ±10%

### DIP switch settings

Pout	SEC	1	2	3	4
16 W	300mA	-	-	-	-
18.5 W	350mA	ON	-	-	-
21.5 W	400mA	-	ON	-	-
24 W	450mA	ON	ON	-	-
27 W	500mA	-	-	ON	-
29.5 W	550mA	ON	-	ON	-
32 W	600mA	-	ON	ON	-
35 W	650mA	ON	ON	ON	-
36 W	700mA	-	-	-	ON
38 W	750mA	ON	-	-	ON
38 W	800mA	-	ON	-	ON
38 W	850mA	ON	ON	-	ON
38 W	900mA	-	-	ON	ON
38 W	950mA	ON	-	ON	ON
38 W	1000mA	-	ON	ON	ON
38 W	1050mA	ON	ON	ON	ON

Check dip switch settings before use

### Logistic details

Type	Packaging white			Packaging brown			Minimum order quantity / Pieces per euro pallet
	Dimensions LxVxH (mm)	Pack. unit pcs.	Weight kg	Dimensions LxVxH (mm)	Pack. unit pcs.	Weight kg	
FP2-6060-xx	625x38x680	1	2.8	695x165x645	4	14.8	48
FP2-6262-xx	650x38x705	1	3.2	720x165x670	4	16.2	48
FP2-12030-xx	325x38x1280	1	2.8	345x165x1295	4	15.0	48
Surface mounting frame for FP2-6060-xx	610x62x610	1	2.2	625x335x625	5	12.0	5
Surface mounting frame for FP2-6262-xx	640x62x640	1	2.4	650x335x650	5	12.5	5
Surface mounting frame for FP2-12030-xx	310x62x1220	1	2.6	325x335x1225	5	13.6	5

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## LED FlatPanel Gen. 2 – Accessories

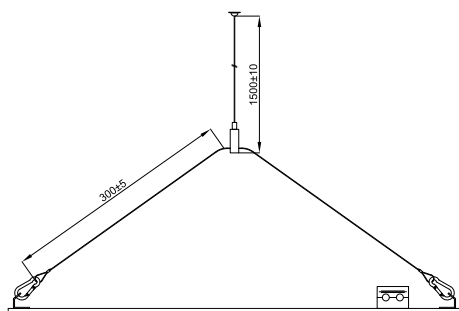
### Assembly kit for suspension version

Consisting of

- 4 fixation brackets, incl. screws
- 6 screws M3, incl. pegs
- 4 steel cables with snap hooks
- 2 steel cables for suspension with adjustment element

Minimum order quantity: 1 pcs.

**Ref. No.: 565559**



### Mounting clips

For ceiling with thickness: max. 20 mm

**Ref. No.: 567818** 4 steel clips

**Ref. No.: 567819** 6 steel clips



### Surface mounting frames

Material: aluminium

Colour: white (RAL 9003)

Magnetic catch

Minimum order quantity: 5 pcs.

Type: 6060

**Ref. No.: 567820** For LED FlatPanel 595x595x60 mm

Type: 6262

**Ref. No.: 567821** For LED FlatPanel 620x620x60 mm

Type: 12030

**Ref. No.: 567822** For LED FlatPanel 1195x295x56 mm



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## LED FlatPanel Gen. 2 – DALI

### Comparison with Compact Fluorescent Lamps



Type	LED	Fluorescent
Service lifetime	50,000 hrs.	10,000 hrs.
FlatPanel Gen. 2	24 W	3 x 18 W or 3 x 14 W
FlatPanel Gen. 2	38 W	4 x 18 W or 4 x 14 W

### Safety and assembly information for LED drivers

#### Safety functions

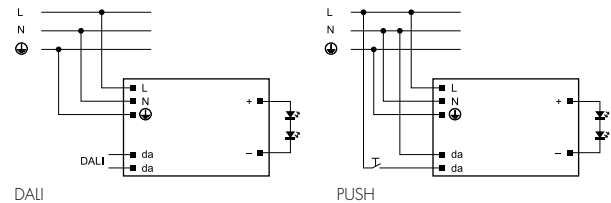
- Transient mains peaks protection: Values are in compliance with EN 61547 (interference immunity). Surges between L-N: up to 2 kV
- Short-circuit protection: The control gear is protected against permanent short-circuit with automatic restart function.
- Overload protection: The control gears have overload protection due to limitation of DC output voltage < 60 V. Please check before switch-on mains power supply that the selected LED load is suitable (see Electrical Characteristics on data sheet).
- Overheating: The control gears have overheating protection. In case of overheating the control gear will shut down. For restart switch of the mains for 1 min. and start again. The temperature reduces the output current of the control gear in the event of overheating.
- No load operation: The control gear is protected against no load operation (open load).
- If any of the above mentioned safety functions will be triggered, disconnect the control gear from the power supply then find and eliminate the cause of the problem.

#### DC and emergency lighting operation

The control gears are suitable for direct voltage operation (DC). Reliable DC operation is guaranteed if the specified working area of LED driver is maintained.

- Light level at DC operation (EOFx): 100 % (not adjustable)
- DC range: 170–280 V
- DC operation: 3 hrs. (acc. to EN 50172)

- Connection terminals: Push-in terminals for rigid or flexible conductors with a section of 0.5–1.5 mm<sup>2</sup>
- Stripped length: 9–10 mm
- Wiring: The mains conductor within the luminaire must be kept short (to reduce the induction of interference). Mains and lamp conductors must be kept separate and if possible should not be laid in parallel to one another. Max. secondary side lead length for independent drivers: 1 m
- Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Parallel connection: At secondary side is not allowed.
- Through-wiring: Is not allowed
- Secondary load: The sum of forward voltages of LED loads is within the tolerances which are mentioned in the Electrical Characteristics on the data sheet.
- Wiring diagram:



**Electrical installation** sheet can change due to technical innovations. Any such changes will be made without separate notification.

