Operating Instructions
for
Conductive Suspended
Electrodes

Model: NEH

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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

3. Instrument Inspection

All Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:
- Conductive Suspended Electrodes model: NEH

4. Regulation Use

Any use of the Conductive Suspended Electrodes, model: NEH, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

5. Operating Principle

KOBOLD limit switches model NEH are used for level monitoring and pump control of conductive liquids. The instruments operate on the conductive principle. A low a. c. voltage is applied between the conductive wall of the tank or the earth electrode (longest electrode) and a switching point electrode. If the conductive medium touches the electrodes, a negligible alternating current flows across the electrodes and the conductive medium to the electrode relay. Suspended electrodes are ideally suited for installation when space is at a premium. The relay amplifies the alternating current and operates a switching relay or a pump controller. An electrode relay of type NE-104 is required per switch point for signalling. For min./max. control two switching point electrodes must be connected to the relay. Relay NE-304 operates as two single relays (NE-104).

6. Mechanical Connection

The suspended electrodes are designed for vertical mounting.

Please ensure that the insulation of the cable is not damaged when mounting the suspended electrodes through flanges or thread connections.

Shortening of the suspended electrodes

- Open the lid of the connection box
- Loosen carefully the electrode cable from the clamping-block and dismount the clamping-block together with the fastening bar.
- Loosen the grub screw until the cable is free (special tool necessary!)
- Adjust the suspended electrode to the length required and tighten the grub screw up to an adequate tension.
- Shorten the cable on the upper end, re-label the cable and re-connect it at the clamping-block.
- Mount the clamping-block and close the lid.

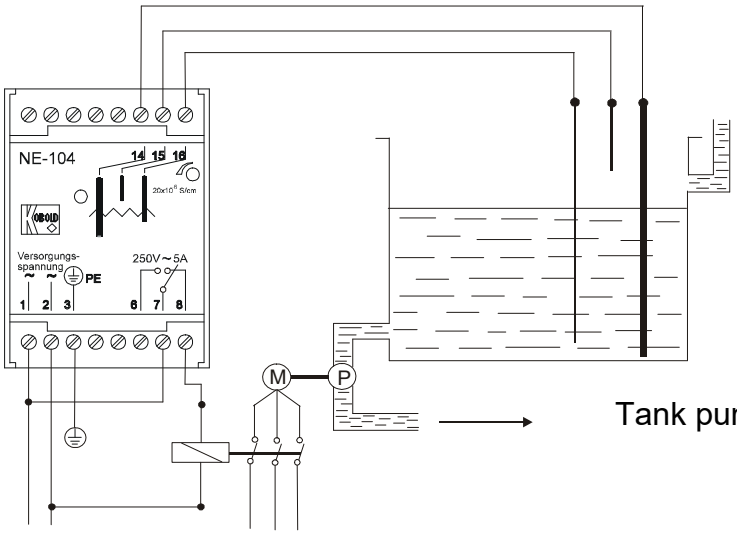
7. Electrical Connection

- For electrical connection, the conductive suspended electrode is delivered with a built-in clamping-block.
- Numbering: shortest electrode 1; second-shortest electrode 2; and so on.
- The conductive suspended electrode is only applicable with a suitable electrode-relay (for example: NE-104 or NE-304).

Ensure that the cable-bushing and the lid of the limit switch are tightened correctly.

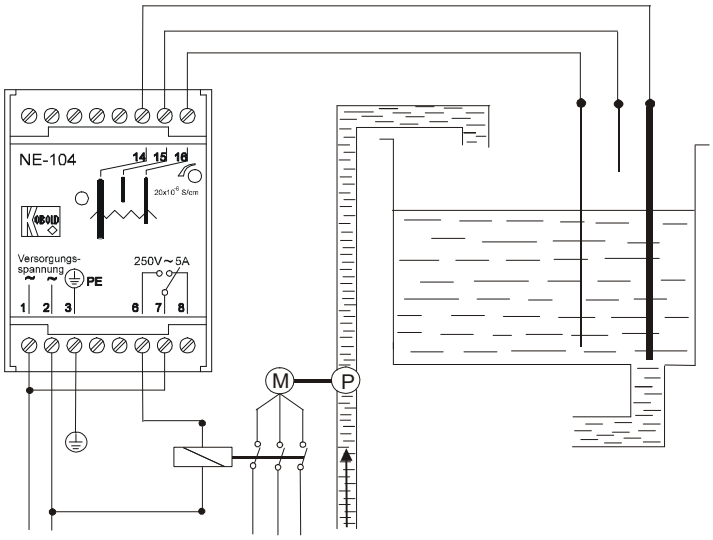
Maximum cable length: 300 m, minimum cross section 0.5 mm^2. Up to a cable length of 15 m and with EMC-critical installation environments, a shielded, low capacitance cable should be used, which has to be connected to a suitable ground.

