



These operating instructions conform to:

- 2014/35/EU – LV Directive
- 2014/30/EU – EMC Directive

1. USE

Switchgears L.DA. (hereinafter "switchgears" only) are determined for installation especially in industry and heavy-duty machinery.

2. OPERATING CONDITIONS

2.1 External influences according to IEC 60364-5-51

2.1.1 Category A - ENVIRONMENT

Code	Description of external influence	Specification
AA	Ambient temperature ¹⁾	-20°C to +40°C
AB	Atmospheric humidity	to +30°C ... 100% to +40°C ... 70%
AD5	Presence of water	Jets
AE6	Presence of foreign solid bodies or dust	Heavy dust
AF4	Presence of corrosive or polluting substances	Continuous
AG3	Mechanical shock	High severity (7J)
AH	Vibrations	See art. 6. – Rev.

¹⁾ Some switchgear may be designed with different range of ambient temperature. In such a case it is always mentioned on rating plate (e.g. -40°C to +40°C).

2.1.2 Category B - UTILISATION

Code	Description of external influence	Specification
BA5	Capability of persons	Skilled
BC3	Contact of persons with earth potential	Frequent

2.1.3 Not mentioned external influences: Normal.

2.2 Operating position: Vertical

3. TECHNICAL DATA

Name	Data	Note, Standard	
Switchgears type	LV switchgear Power switchgear	EN 61439-1 EN 61439-2	
Rated data	See rating plate		
Rated short-circuit current	Max. 10 kA	EN 61439	
EMC	Switchgear without built-in electronic parts Resistant to EMI Radiating short-term EMI	Acc. to EN 61439-1 no other verification is required	
	Switchgear with built-in electronic parts Resistant to EMI Not radiating short-term EMI	Acc. to related harmonised IEC standards for EMC	
Ingress protection ²⁾	IP 65	EN 60529	
Material	L.DA0	Al die casting	DIN 1725 (AISI 12)
	L.DA1	GRP - Glass fibre reinforced polyester	Black, RAL 9011 or 9005
	L.DA2	Mild steel sheet Stainless steel sheet	DIN 1.0330 DIN 1.4301
Surface finish	L.DA0	Powder baking paint	Grey, RAL 7001
	L.DA2	Powder baking paint (only for mild steel sheet)	Grey, RAL 7032 S
Combustibility of L.DA1	Hardly inflammable, self-extinguishing	UL-S94.V-0 (also halogen-free)	
External PE	16 mm ² (except L.DA1)		

²⁾ Some switchgear may be designed with different ingress protection, which has an impact to above mentioned external influences.



SAFETY INSTRUCTIONS AND UNSUITABLE USE

Do not leave this operating instructions inside the switchboard during operation

- Switchgears are not intended for untrained personnel. Installation, commissioning and any service may be performed only by authorized personnel with the appropriate training and in accordance with safety regulations.
- Switchgears should be operated in accordance with above mentioned operating conditions, technical data and data on name plates.
- Do not operate Switchgears in areas with explosion risk!
- Switching units inside control boxes may produce short-time electromagnetic interference so they must be operated in areas where no negative influence to other equipment is.
- Storage, transport, assembly, installation, inspection, preventive maintenance, repairs and services are to follow instructions provided hereinafter.

4. INSTALLATION INSTRUCTIONS

4.1 Mounting

4.1.1 Mounting of L.DA0, L.DA1

Spacing of mounting holes is stated on the bottom of the box. Mounting holes are accessible after dismantling of cover.

4.1.2 Mounting of L.DA2

There are two various ways:

- **Directly** by screws M6 screwed up into "blind" holes in the box bottom from outwards.
- By using of the **fixing brackets** (fixed as described above) – than the box can be fixed from the front by screws M8.

4.2 Cable entries

Each cable gland can seal only a certain range of outside diameters of cables. In case of more quantity of cable glands it is necessary to insert and seal the cable into the cable gland subsequently from one side to the other side and start with cable gland on the lowest. For easier mounting of cable glands it is possible to deliver special tighten tongs. To achieve a reliable ingress protection properly tightens the cable glands. **Unused holes and openings** for cable entries must be closed by certified plugs that comply with required ingress protection.

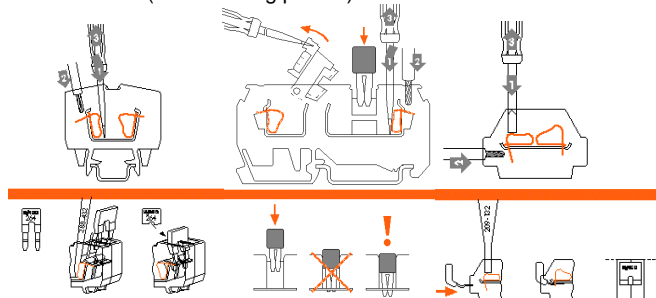


4.3 Connection of wires to terminals

There are used either the spring-cage terminals or screw terminals.

4.3.1 Spring-cage terminals

Press a cage clamp of the terminal block (1) e.g. with a suitable screwdriver (or a special WAGO screwdriver) to unfasten space for the connection of a wire. By pushing of the wire (2) and releasing the cage clamp (3) a perfect current-carrying connection is created. At connection of two adjacent terminal blocks, press the jumper with power into both terminal blocks so that it does not overreach the terminal block (see following picture).



