LED MODULES FOR MAINS VOLTAGE

DRIVER-ON-BOARD TECHNOLOGY

LED MODULES READYLINE C

Built-in LED modules with integrated driver for direct connection to mains voltage

With so-called Driver-on-Board technology (DoB), the control gear unit is directly integrated into the LED module, which permits direct connection to mains voltage (220–240 V, 50–60 Hz).

The built-in LED modules of the ReadyLine series are suitable for residential and furniture lighting, as a replacement for halogen, energy-saving compact fluorescent lamps.

Advantages at a glance

- Direct connection to mains voltage
- Glued protection cover to prevent electrical shock
- More flexible space-saving luminaire designs due to absence of driver

Technical notes

Mains voltage: 220–240 V, 50/60 Hz
Initially colour accurancy: 3SDCM
CRI: > 90 (2700–3000 K)
High power factor: > 0.9
Protection cover: PC, UV-glued
or rivetted (module with heat sink)
Long service life: up to 50,000 hours
For luminaires of protection class I
(you will find further information in our "Innovative Systems 2016" catalogue on page 229)
RFI suppressed
THD: < 20%
Aluminium PCB for optimum thermal management
Heat sink made of thermoconductive resin
or co-moulded heat sink made of thermoconductive resin and aluminium

Typical applications

- Replacement for compact fluorescent lamps (ideal for wall-mounted and ceiling-mounted luminaires)
- Integration in luminaires
- Residential lighting
- Architectural lighting
- Retail lighting
- Furniture lighting

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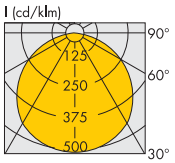
ReadyLine C 07 – 16.6 W

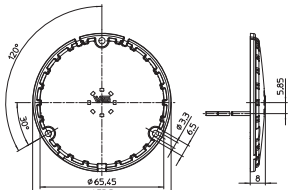
Technical notes

Power factor: > 0.97
Surge protection: ≥ 1 kV
Dimensions: Ø 74 mm;
Ø 120 mm with co-moulded heat sink
Screw terminals for LED module with heat sink:
2.5 mm²
Welded leads for LED module without heat sink:
double FEP/FEP-insulation, length: 250 mm,
central or lateral lead exit
Fixing holes for screws M3 or self-tapping screws 2.9
Lumen maintenance: L70/B50, 50,000 hrs. at t_c = 75 °C
Max. operating temperature at t_c point: 90 °C
Versions for the US market on request

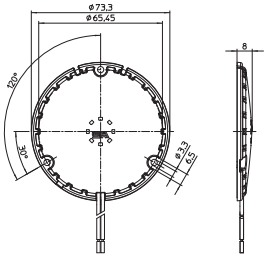


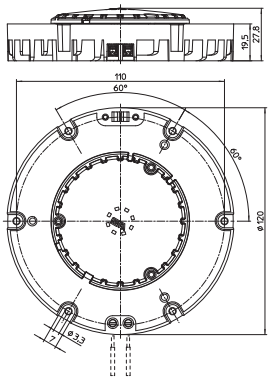
With heat sink, protection cover and 2-poles screw terminals

With central lead exit



With lateral lead exit





Max. output W	Type	Ref. No. with heat sink	Ref. No. without heat sink	Voltage AC 50/60 Hz V	Number of LEDs pcs.	Colour	Correlated colour temperature K	Cover	Typ. luminous flux (lm)	CRI R_a	Lead exit	Energy efficiency
16.6	LR30W	**565171**	**565167**	220–240	30	warm white	2600…2900	clear	1350	> 90	central	A+
	LR30W	**on request**	**565168**								lateral	A+
	LR30W	**565172**	**565169**	220–240	30	warm white	2600…2900	diffuse	1210	> 90	central	A
	LR30W	**on request**	**565170**								lateral	A
	LR30W	**565177**	**565173**	220–240	30	warm white	2900…3200	clear	1480	> 90	central	A+
	LR30W	**on request**	**565174**								lateral	A+
	LR30W	**565178**	**565175**	220–240	30	warm white	2900…3200	diffuse	1330	> 90	central	A+
	LR30W	**on request**	**565176**								lateral	A+
	LR30W	**565183**	**565179**	220–240	30	neutral white	3700…4200	clear	1700	> 80	central	A+
	LR30W	**on request**	**565180**								lateral	A+
	LR30W	**565184**	**565181**	220–240	30	neutral white	3700…4200	diffuse	1530	> 80	central	A+
	LR30W	**on request**	**565182**								lateral	A+