7.1 Application examples with electrode relay NE-104



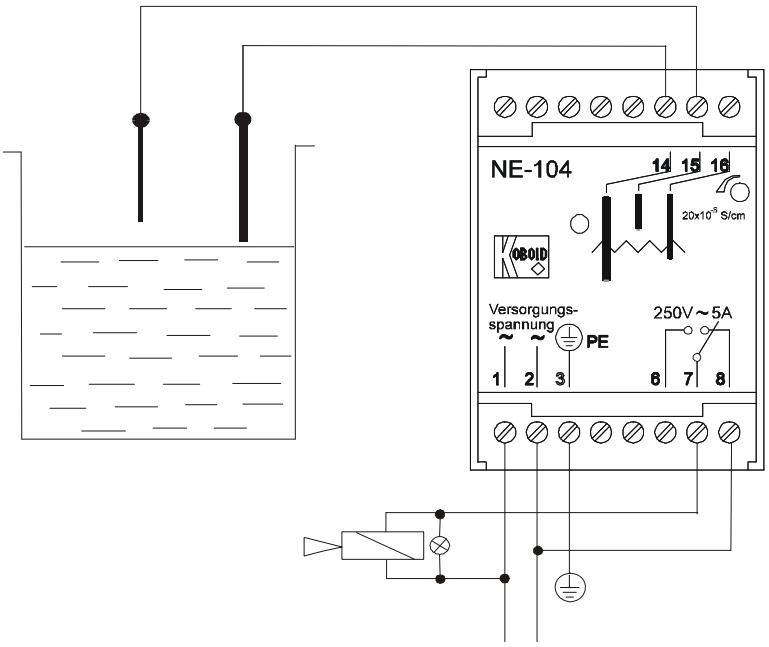
Tank pumped empty

Supply-voltage



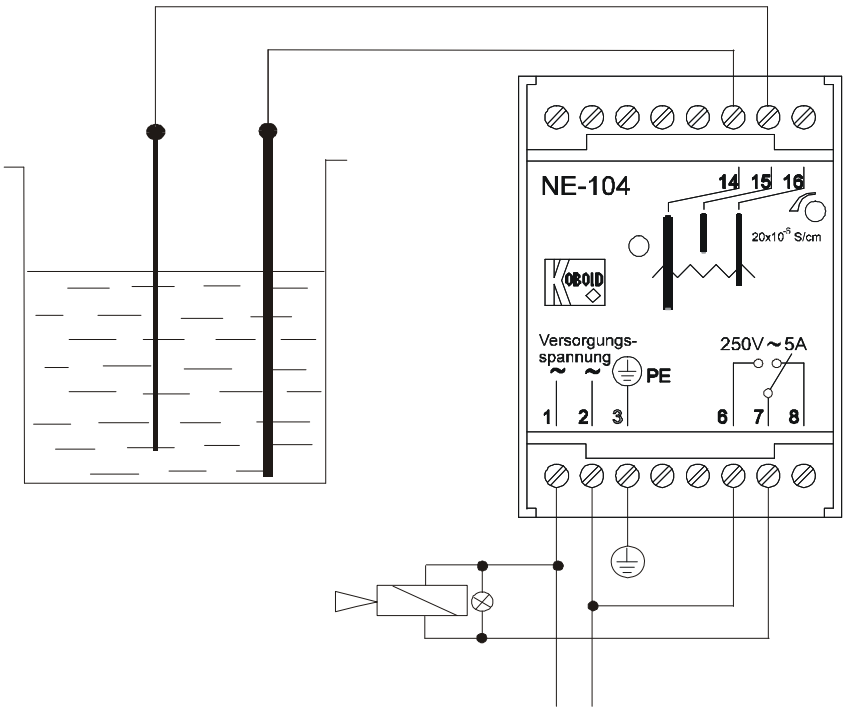
Tank filled

Supply-voltage



Overflow-assurance

Supply-
voltage



Dry-run guard

Supply-
voltage

8. Technical Information

Housing:	Polyamide or Aluminium
Connections:	Polypropylene or PTFE G 1/2 (single electrode) G 1 1/2 (2-6-fold electrode)
Electrodes:	Stainless steel 1.4571, Hastelloy or Titanium
Cable insulation / body of electrode:	rubber hose according to HAR H07RN-F standard* / PVC PTFE / PTFE
Cable diameter:	6 mm (rubber hose according to HAR H07RN-F standard*) 2 mm (PTFE)
Max. length:	rubber hose according to HAR H07RN-F standard* 30 m, PTFE cable 10 m
No. of electrodes:	1 - 6
Max. temperature:	60 °C (rubber hose according to HAR H07RN-F standard*) 150 °C (PTFE cable)
Max. pressure:	6 bar
Min. conductivity:	20 µS/cm
Protection:	IP 65

* cable type approval according to EN 50525-2-21

Electrode relay
For technical details please refer to data sheet model NE.

