
 GENERI, s.r.o. Uničovská 50 787 01 ŠUMPERK Czech Republic tel.: +420583221500, fax: +420583214183	OPERATING INSTRUCTIONS		Page: 1 of 2
	INDUSTRIAL CONTROL, MEASURING AND INDICATING BOXES		N740015 – 4 th issue
	TYPE: L.SA. (0 - aluminium, 1- polyester, 2 – stainless steel)		

These operating instructions conform to:

- 2014/35/EU - Low-voltage Directive
- 2014/30/EU – EMC Directive.

 **SAFETY INSTRUCTIONS AND UNSUITABLE USE**
Do not leave this document inside the box during operation!

- **Avoid any mechanical damage** of the box when manipulating!
- Boxes L.SA. are **not intended for untrained personnel**. Installation, commissioning and any service must be performed by authorized personnel with the appropriate training and in accordance with safety rules.
- **Operate** boxes L.SA. in accordance with below mentioned operating conditions, technical and rating label data.
- **Do not operate** boxes L.SA. in areas with **explosion risk!**
- **Built-in switching units** may produce **short-time electromagnetic interference** so they must be operated in areas where no negative influence to other equipment is.
- Storage, transport, mounting, installation, inspection and preventive maintenance, repairs and service to be executed according to following instructions.

1. USE

Control, measuring and indicating boxes L.SA0, L.SA1 a L.SA2 are determined for installation especially in industry and heavy-duty machinery.

2. OPERATING CONDITIONS

2.1 External influences acc. to IEC 60364-5-51, cat. A: ENVIRONMENT

Code	Description of external influence	Specification
AA	Ambient temperature*	-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. 7

2.2 External influences acc. to IEC 60364-5-51, cat. B: USE

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

2.3 Not mentioned external influences are in accordance with IEC 60364-5-51 **normal**.

2.4 Operating position: vertical

3. TECHNICAL DATA

3.1 General

Name	Specification	Standard, note.
Ingress protection	min. IP 65	EN 60529
Electromagnetic compatibility	Resistant to EMI Radiating short-term EMI	Acc.to EN 60947-3 no other verification is required
Material	L.SA0 Al-pressure die casting	DIN 1725 (AlSi12)
	L.SA1 Glass fibre reinforced polyester (GRP)	Grey (RAL 7001)
	L.SA2 Stainless steel plate 1.4301 / 304	DIN / ASTM Other material quality on request
Surface finish of L.SA0	Powder baking coating	Grey, RAL 7001
Combustibility of L.SA1	Hardly inflammable and self-extinguishing	UL - S94.V – 0 (also halogen-free)
Protection class	I L.SA0, L.SA2 II L.SA1	EN 61140
External PE	16 mm ² (L.SA0, 2)	2x screw M5 with a shim
	6 mm ² (L.SA0)	1x screw M4 with a shim

3.2 Contact block

Name	Specification	Standard, note.
Nominal current I _{th}	10 A	
Rated operational characteristics	U _e = 240 V I _e = 3 A	AC15, EN60 947-5-1
Rated operational characteristics	U _e = 250 V I _e = 0,27 A	DC 13, EN 60 947-5-1
Use in electronic circuits	U = 5 V I = 1 mA	EN 60 947-5-1
Rated insulation voltage U _i	600 V degree of pollution ³	EN 60 947-1
Type of contact	Dependent switching	1/0 (N/O), 0/1 (N/C)
Terminals marking	1 - 2 for 0/1 (N/C) 3 - 4 for 1/0 (N/O)	EN 50 013
Short-circuit protection	gG cartridge fuse 10A	EN 60 269-1
Cross-section of connecting wires	min. 1 x 0,5 mm ² max. 2 x 2,5 mm ²	(w or w/o a ferrule)

4. INSTALATION INSTRUCTION

4.1 Mounting of boxes L.SA0, L.SA1

Spacing of mounting holes is stated on the bottom of the box. Lift off the cover and insert attachment screws into holes and mount the box.

