



Due to its low power consumption and high light yield, LED lighting operated on low voltage is useful for trade fair stands. For safe operation, the accident prevention rules, VDE regulations as well as the technical guidelines of the Messe Dusseldorf (Düsseldorf trade fair) that are described in this information sheet must be observed.

1. Basic principles

- 1.1 Electrical systems (in this case, LED lighting systems) must only be installed or modified by trained electrical technicians in accordance with recognised technical regulations.
- 1.2 Current VDE regulations or European standards (EN) are the basis for installation. Here in particular, the VDE 0100-711, HD384.7.711 S1 regulation must be observed.
- 1.3 Lighting systems that are equipped with standard plug-in connectors may also be installed by laypersons.
- 1.4 The equipment used must bear a CE label among other labelling.

2. Electronic ballasts

- 2.1 The labelling (imprint) must have the:
 - ☞ Name of the manufacturer
 - ☞ Type designation
 - ☞ Primary and secondary voltage in volts (V)
 - ☞ Rated capacity in volt amperes (VA) or secondary current in amperes (A)
- 2.2 The safeguards for the devices must correspond to their placement and intended purpose:
 - Protective insulation when placed outside of casings (labelling: )
 - Temperature protection when placed in or on flammable fixtures (labelling: M M)
 - Using auto transformers/converters (labelling: ) in accordance with VDE 0551 is recommended.
- 2.3 The ballast units must be positioned so that they are accessible at all times. Good heat dissipation must be ensured. Transformers/converters must be placed in the vicinity of the lights.

The power supply to the transformer/converter and all connecting terminals must be completely insulated. The power output of the ballast units should not exceed 60VA.

3. Power cables, wires and terminals

- 3.1 Conductor connections and connections from conductors must be made via screw-type terminals or screw-less terminal technology. All connections that are otherwise made such as e.g. twisting connections, applying weights or alligator clips are not permitted.
- 3.2 Conductor connections and connections from conductors must be made in junction boxes or suitable terminal boxes. Open clamp connections are strictly prohibited.
- 3.3 Leads from the transformer/converter to the lamp must be completely insulated.

- 3.4 Wires in suspended ceilings, strip lights, joists, cross beams etc. must be installed with adequate protection to protect against damage. Strain relief must be ensured.
- 3.5 Construction parts must not be used as current carrying conductors.
- 3.6 The conductor cross-sections for feed-ins from the transformer to the lamp must be designed for the total output/total current of the transformer. Cross-sections of at least 1.5mm² are recommended to reduce power losses.

Attached are depictions of 2 examples of transformers/converters.

Example 1 shows a transformer/converter with the imprinted labelling as described above. This type may be used.

Example 2 shows a transformer/converter of a type that must **not** be used.

Sample 1:

permitted, with closed connections, labelling and strain relief in the connection compartment.



Sample 2:

not permitted (open, only covered terminals, without strain relief and labelling)

