Operating Instructions

for

Conductive Level Switches

Model: NEK-...

1. Contents

Manufactured and sold by:

Kobold Messring GmbH
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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 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

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 Level Switch Model: NEK-...
- Operating Instructions

4. Regulation Use

Any use of the Conductive Level Switch, model: NEK, 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

The Kobold Level Switch of model NEK is a complete functional unit which is specially designed for monitoring conductive liquids under extreme conditions. Due to the design without any moving or protruding parts, the switches are very suitable for monitoring critical media with, for example, solid content, negligible density or high viscosity. The double-thread allows a variety of installations. The length of the shaft can be extended by attaching an additional protective tube. The instruments operate on the conductive principle of measurement. The conductive medium touches both electrodes causing a negligible alternating current to flow; the output state changes.

6. Mechanical Connection

6.1. Check service conditions:

- Chemical resistance of materials
- Maximum operating pressures
- Maximum service temperature

6.2. Installation

- Tank installation may be the side or from the top (universal)
- Avoid pressure and tensile/torsional stress
- Check connections for leakage

7. Electrical Connection

7.1. General

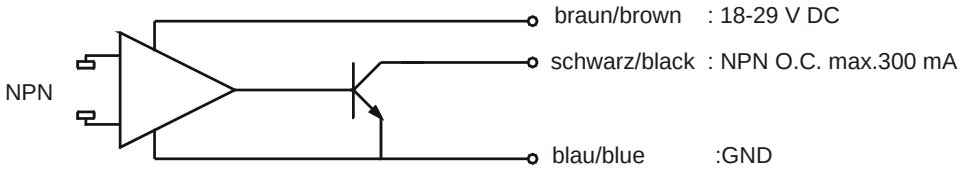
Important! Make sure that the voltages in your plant correspond with the Level Switch voltages

- Make sure that the supply wires are de-energized.
- Wire the connection cable to your supply according to the terminal connection diagrams below.

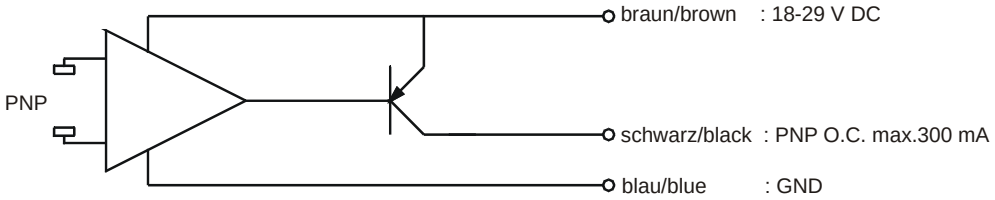
Attention! Incorrect wiring will lead to damage of the unit's electronics.

If the unit is installed in a metallic, conductive container, this container must be connected with the NEK supply potential GND, otherwise it may cause functional problems by potential differences.

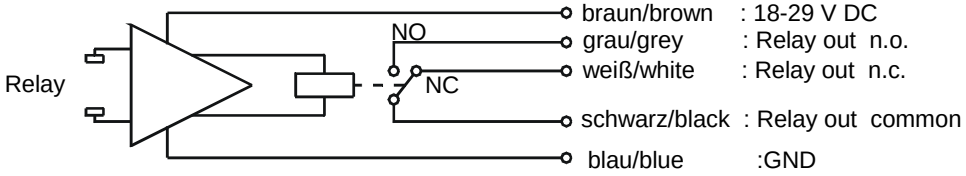
7.2. NPN switching output (NEK-1)



7.3. PNP switching output (NEK-2)



7.4. Relay switching output (NEK-3)



8. Commissioning

The measuring instruments are pre-set and are ready for operation after electrical connection.
The LED signals the switch state of the level switch.

- LED off: no power supply
- LED off with short "ON pulses":
  Power supply on / switch state de-activated (dry)
- LED on: Power supply on / switch state activated (wet)

9. Maintenance

The Conductive Level Switch is maintenance-free.
Should the electrodes be contaminated with a non-conductive coating (oil, grease, etc.), they can be cleaned with a suitable tool (e.g. cloth). Do not use a cleaner that would damage the plastic housing.

