

Lighting food. Brightening faces.

Philips Affinium LED freezer modules Value-plus LFM300 for full-height glass-door freezer cabinets

Affinium LED freezer modules Value-plus LFM300 are designed to replace traditional tubular fluorescent lamps inside vertical full-height glass-door freezer cabinets. The modules include the latest technology LEDs and are driven by a Philips LED power driver of 100 W, 24VDC.

The new Value-plus LFM300 modules offer the following key benefits:

- An excellent Total Cost of Ownership with attractive payback times.
- A much better visual impression of both the merchandise on display as well as the entire freezer.
- Significantly improved sustainability due to lower energy consumption, reduced waste, and elimination of hazardous substances, such as mercury and lead.

Affinium LED freezer lighting

To install Affinium LED freezer lighting we have designed a total system that includes Affinium LED freezer modules Value-plus LFM300, Philips LED power drivers 100 W 24 VDC and mounting sets.

About Affinium LED freezer modules Value-plus LFM300

The LED freezer module Value-plus LFM300 is suitable for full-height glass-door freezers and available in 1500 and 1700 mm lengths.

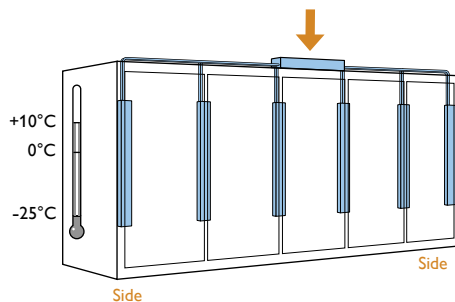
Every dimension is available in two versions:

- a center module
- a side module

The side module can be placed on either side of the freezer, which gives you the freedom to connect the wire of the module to the driver on top or at the bottom of the freezer.

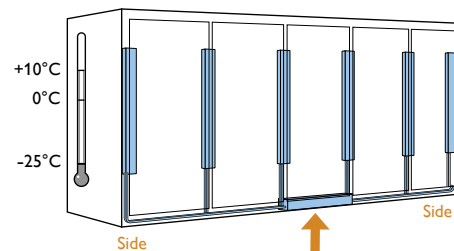
Connections at the top of the freezer

If the electrical connections are made at the top of the freezer, please install the side modules at the left and at the right side of the freezer.



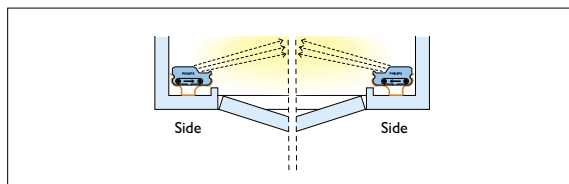
Connections at the bottom of the freezer

If the electrical connections are made at the bottom of the freezer, please install the side modules at the left and at the right side of the freezer.

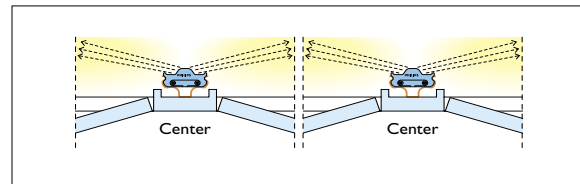


Correct installation?

Verification of the installation can be done by checking the light distribution.



Light distribution of side modules



Light distribution of center modules

Color temperature

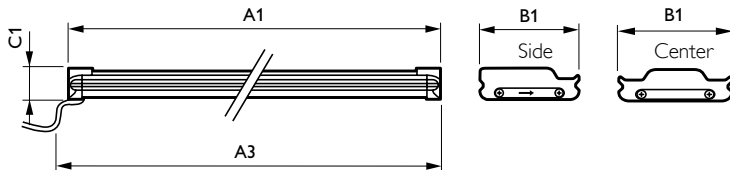
LED freezer modules Value-plus CW cool white have a correlated color temperature (CCT) of $5600 \pm 650\text{K}$.

