

LED MODULES READYLINE R

BUILT-IN MODULE



LED-MODULE READYLINE R

RL-R-165-12 / RL-R-165-18 / RL-R-220-24

The ReadyLine R is the perfect LED module for wall and ceiling luminaires with a round design.

The flat shape with mounting brackets and optics offer a safe solution for an easy replacement in open luminaires.

Typical Applications

For built-in into

- Wall luminaires
- Corridor luminaires
- Replacement for CFL



LED Modules ReadyLine R

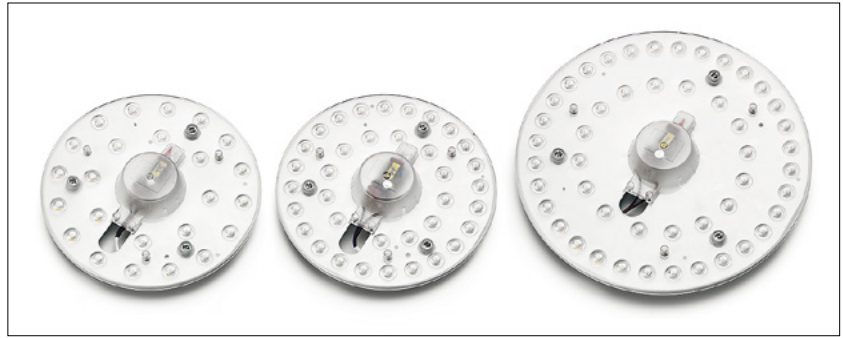
- **DIRECT MAINS CONNECTION**
- **100 % INSTANT LIGHT**
- **SYSTEM SOLUTION WITH DRIVER-ON-BOARD**
- **OPTICS PROTECTION COVER FOR A SAFE LUMINAIRE WITH OPTIMUM LIGHT DISTRIBUTION**
- **EASY MOUNTING WITH FIXING MAGNETS**
- **ENEC AND DEKRA APPROVED**



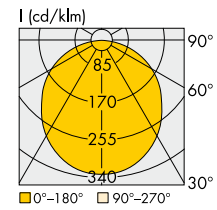
LED Modules ReadyLine R

Technical Notes

- LED built-in module for integration into luminaires
- AC operation at 230 V
- Dimensions
RL-R-165: Ø 165x25 mm
RL-R-220: Ø 220x25 mm
- Optics material: PC
- PCB material: aluminium
- Degree of protection: IP20
- Impact rating: IK03
- Colour accuracy initially: typ. 4 SDCM
- Beam angle: 160°



Typical Light Distribution Curve



Applied Standards

- EN 61000-3-2:2019
- EN 61000-3-3:2013 + A1:2019
- EN 61547:2009
- EN 62031:2008 + A1:2013 + A2:2015
- EN 55015:2019
- EN 62471:2008
- IEC/TR 62778:2014 (RG1)

Electrical Characteristics

Type	Voltage AC V	Operation frequency Hz	Power factor	Flicker at 100 Hz %	Flicker index	SVM	PST	THD %
All	220-240	50/60	> 0.5	< 5	< 0.01	< 0.01	0.02	< 15

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 = t_a		Storage temperature range	
	U min.	U max.	°C min.	°C max.	°C min.	°C max.
All	220	240	-20	+40	-20	+60

Operating Life

Lumen maintenance	$t_a = 25\text{ °C}$	$t_a = 40\text{ °C}$
	hrs.	hrs.
L70/B10	30,000	25,000

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LED Modules for Direct Connection to Mains Voltage

Optical Characteristics

Typ. power consumption* W	Type	Ref. No.	Colour	Correlated colour temperature (K)	Luminous flux (lm) and efficiency (lm/W)				Beam angle °	Typ. CRI R _a	Energy efficiency
					typ. lm	lm/W	max. lm	lm/W			
12	RLR-165-12-830-160	571065	warm white	3000	1080	90	1200	100	160	80	A+
12	RLR-165-12-840-160	571066	neutral white	4000	1200	100	1370	114	160	80	A+
12	RLR-165-12-850-160	571067	cool white	5000	1280	107	1320	110	160	80	A+
18	RLR-165-18-830-160	571068	warm white	3000	1620	90	1800	100	160	80	A+
18	RLR-165-18-840-160	571069	neutral white	4000	1800	100	2050	114	160	80	A+
18	RLR-165-18-850-160	571070	cool white	5000	1800	100	2000	111	160	80	A+
24	RLR-220-24-830-160	571071	warm white	3000	2160	90	2400	100	160	80	A+
24	RLR-220-24-840-160	571072	neutral white	4000	2400	100	2740	114	160	80	A+
24	RLR-220-24-850-160	571073	cool white	5000	2400	100	2650	110	160	80	A+

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

Logistic Details

Type	Packaging dimensions LxWxH (mm)	Packaging unit / weight		Outer packaging LxWxH mm	Packaging unit / weight		Minimum order quantity / Pieces per euro pallet pcs.
		pcs.	kg		pcs.	kg	
RLR-165-12-xxx	167x167x37	1	0.10	395x185x350	20	2.10	720
RLR-165-18-xxx	167x167x37	1	0.12	395x185x350	20	2.40	720
RLR-220-24-xxx	222x222x37	1	0.16	460x240x395	20	3.20	320

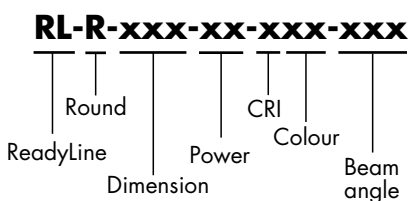
Selection of automatic cut-outs for VS LED drivers

- 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 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

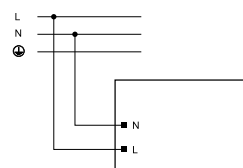
Type	Automatic cut-out type and possible no. of VS drivers pcs.
	C 16 A
RLR-165-12-xxx	90
RLR-165-18-xxx	55
RLR-220-24-xxx	40

– To limit capacitive inrush currents the current carrying capacity of each circuit breaker (fuse) can be increased by a factor of 2.5 with the help of our ESB (Ref. No.: 149820, 149821, 149822) inrush current limiters.