## LED FlatPanel Gen. 2 – DALI

### Selection of automatic cut-outs for VS LED drivers

- Dimensioning automatic cut-outs  
High transient currents occur when an LED driver is switched on because the capacitors have to load. Ignition of LED modules occurs almost simultaneously. This also causes a simultaneous high demand for power. These high currents when the system is switched on put a strain on the automatic conductor cut-outs, which must be selected and dimensioned to suit.
- Release reaction  
The release reaction of the automatic conductor cut-outs comply with VDE 0641, part 11, for B, C characteristics. The values shown in the following tables are for guidance purposes only and are subject to system-dependent change.
- No. of LED drivers  
The maximum number of VS LED drivers applies to cases where the devices are switched on simultaneously. Specifications apply to single-pole fuses. The number of permissible drivers must be reduced by 20% for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [2.5 mm<sup>2</sup>] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

Type	Ref. No.	Automatic cut-out type and possible no. of VS drivers pcs.		
<b>Automatic cut-out type B</b>		B 10 A	B 13 A	B 16 A
ECXd 1050.299	<b>186762, 186763</b>	31	40	50
<b>Automatic cut-out type C</b>		C 10 A	C 13 A	C 16 A
ECXd 1050.299	<b>186762, 186763</b>	52	69	85

- To limit capacitive inrush currents of electronic ballasts, LED drivers and LED converters, the current carrying capacity of each circuit breaker (fuse) can be increased by a factor of 2.5 with the help of our ESB-6K (Ref. No.: 149820) or ESB-16HS (Ref. No.: 149821) inrush current limiters.

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## LED FlatPanel Gen. 2 – Safety and Installation Instructions

### General safety and installation Instructions for luminaires

The following instructions must be observed. Non-observance can result in personal injury and damage to property or can damage both luminaires and control gear. In such cases, the manufacturer's warranty as well as liability will be invalidated.

### General Instructions

- Please read these instructions prior to installation/commissioning and keep them safe for future use.
- Any improper use or modification will invalidate the manufacturer's warranty and liability as well as any warranty claims.
- The luminaire contains integrated and non-exchangeable LED light sources. The light source of this luminaire cannot be replaced. When the light source has reached the end of its service life, the entire luminaire must be replaced.
- Care must be taken to ensure the luminaire is operated only using the supplied Vossloh-Schwabe control gear and accessories or using an alternative brand of approved control gear.
- If the luminaire is marked with SELV, only control gear with SELV characteristics may be used.
- Children must be prevented from playing with or near the luminaire.

### Installation and operating instructions

- Installation of this luminaire may be undertaken only by authorised and suitably trained staff in accordance with any country-specific regulations.
- Installation must be carried out only after disconnecting the device from mains voltage, i.e. in a voltage-free state.
- Depending on the site of operation, the degree of protection (IPxx) will have to be observed during installation.
- Please ensure that the correct supply voltage is applied by checking it against the voltage requirements of the luminaire and the driver.
- For the purpose of commissioning, please ensure the correct polarity of the connecting leads. Incorrect polarity can destroy the modules.
- For trouble-free operation, it is important to ensure that the permissible ambient temperature range as stipulated in the datasheet is not exceeded. Exposure to sunlight can increase the ambient temperature.
- Only ever operate the luminaire with all protective covers in place.
- Given functional problems, please contact your Vossloh-Schwabe representative. Should the power supply cable be damaged, please scrap the luminaire and/or contact your VS representative.
- On contact with moisture or condensation, any resulting corrosive damage will not be recognised as a product flaw or manufacturer's defect.
- Connecting luminaires (LED modules) to supply units that are already connected to the mains can result in long-term damage. Secondary switching is not permissible.
- Touchable luminaire parts can reach high temperatures (risk of burning/injury.)
- Highly flammable materials (e.g. cladding or insulation material) must be kept away from the luminaire.

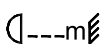



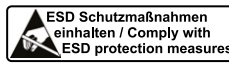

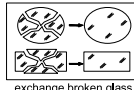
- Please ensure protective ESD (electrostatic discharge) measures are taken when handling and installing the luminaire – see VS "ESD Protection" application notes.
- Measurement tolerances:
  - Luminous flux:  $\pm 10\%$
  - Power consumption / voltage:  $\pm 10\%$
  - Colour: max. 5 SDCM
- For square FlatPanels, light input is effected via two sides. But for the FlatPanel 12030 light input occurs only via one of the sides. The LEC PCB is located on the plug side.

### Cleaning instructions

- Depending on the conditions on site, the luminaire must be cleaned on a regular basis.
- Never use any flammable, abrasive, harsh or corrosive cleaning liquids.
- Prior to cleaning the luminaire, please ensure it is disconnected from the mains and is given time to cool down.
- Once it has cooled down, the luminaire can be cleaned with a damp cloth.
- Let the luminaire dry fully before switching it back on.

Answers to technical questions can be found on our website at [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com) or ask your Vossloh-Schwabe representative.

### Safety symbols

-  Specifies the minimum clearance to flammable materials in the direction of radiation.
-  Indoor operation
-  Please ensure that the way the luminaire is positioned means there is no reason to expect anyone could look into it for a longer period of time with less clearance than stated in the datasheet.
-  Caution: risk of electric shock.
-  Caution: components with a risk of electrostatic charge.
-  Luminaire/voltage supply unit must not be covered with any thermally insulating materials or similar.
-  Any cover with damage must be replaced.

### Product guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage ([www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)). We will be happy to send you these conditions upon request.

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