LED freezer modules Value-plus NW neutral white have a correlated color temperature (CCT) of $4100 \pm 350\text{K}$.

The optical design of Philips Affinium LED freezer modules Value-plus ensures that the adjacent LEDs in one module are optimally mixed in order to minimize color differences.

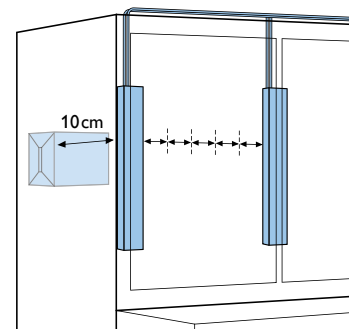
Dimensions

| Affinium LED freezer modules Value-plus | Dimensions (mm) | | | |
|---|-----------------|------|----|----|
| | A1 | A3 | B1 | C1 |
| Value-plus LFM300 1500mm (59") center modules | 1500 | 1510 | 56 | 24 |
| Value-plus LFM300 1500mm (59") side modules | 1500 | 1510 | 49 | 24 |
| Value-plus LFM300 1700mm (67") center modules | 1700 | 1710 | 56 | 24 |
| Value-plus LFM300 1700mm (67") side modules | 1700 | 1710 | 49 | 24 |



Lighting levels and energy savings

We supply this Affinium LED freezer module Value-plus with a typically 1000 lux lighting level when applied in full-height glass-door freezers. The two main factors influencing the lux level are the ambient lighting in the store and the type of freezer case. Affinium LED freezer modules Value-plus can save up to 70% energy compared to traditional fluorescent lighting. To find out what this means for your store, we will be happy to visit you and propose the optimal solution for your needs. Based on this proposal we can then prepare a test set-up in order to measure the actual lux levels on the spot and calculate the potential savings.



Measurement method

Using a CCD camera, we measure the lighting levels inside an operational freezer (-20°C) as the average of two modules installed at five evenly distributed horizontal positions in the center of the freezer, with a distance of 10 cm between the back of the module and the front of the merchandise. The values for nominal power and lighting levels can vary. More details on the measuring method are available from your local Philips sales office.

Affinium LED freezer modules Value-plus, 1500 mm length

| Type | Light color | Power nominal W | Color temperature K | Color rendering index CRI |
|--|---------------|--------------------|------------------------|------------------------------|
| Value-plus LFM300 1500mm (59") center CW | cool white | 24 | 4950-6250 | 70 |
| Value-plus LFM300 1500mm (59") side CW | cool white | 15 | 4950-6250 | 70 |
| Value-plus LFM300 1500mm (59") center NW | neutral white | 24 | 3750-4450 | 75 |
| Value-plus LFM300 1500mm (59") side NW | neutral white | 15 | 3750-4450 | 75 |

(continuation specification modules)

Affinium LED freezer modules Value-plus, 1700 mm length

| Type | Light color | Power nominal W | Color temperature K | Color rendering index CRI |
|--|---------------|--------------------|------------------------|------------------------------|
| Value-plus LFM300 1700mm (67") center CW | cool white | 29 | 4950-6250 | 70 |
| Value-plus LFM300 1700mm (67") side CW | cool white | 19 | 4950-6250 | 70 |
| Value-plus LFM300 1700mm (67") center NW | neutral white | 29 | 3750-4450 | 75 |
| Value-plus LFM300 1700mm (67") side NW | neutral white | 19 | 3750-4450 | 75 |

Lifetime

The lifetime of the modules is rated at 50 000 hours (70% lumen maintenance).

Temperature

| | | |
|--|------------------------|-----------------------|
| Operating temperature (performances): | $T_{\text{operating}}$ | min -30°C / max +10°C |
| Safety temperature (operating, no defects) | T_{safety} | min -30°C / max +30°C |
| Storage temperature | T_{storage} | min -30°C / max +60°C |

Housing color

Aluminium.

Enhanced safety

Due to the use of Safety Extra Low Voltage (SELV) operating voltages, safety is ensured even if wiring or units become damaged (only when a SELV rated power supply is used).

