

LED MODULES READYLINE DL

BUILT-IN MODULE



LED MODULES READYLINE DOWNLIGHT DL

WU-M-498

Typical Applications

- Downlights
- Replacement for CFL

LED Modules ReadyLine DL

- **DIRECT MAINS CONNECTION**
- **REDUCED FLICKER**
- **HIGH POWER FACTOR**
- **HIGHLY EFFICIENT**
- **APPROVED TO EUROPEAN STANDARDS**



LED Modules ReadyLine DL

Technical Notes

- LED built-in module for integration into luminaires
- AC operation at 230 V
- Power factor: > 0.9
- Dimensions: Ø 164 mm



Electrical Characteristics

at $t_a = 25\text{ °C}$

Type	Supply voltage AC $U_{typ.} / U_{operation}$ V	Operation frequency Hz	Power consumption at 230 V		Power factor
			typ. W	max. W	
WU-M-498	220-240	50/60	20	25	> 0.9

Maximum Ratings

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

Type	Operation voltage range (AC)		Operation temperature range at t_c point		Ambient temperature range		Storage temperature range	
	$U_{min.}$	$U_{max.}$	$^{\circ}\text{C min.}$	$^{\circ}\text{C max.}$	$^{\circ}\text{C min.}$	$^{\circ}\text{C max.}$	$^{\circ}\text{C min.}$	$^{\circ}\text{C max.}$
WU-M-498	220	240	-25	80	-25	65	-40	+125

Optical Characteristics

at $t_a = 25\text{ °C}$; $t_p = 65\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux* and efficiency at 230 V		Typ. beam angle $^{\circ}$	Typ. CRI $^{\circ}\text{Ra}$	Energy efficiency
				lm	lm/W			
WU-M-498-830	557252	warm white	3000	2000	100	120	80	A+
WU-M-498-840	557253	neutral white	4000	2200	110	120	80	A++
WU-M-498-850	557254	cool white	5000	2500	125	120	80	A++

* Production tolerance of luminous flux and efficiency: $\pm 15\%$

Minimum order quantity: 36 pcs.

Operating Life

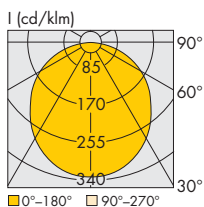
55,000 hrs L70/B50

$t_c = 80\text{ °C}$

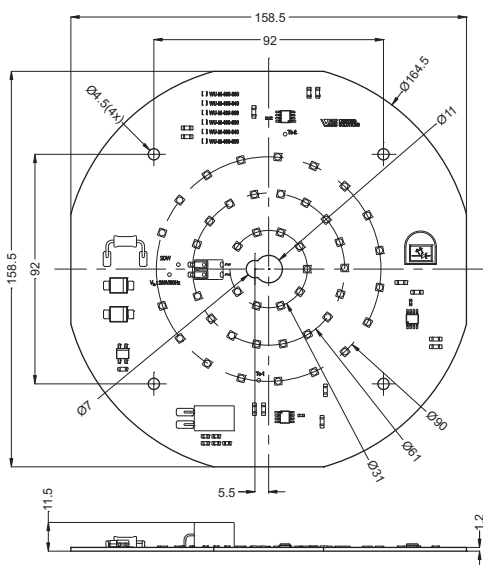
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

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Typical Light Distribution Curve



Mechanical Dimensions



Assembly and Safety Information

The LED modules are designed for direct mains operation (230 V AC). Installation must be carried out under observation country specific relevant safety regulations and standards.

- The LED module is a built-in lighting module to assemble into luminaires.



Operation of the LED module is not allowed when it is not built-in into a luminaire. Depending on application, luminaire application specific safety standards have to be observed (e.g. EN 60598 for Europe). Depending on the use of the luminaire in different countries (export), the country specific safety standards have to be regarded (e.g. EN 60598 for Europe).

- Regard to sufficient isolation acc. country specific standards.
- Live parts must not be touched. Luminaire must be closed acc. country specific standards. Danger of life!!!



- Installation by qualified electrician only
- Do not add or change wires while circuit is active
- Do not make modifications on module
- Do not use adhesives to attach that outgas organic vapour
- Do not use together with material containing sulfur
- Do not operate module with AC generators
- Do not operate modules by DC
- LED modules must not be subjected to any undue mechanical stress, e. g.: LED module
 - handle modules carefully
 - avoid shear and compressive forces onto the modules during handling and installation
 - avoid vibrations of more than 2 kHz, 40 G

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Assembly and Safety Information

- Clearance and creepage distances of the module are designed for class II luminaires (reinforced insulation). The pre-cut fixing holes have to be used for fixation.
- Do not exceed values given in this specification.
- Do not exceed max t_c temperature of 80 °C.
- The module must be fixed onto a thermally conductive surface. Heat sink must cover the entire backside surface of the module. For built-in of the module the required standards have to be observed (e.g. EN 60598).
- When installing/screwing the module into a luminaire, please ensure that cables are not squeezed between luminaire/heat-sink and LED module.
- Please ensure standard ESD (electrostatic discharge) protection measures are employed when handling and installing LED modules. Electrostatic discharge can damage LEDs.
- The LED modules are connected via two on-board push-in connectors for rigid or tinned conductors.
Conductor section:
 - tinned: 0.25-0.75 mm²
 - rigid: 0.5-0.75 mm²Strip length: 6.5-8.0 mm
The contacts can be released with a flat-headed screwdriver with a width of 3 mm.
- Parallel connection is mandatory for safe electrical operation. Serial connection of LED modules is not allowed.
- Due to the used electronic parts on the module not all available phase-cutting dimmers are compatible.
- To ensure problem-free operation, the specified maximum temperature at the t_p point (see "Operating Life") must be observed (measured in accordance with EN 60598-1). To satisfy this point, it is necessary to put measures in place to ensure any heat is dissipated from the LED module to the environment.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering. Relevant country and application specific standards have to be regarded.

- If module is used in rooms with fast moving parts as the light modulation might cause stroboscopic effects.
- This LED module might interfere with displays and cameras due to modulation.
- The photobiological safety of the LED modules is classified into risk groups in accordance with EN 62471: 2008 and IEC TR 62778: risk group 1

Applied Standards

EN 62031

LED modules for general lighting – Safety specifications



EN 62471

Photobiological safety of lamps and lamp systems

EN 55015

Radio disturbance emissions

EN 61000-3-2

Limits for harmonic emissions

EN 61547

Immunity requirements

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