Product code description



Wiring diagram

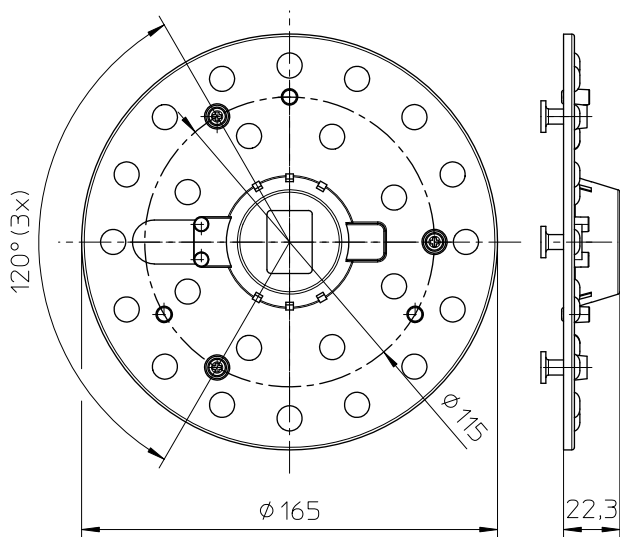


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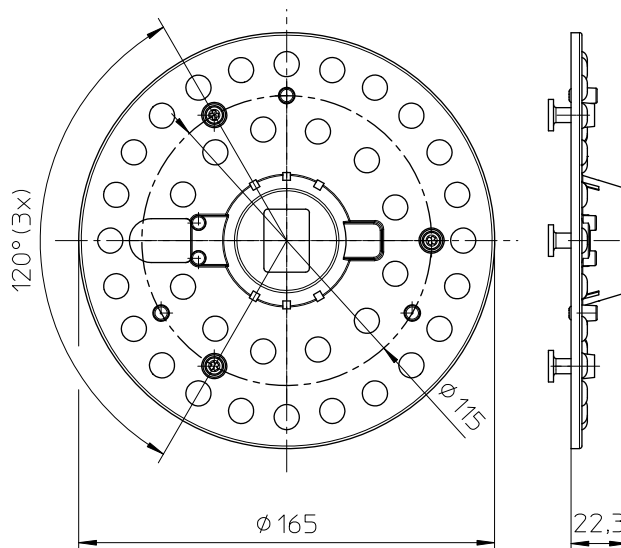
LED Modules for Direct Connection to Mains Voltage

Mechanical Dimensions

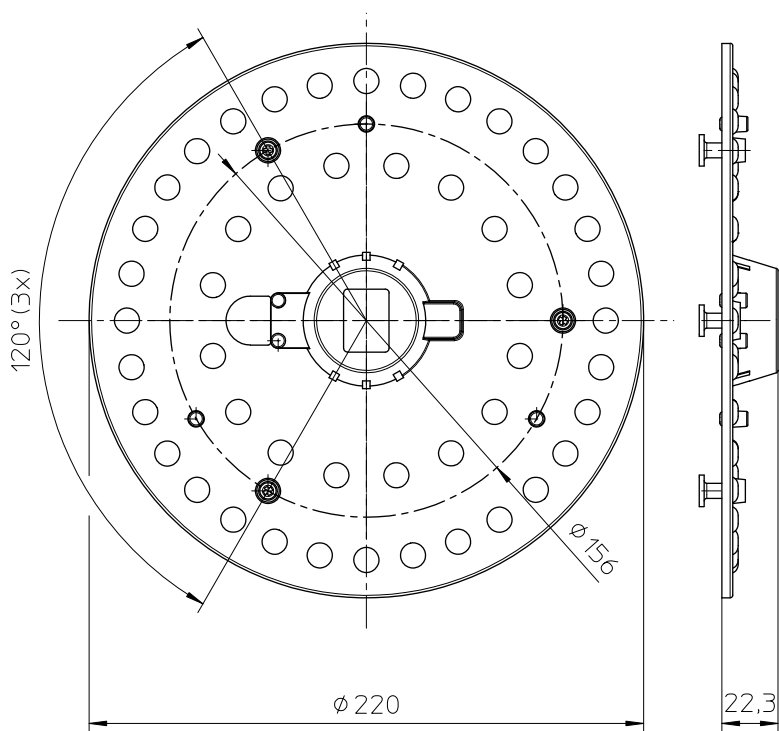
RL-R-165-12



RL-R-165-18





RL-R-220-24



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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. 
- Vossloh-Schwabe recommends to use the cover, in order to comply with applicable safety regulations.
- In case of applications in luminaires of protection class II the safety regulations acc. to luminaire safety standards must be observed.
- 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!!!
- Clearance and creepage distances of the module are designed for class I luminaires (basic insulation). For built-in of the module the required standards have to be observed (e.g. EN 60598).
- Do not exceed values given in this specification.
- 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.
- Parallel connection is mandatory for safe electrical operation. Serial connection of LED modules is not allowed.
- 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.

- 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
- 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

Product Guarantee

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

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