Compliances and approvals

Philips Affinium LED freezer modules Value-plus comply with all the applicable legislation, such as RoHS (Restriction of Hazardous Substances) and WEEE (Waste Electrical and Electronic Equipment). This means all components used are lead-free and soldered in a lead-free soldering process (EU directive 2002/95/EC).

- ENEC
- CE
- Product safety, class III
- RoHS compliant
- WEEE
- EU directive 2002/95/EC

About the mounting sets and LED power driver

Easy installation with side and center mounting sets

For easy installation we supply mounting sets which enable the modules to be fixed in the freezer mullions. Each set consists of two brackets and one stopper.

You can install two brackets, above and below the mullion and after that click the module into the brackets. The stopper at the bottom of the module fixes the module in place, preventing it from sliding down.

There are center and side brackets available for center and side modules, both in a high and low version.

The stopper is universal and can be used for both the side and center version.

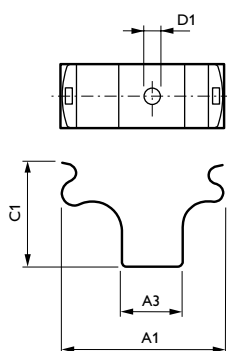


To install a Value-plus LFM300 center module you need a center mounting set: two center brackets and one stopper (available in a high and low version)

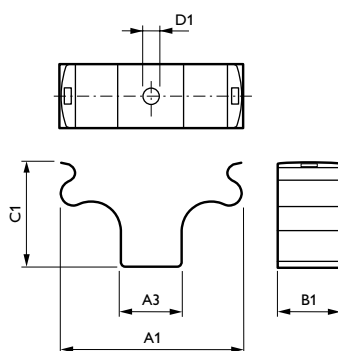


For the side modules you need a side mounting set: two side brackets and one stopper (available in a high and low version)

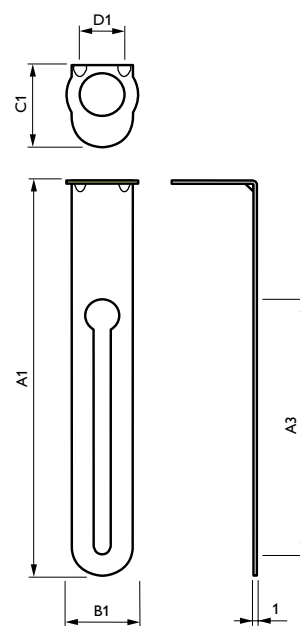
| Mounting brackets and stopper | Dimensions (mm) | | | | |
|---|-----------------|----|----|------|-----|
| | A1 | A3 | B1 | C1 | D1 |
| Mounting bracket for center module (Low) | ±57.5 | 20 | 20 | 20 | 5.5 |
| Mounting bracket for side module (Low) | ±50.5 | 20 | 20 | 20 | 5.5 |
| Mounting bracket for center module (High) | ±57.5 | 20 | 20 | 33.6 | 5.5 |
| Mounting bracket for side module (High) | ±50.5 | 20 | 20 | 33.6 | 5.5 |
| Stopper | 110 | 70 | 18 | 25 | 13 |



Bracket for side module (high and low)



Bracket for center module (high and low)



Stopper for all modules

LED power driver

Philips Affinium LED freezer modules Value-plus are only suitable for connection to a circuit from a class 2 power source with energy limited supply. Philips has developed a LED power driver which perfectly meets all conditions for powering the Affinium LED freezer modules Value-plus.

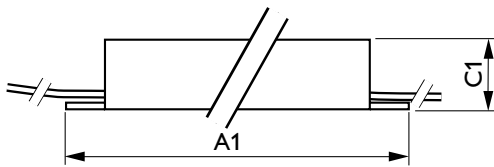
To allow for variance in the installation, loading of the power driver beyond 80% of its rated maximum power is not recommended.

Please refer to the wiring diagram in the installation guide for more details.