Application	Diameter mm	Ref. No.	Description	Tape thickness (mm)	Thermal conductivity W/mK	Breakdown voltage* (kV)	Drawing Page 6
–	–	**552039**	Cord grip with 2 screws for LED modules with heat sink	–	–	–	–
Class I	68	**553422****	Thermally conductive transfer tape, non-adhesive	0.25	2	3	–
Class II	76	**565846*****	Thermally conductive transfer tape, adhesive on both sides	0.19	0.9	10.3	A

* Average value (not for specification purpose) | ** Optional for class I luminaires | *** Necessary for class II luminaires

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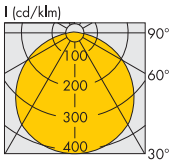
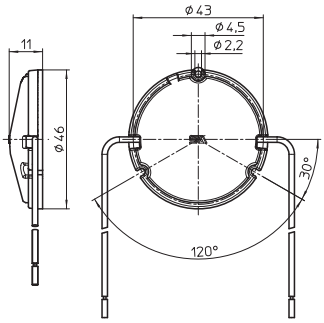
ReadyLine C 05 – 8.5 W



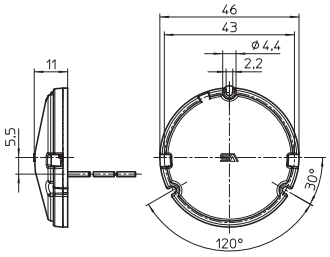
Technical notes

Power factor: > 0.97
Surge protection: ≥ 1 kV
Dimensions: Ø 46 mm
Welded leads: double FEP/FEP-insulation,
length: 250 mm, central or lateral lead exit
MOV – metal-oxide varistor,
enclosed unassembled
Fixing holes for screws M2
Lumen maintenance: L70/B50, 50,000 hrs. at t_c = 75 °C
Max. operating temperature at t_c point: 90 °C
Versions for the US market on request

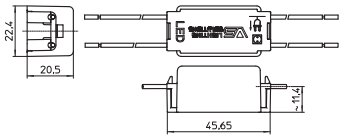
8.5 W – With lateral lead exit



8.5 W – With central lead exit



MOV



Max. output W	Type	Ref. No.	Voltage AC 50/60 Hz V	Number of LEDs pcs.	Colour	Correlated colour temperature K	Cover	Typ. luminous flux lm	CRI R_a	Lead exit	Energy efficiency
8.5	LR15W	**565213**	220–240	15	warm white	2600…2900	clear	680	> 90	central	A+
	LR15W	**565214**								lateral	A+
	LR15W	**565215**					diffuse	620	> 90	central	A
	LR15W	**565216**								lateral	A
	LR15W	**565217**	220–240	15	warm white	2900…3200	clear	740	> 90	central	A+
	LR15W	**565218**								lateral	A+
	LR15W	**565219**					diffuse	660	> 90	central	A+
	LR15W	**565220**								lateral	A+
	LR15W	**565221**	220–240	15	neutral white	3700…4200	clear	850	> 80	central	A+
	LR15W	**565222**								lateral	A+
	LR15W	**565223**					diffuse	770	> 80	central	A+
	LR15W	**565224**								lateral	A+

Application	Diameter mm	Ref. No.	Description	Tape thickness (mm)	Thermal conductivity W/mK	Breakdown voltage* (kV)	Drawing Page 6
Class I	45	**554421****	Thermally conductive transfer tape, non-adhesive	0.25	2	3	–
Class II	52	**565845*****	Thermally conductive transfer tape, adhesive on both sides	0.19	0.9	10.3	A

* Average value (not for specification purpose) | ** Optional for class I luminaires | *** Necessary for class II luminaires

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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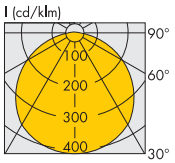
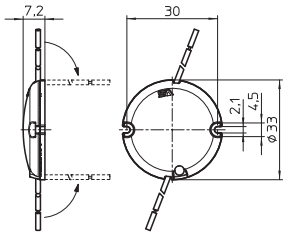
ReadyLine C 03 – 4.5 W

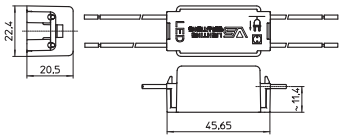
Technical notes
Power factor: > 0.97
Surge protection: ≥ 1 kV
Dimensions: Ø 33 mm
Welded leads: double FEP/FEP-insulation,
length: 250 mm, lateral lead exit
MOV – metal-oxide varistor,
enclosed unassembled
Fixing holes for screws M2
Lumen maintenance: L70/B50, 50,000 hrs. at t_c = 75 °C
Max. operating temperature at t_c point: 90 °C