At some types of terminals with cage clamp it is necessary to use a greater one terminal when connecting a wire with a ferrule. E.g. for connection of a 2,5 mm² wire with the ferrule, it is necessary to use a terminal block 4,0 mm².

4.3.2 Screw terminals



Connect wires from the side of the terminal block and properly tight the connection. If you **interconnect screw terminals**, properly tight screw jumpers.
 If the **PE / FE rail** is installed and only one wire is to be connected to a terminal, it is necessary to bend the end of wire into a "U" shape so that the clamping plate compressing the wire is in-plane.

4.4 General requirements

Stranded wires must be provided with ferrules. We recommend use **ferrules** also for copper wires without surface protection and in **aggressive atmosphere**. Only one wire can be inserted in to the connection hole of terminal and **its cross section mustn't exceed rated cross-section of terminal block. The wire insulation must reach as close the current-carrying connection as possible. The wire must not be damaged.** We recommend regularly **treat connection points of protection wires** (or other corrosive metal surfaces) with **grease**, at least 1 a year (depending on the environment). It is not valid for stainless steel boxes. **Unused dead wires** should be connected to unoccupied terminal (including of protective wires) or terminated in a way complying with valid regulations. When use **aluminium wires (up to 4mm²)** it is suitable to apply the WAGO contact paste "Alu-Plus" **into the hole before inserting the wire.** It destroys the oxide film, prevents fresh oxidation and electrolytic corrosion. **Connection points for protective earth wires in L.DA0** switchgear are supplied with a CUPAL washer. Cu wires are connected so they touch the copper side of this washer.

5. INSTALLATION ACC.TO VALID REGULATIONS

Use of switchgears must comply with above mentioned operating conditions, local operating regulations, relating standards and other valid regulations. **Electrical accident protection**, in addition to said regulations, is stipulated by **IEC 60364-4-41, EN 61140** and other related regulations. **Safety instructions** for operation of electrical installations are given by **EN 50110-1**.

6. INSPECTION AND PREVENTIVE MAINTENANCE

For **inspection and preventive** maintenance of electrical equipment follow local standards and regulations.
 All mechanical and electrical connections are protected from **self-loosening**. However vibration tests of equipment (external influences AH1, 2, 3 acc. to IEC 60364-5-51) in relation to classes of climatic conditions acc. to EN 60721-3-3 and EN 60721-3-4 are not performed. That is why we recommend in case of **mobile equipment carry out inspections at least 2-times a year.**
Cable glands and plugs can be replaced only by types with ingress protection at least **IP 65**. Where it is not possible to provide fixed installation of cables, it is necessary to use cable glands with a protection against pulling out (usually with clamping module) - it relates mostly to **mobile equipment.**
Other spare parts - see article 11.

7. REPAIRS AND MAJOR INSPECTIONS, SERVICE

Repairs should be preferably carried out by the manufacturer or an organization authorized by the manufacturer. Following parts **must not be repaired** and must be replaced if damaged:

- terminals, built-in components, cable glands and plugs
- inspection windows
- sealing and stainless steel screws in the lid

In case of any **repairs and renovations, mechanical resistance (7J) and ingress protection (IP 65) must be preserved.**
Service is performed directly in the manufacturing plant in Šumperk. **In case of any problems regarding the GENERI products** (such as loss of accompanying documents, technical defects etc.), **just read the type** of equipment and **serial number** No. from rating plate. This is than possible to find any accompanying and technical documents for concrete product at manufacturer.

8. STORAGE, PACKING, TRANSPORT

Switchgears **are to be stored** at the ambient temperature of +5°C to +40°C, in non-aggressive interior areas without the UV radiation and weather conditions, where the quality does not deteriorate (climatic conditions 1K2, biological conditions 1B1, active chemical compounds 1C2, mechanically active substances 1S1, and mechanical conditions 1M2 acc.to EN 60 721-3-1).
 Switchgears are **packed** in protective foils and supplied in cardboard boxes (bigger switchgears can be attached to pallets).
Transport is provided by an express transport company within 24 hours, or depending of a customer's request. Cash on delivery is also possible.
Transport conditions are 2K2, 2B1, 2C2, 2S1, 2M2 acc.to EN 60 721-3-2.


9. DELIVERY TERMS

Price, delivery terms, methods of payment and transport are mentioned in a purchase contract or order confirmation.

10. SPARE PARTS

There is wiring diagram with all electric components specification delivered with switchboard.

11. PRODUCT DISPOSAL

 **Useless products should be disposed of in accordance with valid regulations. !!! All components may produce harmful fumes during combustion processes!!!**

12. ACCOMPANYING DOCUMENTATION

- 📄 EU declaration of conformity
- 📄 Wiring diagram
- 📄 These operating instructions including of warranty
- 📄 Delivery note

WARRANTY

Product type:	L.DA0	L.DA1	L.DA2
Mark:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serial number No.:	from:		to:

You are provided with a warranty for a period of 12 months (if it is not specified otherwise in the purchase contract) valid from the day the product was handed over. We guarantee quality of work and material. Despite this, faults unidentifiable in the manufacturing plant may occur due to storage, during transport or use. If they were caused by faulty material or production, we shall restore the product to a trouble-free state at our own costs. The warranty does not apply to defects resulting from mishandling or mechanical damage and not following instructions for assembly and maintenance.

FINAL INSPECTION		
Authorised person:	Result:	Stamp and signature:
	OK	



WE WISH YOU MAXIMUM SATISFACTION WITH OUR PRODUCTS AND SERVICES