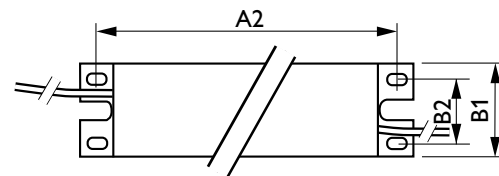


LED power driver 100W, 24VDC

| LED power driver | Dimensions (mm) | | | | |
|-----------------------------|-----------------|-------|------|------|------|
| | A1 | A3 | B1 | B2 | C1 |
| LED power driver 100 W-24 V | 241.3 | 228.6 | 43.1 | 26.6 | 30.0 |



LED power driver (side view)



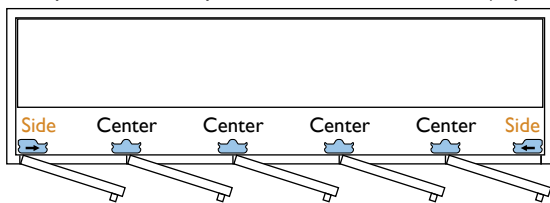
LED power driver (top view)

Installation

Philips Affinium LED freezer modules Value-plus, power drivers and accessories must be installed by a professional electrician in accordance with the relevant electrical codes. Please note that the driver(s) are not designed for independent operation and as such should be built in. Once the module has been properly installed, there is no need for maintenance by store personnel apart from occasional cleaning.

Further installation details can be found in the "Installation guide for Philips Affinium LED freezer modules Value-plus LFM300".

Example of modules placed in a five door freezer (top view)



Number of Philips LED power drivers 100 W 24VDC needed for full height glass-door freezers

| Modules | Light color | Number of doors | | | | |
|--------------------------|---------------|-----------------|---|---|---|---|
| | | 2 | 3 | 4 | 5 | 6 |
| 1500mm 59" (15 and 24 W) | Cool white | 1 | 1 | 2 | 2 | 3 |
| 1500mm 59" (15 and 24 W) | Neutral white | 1 | 1 | 2 | 2 | 3 |
| 1700mm 67" (19 and 29 W) | Cool white | 1 | 2 | 3 | 3 | 4 |
| 1700mm 67" (19 and 29 W) | Neutral white | 1 | 2 | 3 | 3 | 4 |

Ordering details

Affinium LED freezer modules Value-plus LFM300, 1500 mm length

| Type | Light color | Quantity per box | Ordering code EOC |
|--|---------------|------------------|-------------------|
| | | | 87279008 |
| Value-plus LFM300 1500mm (59") center CW | cool white | 1 | 40261 00 |
| Value-plus LFM300 1500mm (59") side CW | cool white | 1 | 40278 00 |
| Value-plus LFM300 1500mm (59") center NW | neutral white | 1 | 40223 00 |
| Value-plus LFM300 1500mm (59") side NW | neutral white | 1 | 40230 00 |

Affinium LED freezer modules Value-plus LFM300, 1700 mm length

| Type | Light color | Quantity per box | Ordering code EOC |
|--|---------------|------------------|-------------------|
| | | | 87279008 |
| Value-plus LFM300 1700mm (67") center CW | cool white | 1 | 40308 00 |
| Value-plus LFM300 1700mm (67") side CW | cool white | 1 | 40315 00 |
| Value-plus LFM300 1700mm (67") center NW | neutral white | 1 | 40247 00 |
| Value-plus LFM300 1700mm (67") side NW | neutral white | 1 | 40254 00 |

Accessories

| Type | Quantity per set=12 NC* | Minimum order quantity | Ordering code EOC | Ordering code EOC |
|--|--------------------------|------------------------|-------------------|-------------------|
| | | | 87115597 | 87279008 |
| LFM20x/21x/30x/31x center mount set Low | 2 brackets and 1 stopper | per box incl. 20 sets | 65723 30 | |
| LFM20x/21x/30x/31x side mount set Low | 2 brackets and 1 stopper | per box incl. 20 sets | 65747 30 | |
| LFM20x/21x/30x/31x center mount set High | 2 brackets and 1 stopper | per box incl. 20 sets | 65761 30 | |
| LFM20x/21x/30x/31x side mount set High | 2 brackets and 1 stopper | per box incl. 20 sets | 65785 30 | |
| LS SB Connector | 100 | per box 100 pieces | | 54794 00 |
| LS SB Connector tool** | 1 | 1 | | 54800 00 |

