Electrical Installation in Exhibition Stands

The electrical installation in exhibition stands is in general to be carried out in accordance with the latest VDE regulations.
The following points are of particular importance in this context.

1. The following cables are to be used:
   a) NYM (sheathed cables) for fixed wiring in branch boxes.
   b) Min. requirements for connection cables to mobile appliances:
   NMH (medium rubber-sheathed cable)
   NYMHY (medium plastic-sheathed cable or equivalent)
   The minimum sectional area should be 1.5 mm^2.

2. The through wiring of cables in lamps, plugs, connections and sockets is forbidden.
   (Exceptions: lamps with completely enclosed sockets, with fixed-mounted terminals e.g., fluorescent tubes.) All lamps and appliances are to be wired separately to the power supply, from junction boxes or the distributor.

3. Cables must be pull relieved. The external insulation is to pass into the appliances, lamp sockets and plug fittings.

4. Open lustre terminals are also forbidden. The junction of cables must be effected within completely enclosed junction boxes.

5. The installation of lights on inflammable materials (wood, fabric etc.) is forbidden, except where:
   a) the lights are completely enclosed, and carry the sign (so-called "F" lights);

   b) the lights are separated from their supporting surface over their entire length and breadth by a sheet of nonflammable material of a minimum thickness of 12 mm;
   c) the lights are fixed at least 35 mm away from the supporting surface.

This applies similarly to sockets or similar.

6. Unless protectively earthed or operated on protective low voltage, all lighting equipment and appliances shall be connected to an earth wire in such a manner as to ensure that it is effectively earthed.

7. Stands in which metal parts are conductively connected with one another, as well as larger metal parts to which electrical cables or electrical equipment are affixed, must be connected to a protective conductor (earthed).

8. The complete stand installation, with the exception of refrigerators, telefax machines and electronic memory devices, must be disconnectible using a single switch (master switch) in an emergency.

9. The master switch shall be so located that it is accessible at all times.

10. In the case of electrical installation work carried out by external companies, it must be guaranteed that any electrical faults occurring in completed stands during the Fair are also repaired by the same companies.

11. For stage and show lighting systems, a fire extinguisher type K6 (carbon dioxide, 6 kg) must be kept available.

12. **Attention: new IEC standard:**

Permissible AC voltage:	207 – 244 V
Permissible three-phase voltage	360 – 424 V

Exhibition stands which are in contravention of these regulations are liable to be cut off from the electrical supply system (no power supply).

p.t.o.

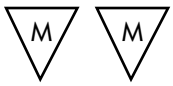
INSTALLATION OF LOW-VOLT LIGHTING (LVL) AT TRADE FAIR STANDS

A low-volt lighting system consists of the following: – 230 V supply lead (primary)
– transformer
– supply lead (secondary, usually 12 V)
– lamps

230 V supply lead (primary)
As a rule, the LVL is connected with flexible cable to the stand distributor via earthed sockets. Type H07 RN (rubber-insulated flexible cable) or equivalent is to be employed as flexible cable. Minimum cross section: 1.5 mm² copper.

Transformer
A short-circuit-proof, safety transformer, usually totally insulated, must be employed.
Pictorial marking:

The transformer must be suitable for installation when installed, e.g. in furniture, etc.
Pictorial marking:



Minimum transformer output shall be rated according to the number of lamps to be connected,
e.g. 6 lamps of 50 W each = 300 W = 300 VA.
Transformer output is indicated in VA.
The secondary circuit (usually 12 V) of the transformer must be fused. Maximum fusing 25 A (corresponds to a transformer output of 300 VA at 12 V).
At present, electronic protective equipment is not yet an accepted substitute for fusing.
The level of fusing depends on the cable cross section. If the minimum cross section is maintained, fusing can be calculated according to the output of the connected lamps. Example: 50 W : 12 V = 4.2 A
Example: 300 W : 12 V = 25 A
The corresponding or next higher fuse in the standard series is to be employed in each individual case.
Transformers not equipped with secondary fusing must be retrofitted (e.g. automatic fusing in cable runs).

Electronic transformers may be operated without secondary cable protection only if the following conditions are fulfilled or proof of compliance is provided:

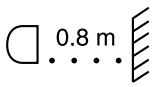
Short-circuit-proof safety converter
Overheating-protected converter (temperature fuse)
Overload cut-off (electrical overload protection)
Response tolerance in case of failure 60 W

Compliance with manufacturer's specifications with respect to cable type
cable length
cable diameter

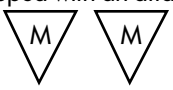
Supply lead (secondary, usually 12 V)
All cables must be insulated up to lamps (lacquer/paint is not an acceptable insulation). This shall also apply to design components employed as conductors (e.g. in the case of display cases).

Cable cross sections (from transformer output)
Minimum cross section: 1.5 mm² copper
Exception: up to 3 m flexible cabling 1.0 mm² copper
If cable length exceeds 10 m, a cross section of 2.5 mm² is recommended due to voltage drop (according to DIN VDE 0100/Part 520, voltage drop may not exceed 4%). Freely suspended cables (stranded conductors) shall have at least 4 mm² of copper.

Lamps
Lamps must be equipped with a protective disc, basket guard or other measures to prevent lamps or parts thereof from falling. This also applies to lamps installed in floors (fire hazard). An adequate distance from combustible materials must be maintained.
The minimum distance is 0.5 m. Identifying markings on the lamps must be observed,
e.g.



Recessed lamps equipped with an attached or built-in transformer may only be used if they bear the pictorial marking



General information
The system (cables, transformers and lamps) must be properly installed and secured by qualified personnel. Cables must be properly inserted into equipment and sockets and relieved of strain and shearing forces. Terminal and clamped connections must be effected by means of screw-type or screwless terminals. Wire end ferrules are to be employed in the case of flexible cables. If cables are not joined by means of sockets, terminal connections are to be effected in branching boxes.
Sockets and plugs are to be attached to flexible cables only.
Cables for permanent installation (NYM) must be clamped in branching boxes and may not be joined by means of sockets.

Remarks:
This data sheet is based on generally accepted rules of engineering, in particular DIN VDE 0108 and the data sheets issued by the Verband der Sachversicherer (association of technical insurance underwriters – VDS).