10. Technical Information

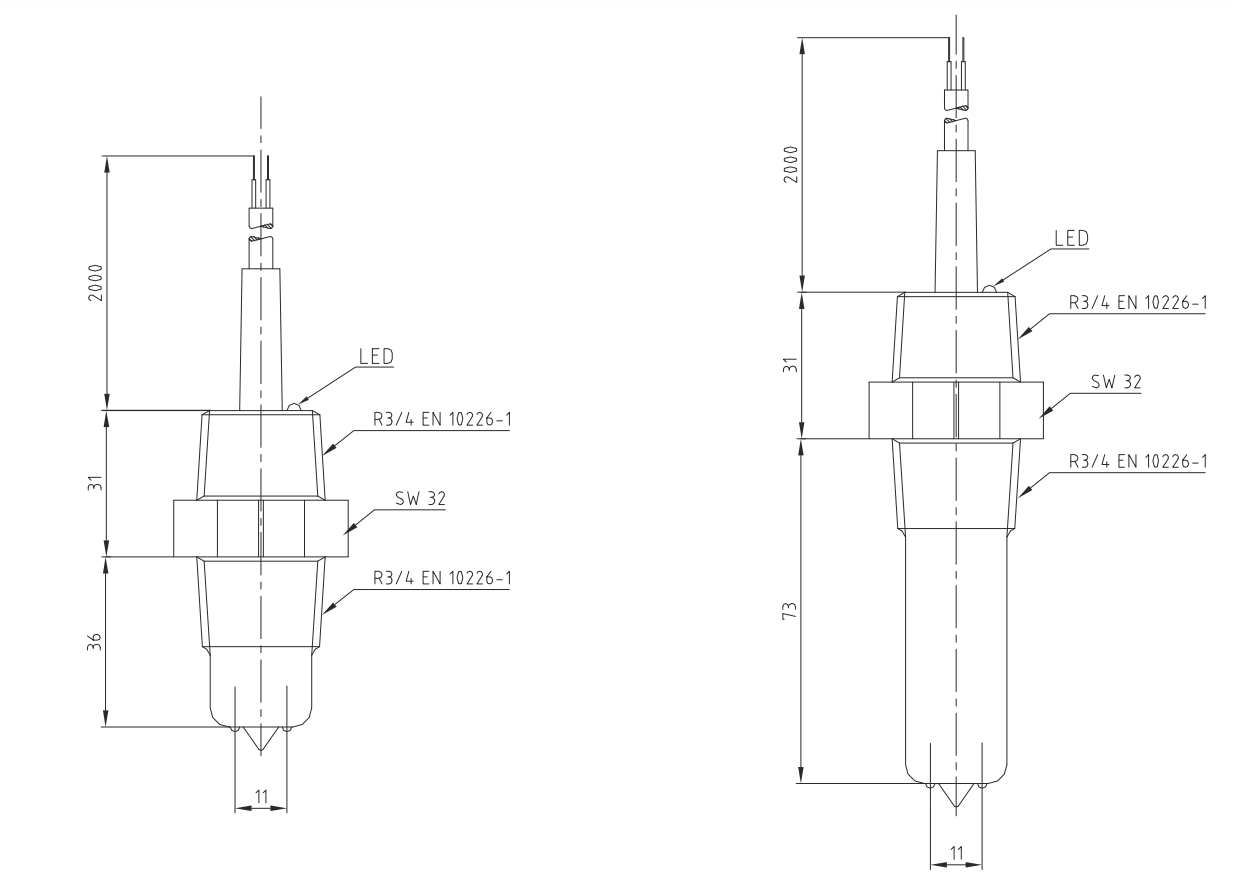
Case:	PPS (Rhyton) or polypropylene
Electrodes:	stainless steel 1.4571
Connections:	R 3/4 or 3/4 NPT male thread
Operating temperature:	-25 to +85 °C (PPS) -25 to +60 °C (polypropylene)
Max. pressure:	20 bar (PPS) 6 bar (polypropylene)
Installation position:	horizontal or vertical
Contact components:	open collector (NPN or PNP) wet signal Option: relay (floating changeover contact)
Electrical connection:	2 m encapsulated cable 3-core screened (open collector) 5-core unshielded (relay)
Supply:	18-29 V_{DC} < 20 mA
Switch-in delay:	dry/wet: 0.5 sec. wet/dry: 0.5 sec.
Sensitivity:	approximately 50 kΩ
Min. Conductance:	approximately 100 µS/cm
Switch capacity:	**open collector:** max. 32 V / max. 100 mA / short-circuit-proof **Relay:** max. 1 A / 30 V / short-circuit-proof
Protection type:	IP 68

11. Order Codes

Example: NBK-1136 R20 C

Immersion length	Contact	Model		Mechanical connection	Electrical connection
		PPS	Polypropylene		
36 mm	Open collector (NPN)	**NEK-1136..**	**NEK-1236..**	**...R20**= R 3/4 **...N20**= 3/4 NPT	**...C** = 2 m PVC cable..
	Open collector (PNP)	**NEK-2136..**	**NEK-2236..**		
	Relay (changeover contact)	**NEK-3136..**	**NEK-3236..**		
73 mm	Open collector (NPN)	**NEK-1173..**	**NEK-1273..**		
	Open collector (PNP)	**NEK-2173..**	**NEK-2273..**		
	Relay (changeover contact)	**NEK-3173..**	**NEK-3273..**		

12. Dimensions



13. EU Declaration of Conformance

We, KOBOLD-Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Conductive level switch model: NEK -...

to which this declaration relates is in conformity with the standards noted below:

EN 61000-6-4:2011-09
Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

EN 61000-6-2:2006-03
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

EN 61010-1:2011-07
Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

EN 60529:2014-09
Degrees of protection provided by enclosures (IP Code)

Also the following EC guidelines are fulfilled:

2014/35/EU Low Voltage Directive
2011/65/EU **RoHS** (category 9)

Hofheim, 12. May 2016

H. Peters
General Manager

M. Wenzel
Proxy Holder