4.2 Mounting of L.SA2

There are two various ways:

- By screws M6 that you screw up into “blind” holes in the box bottom from outwards.
- By stainless steel screws M6 from outwards of the box you screw up into the “blind” holes in the box bottom and herewith by them you fix special stainless steel flanges (all is delivered as accessories of box).The box equipped by this way you can fix from the front by screws M8 that you put into the whole in flanges.



4.3 Cable entries

Each cable gland can seal only a defined range of outside diameters of cables. If there is more cable glands placed on the box flange it is necessary to insert and tighten the cable into the cable gland subsequently from one side to the other side and start with cable gland on the lowest row. For easier mounting it is possible to deliver **special tighten tongs** – see picture. To achieve a reliable ingress protection **properly tightens the cable glands** by specified tightening torque.

Unused holes and openings must be closed by plugs that comply with required degree of protection.

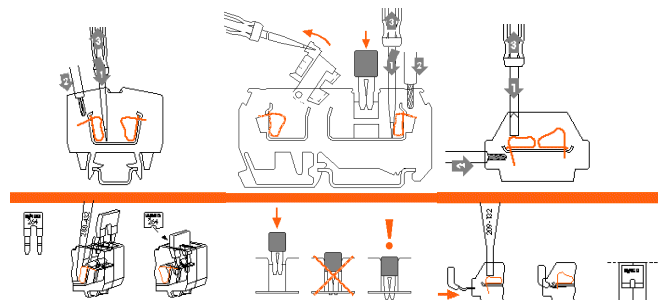
4.4 Connection of wires to terminals

There can be used either the cage clamp or screw terminals.

4.4.1 Cage clamp terminals

Press a cage clamp of the terminal block (1) e.g. with a suitable screwdriver (or a special WAGO screwdriver) to open connection hole. By pushing of the wire (2) and releasing the cage clamp (3) a perfect current-carrying connection is created.

At **connection of two adjacent terminals** by a jumper, press this 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.



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INDUSTRIAL CONTROL, MEASURING AND INDICATING BOXES

N740015 – 4th issue

TYPE: **L.SA. (0 - aluminium, 1- polyester, 2 – stainless steel)**

Valid from: **20.4.2016**

4.4.2 Screw terminals



Push the wire from the side of the terminal and properly tight the connection. When **connecting more screw terminals**, properly tight screw jumpers. If there is **PE resp. FE rail** in the box and there is only one wire connected to terminal, it is necessary to bend the end of the stripped wire into a "U" shape so that the clamping plate compressing the wire is in-plane.

4.5 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.X0 boxes** 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 boxes L.SA. 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

Inspection and preventive maintenance of electrical equipment is given by ČSN 331500 (in Czech Republic), unless it is determined otherwise by a notice, local standards and regulations, etc. 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**:

- terminals, built-in components, cable glands and plugs
- inspection window in the lid, sealing box-lid
- Stainless steel screws in the lid

These parts must be replaced if damaged.

In case of any **repairs and renovations, mechanical resistance (7J)** and the original **degree of protection** (min. IP 65) **must be preserved**.

Service is performed right 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 two data on the rating plate**:

1) TYPE OF EQUIPMENT, 2) SERIAL NUMBER

On the basis of these data it is possible to find any accompanying and technical documents of concrete product at manufacturer.

8. STORAGE, PACKING AND TRANSPORT

Boxes L.SA. **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).

Boxes L.SA. are **packed** in protective foils and supplied in cardboard boxes (bigger boxes 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, payment method and kind of transport are mentioned in a purchase contract which is sent by the business department after receiving your order.

10. SPARE PARTS

There is the wiring diagram with list of inbuilt electrical components inside the each box.

11. PRODUCT DISPOSAL



Useless products should be disposed of in accordance with valid regulations.

!!! All components may produce harmful emissions during combustion!!!

12. ACCOMPANYING DOCUMENTATION

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

WARRANTY

Product type:	L.SA0	L.SA1	L.SA2
Mark:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serial number from:			to:
No.:			

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	

ISO 9001



WE WISH YOU MAXIMUM SATISFACTION WITH OUR PRODUCTS AND SERVICES