4,5 W – With lateral lead exit



MOV



Max. output W	Type	Ref. No.	Voltage AC 50/60 Hz V	Number of LEDs pcs.	Colour	Correlated colour temperature K	Cover	Typ. luminous flux lm	CRI R_a	Lead exit	Energy efficiency
4.5	LR8W	**563933**	220–240	8	warm white	2600...2900	clear	420	> 80	lateral	A++
	LR8W	**563934**					diffuse	370	> 80	lateral	A++
	LR8W	**563935**	220–240	8	warm white	2900...3200	clear	440	> 80	lateral	A++
	LR8W	**563936**					diffuse	400	> 80	lateral	A++
	LR8W	**563937**	220–240	8	neutral white	3700...4200	clear	460	> 80	lateral	A++
	LR8W	**563938**					diffuse	410	> 80	lateral	A++

Application	Diameter mm	Ref. No.	Description	Tape thickness (mm)	Thermal conductivity W/mK	Breakdown voltage* (kV)	Drawing Page 6
Class I	33.2	**559966****	Thermally conductive transfer tape, non-adhesive	0.25	2	3	–
Class II	39	**565844*****	Thermally conductive transfer tape, adhesive on both sides	0.19	0.9	10.3	A

* Average value (not for specification purpose) | ** Optional for class I luminaires | *** Necessary for class II luminaires

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ReadyLine C

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.

- Suitable for luminaires of protection class I, grounding is mandatory to comply with safety standards.
- 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 60598-1 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 60598-1 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 60598-1).
- Do not exceed values given in this specification.
- Do not exceed max t_c temperature of 90 °C.
- The module must be fixed onto a thermally conductive surface. Heat sink must cover the entire backside surface of the module.
- For the operation of VS recommends to mount the module directly onto the metal heat sink or luminaire housing is mandatory to comply with immunity standards (e.g. EN 61547).
- 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.
- Due to the used electronic parts on the module not all available phase-cutting dimmers are compatible. Dimmable with phase-cutting leading- and trailing-edge dimmer. Minimum dimmer load has to be observed. The compatibility of the dimmer and the modules has to be confirmed prior to installation to avoide flickering.
- To ensure problem-free operation, the specified maximum temperature at the t_c 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.
- 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 togehter 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

Applied Standards

- EN 62031
  LED modules for general lighting – Safety specifications
- EN 62471 and IEC TR 62778
  Photobiological safety of lamps and lamp systems
- EN 55015
  Radio disturbance emissions
- EN 61000-3-2
  Limits for harmonic emissions
- EN 61547
  Immunity requirements

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).
  We will be happy to send you these conditions upon request.

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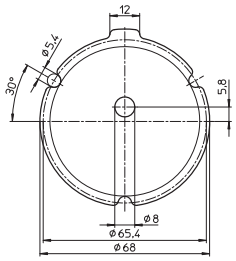
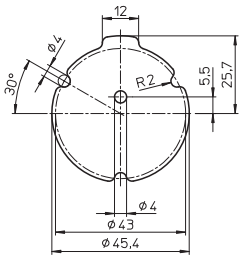
Thermal Tapes for ReadyLine C Modules

For ReadyLine C07



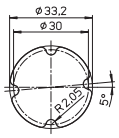
Ref. No.: 553422

For ReadyLine C05



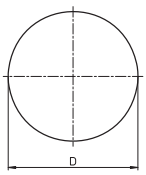
Ref. No.: 554421

For ReadyLine C03



Ref. No.: 559966

Drawing A



ReadyLine C – tested dimmers

LED modules ReadyLine C are dimmable with common phase-cut dimmers. The minimum dimming load has to be respected. The compatibility of the LED modules with the dimmer has to be confirmed prior to installation.

- Busch Jäger 2247U
- GET
- Gira 30200
- IKEA E0902 DIM
- IKEA EED100PRS
- IKEA EED20PRS
- IKEA EED200BRS
- IKEA SED300FHS
- Jung 225 NV DE
- Kopp 8068
- Merten 572599
- MK 5004091-001
- Selectric SSL509
- Relco DimLED 34/65
- Relco DT/ACR
- Relco LT 1 UN
- Relco SNELLO/ACR (RL7180 – RL7190)
- Relco RONDO/CR (RL7181 – RL7191)
- Zano ZANOWH250

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