9. Order Codes

Order Details (Example: **NEH-RENP1**)

Model	Description	Housing	Electrode material	Cable insulation/ body of electrode	Screwed fitting	Number of electrodes*
NEH-	Conductive suspended electrodes	**R =** Polyamide **L=** Aluminium **0=** without (with 2 m cable)	**E=** Stainless steel	**N=** rubber hose/ PVC	**P=** Polypropylene	**1=** 1 electrode **2=** 2 electrodes **3=** 3 electrodes **4=** 4 electrodes **5=** 5 electrodes **6=** 6 electrodes
			H= Hastelloy C **T=** Titanium **E=** stainless steel	**V=** PTFE/PTFE	**F=** PTFE	

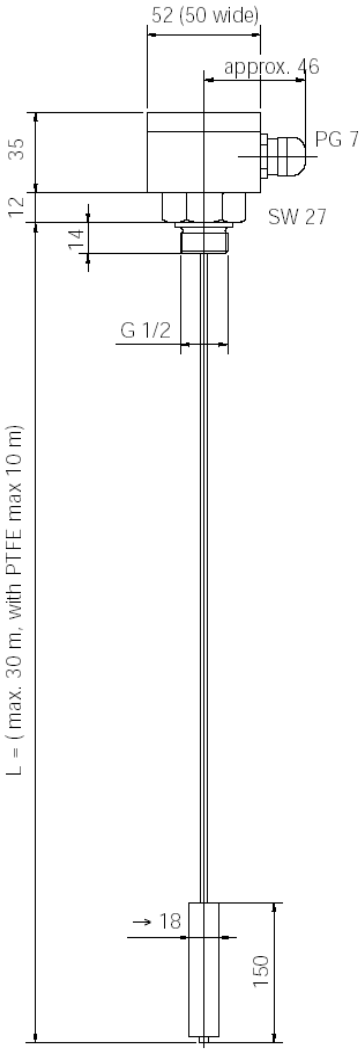
* Specify the length of electrodes in writing.

Order details electrode relay

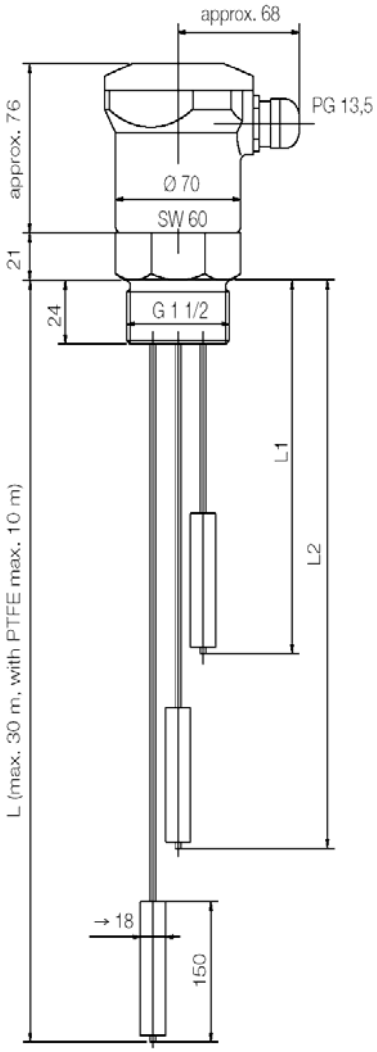
Description of electrode relay	Supply		
	Order No. 24VAC	Order No. 230 VAC	Order No. 110 VAC
1 limit signal or 1min./max. control	**NE-1042**	**NE-1040**	**NE-1041**
2 limit signals or 2 min./max. controllers	**NE-3042**	**NE-3040**	**NE-3041**

10. Dimensions

NEH-L...



NEH-R...



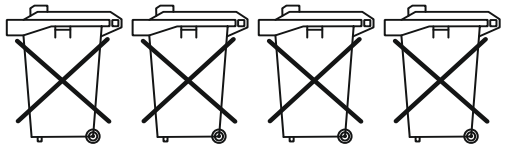
11. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

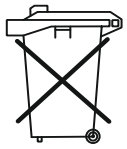
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



12. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Conductive Suspended Electrodes model: NEH

to which this declaration relates is in conformity with the following EU directives stated below:

2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)

Also, the following standards are fulfilled:

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Additional for

Electrode relay model: NE-104/NE-304

to which this declaration relates is in conformity with the following EU directives stated below:

2014/30/EU **EMC Directive**
2014/35/EU **Low Voltage Directive**

Also, the following standards are fulfilled:

EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements, industrial area (measurement of interference immunity to HF fields up to 1 GHz)

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

Hofheim, 12 March 2024

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