ES cap Available from supplier Tyco at www.tyco.com

* Every 20 sets of mounting sets are delivered in one cardboard box. Mounting sets cannot be ordered individually.

** The LS SB Connector tool can be used for multiple installations (not disposable).

LED power driver

| Type | Quantity per packing | Ordering code EOC |
|-----------------------------|----------------------|-------------------|
| | | 87115009 |
| LED Power Driver 100 W-24 V | 10 | 11964 30 |

Packaging details

Affinium LED freezer modules Value-plus LFM300

| Single packaging dimensions | Quantity per box | Dimensions (mm) | | | Weight gross kg |
|---|------------------|-----------------|----|----|-----------------|
| | | l | w | h | |
| Value-plus LFM300 1500mm (59") center modules | 1 | 1550 | 75 | 40 | 1.6 |
| Value-plus LFM300 1500mm (59") side modules | 1 | 1550 | 75 | 40 | 1.5 |
| Value-plus LFM300 1700mm (67") center modules | 1 | 1750 | 75 | 40 | 1.8 |
| Value-plus LFM300 1700mm (67") side modules | 1 | 1750 | 75 | 40 | 1.7 |

| Pallet information | Quantity per pallet | Dimensions pallet (mm) | | | Stacking pattern (mm) | | |
|--|---------------------|------------------------|-----|-----|-----------------------|-----|-----|
| | | l | w | h | l | w | h |
| Value-plus LFM300 1500mm (59") all modules | 200 | 1550 | 800 | 150 | 1550 | 750 | 950 |
| Value-plus LFM300 1700mm (67") all modules | 200 | 1750 | 800 | 150 | 1750 | 750 | 950 |

Accessories

| Single packaging dimensions | Quantity per box | Dimensions (mm) | | | Weight gross kg |
|---|------------------------------------|-----------------|-----|-----|-----------------|
| | | l | w | h | |
| LFM20x/21x/30x/31x center mount set (low or high) | 20 sets (40 brackets, 20 stoppers) | 200 | 156 | 100 | 0.9 |
| LFM20x/21x/30x/31x side mount set (low or high) | 20 sets (40 brackets, 20 stoppers) | 200 | 156 | 100 | 0.9 |

| Pallet information | Quantity per pallet | Dimensions pallet (mm) | | | Stacking pattern (mm) | | |
|---|------------------------|------------------------|-----|-----|-----------------------|-----|-----|
| | | l | w | h | l | w | h |
| LFM20x/21x/30x/31x center mount set (low or high) | 240 boxes (=4800 sets) | 1200 | 800 | 150 | 1200 | 800 | 950 |
| LFM20x/21x/30x/31x side mount set (low or high) | 240 boxes (=4800 sets) | 1200 | 800 | 150 | 1200 | 800 | 950 |

LED power driver

| Single packaging dimensions | Quantity per box | Dimensions (mm) | | | Weight gross kg |
|-----------------------------|------------------|-----------------|-----|----|-----------------|
| | | l | w | h | |
| LED Power Driver 100W-24V | 10 | 300 | 299 | 89 | 6,6 |

| Pallet information | Quantity per pallet | Dimensions pallet (mm) | | | Stacking pattern (mm) | | |
|---------------------------|---------------------|------------------------|-----|-----|-----------------------|-----|-----|
| | | l | w | h | l | w | h |
| LED Power Driver 100W-24V | 3240 | 1200 | 820 | 125 | 900 | 598 | 801 |

* Please contact your Philips representative for the most up-to-date range.



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