



**Operating Instructions
for
Level Switch for Liquids**

Model: NAB / NEC



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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:

- Level Switch model: NAB / NEC
- Operating Instructions

4. Regulation Use

Any use of the Level Switch, model: NAB/NEC, 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

5.1 NAB

The KOBOLD level switch model NAB is ideally suited for the level monitoring of liquids and for direct pump control by means of a mechanical switch with very high switch capacity 20 (8) A at 250 V_{AC}.

The NAB comprises a stable plastic housing made of polypropylene (PP) with neoprene cable of optional 3 or 10 m of length.

5.2 NEC

The KOBOLD level switches of model NEC have been developed for level monitoring of liquids and for direct pump control for all industrial applications.

The float is supplied with a mechanical microswitch with very large switching capacity.

The NEC comprises a stable plastic housing made of polypropylene with a total of five cavities sealed back-to-back. The instruments are thus practically unsinkable even when physically damaged.

The level switches are available in following basic designs:

- NEC-930: polypropylene float, with mechanical contact, 5 m Hypalon cable
- NEC-HY930: float Hypalon coated for aggressive media, with mechanical contact, 5 m Hypalon cable
- NEC-930 N10: polypropylene float, with mechanical contact, 10 m Hypalon cable

6. Mechanical Connection



Make sure that the maximum allowed operating pressures and service temperatures of the devices are not exceeded (see section 9. Technical Information).

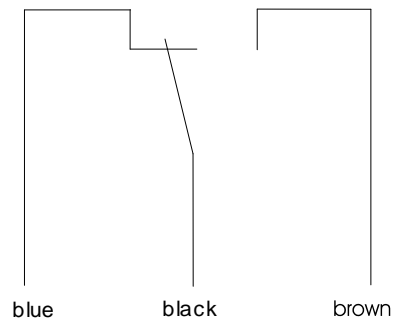
Take care that the cable-ends are not immersed in water at any time, because there is a danger of water leakage into the device through the cable.

7. Electrical Connection

- Make sure that the supply wires are de-energised.
- Make sure that the voltage values of your system correspond with the voltage values of the measuring unit. Do not exceed at any time the switching capacity specified in the technical details.
- Connect the supply wires to the cable of the float switch according to the desired switching function.
- The cable joint should be protected by an adequate terminal box against touch and humidity.

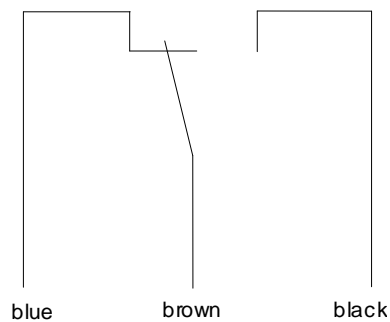
7.1 Connection figure NAB

Electrical connection



7.2 Connection figure NEC

Electrical connection



8. Maintenance

The float switch is almost maintenance-free.

Occasionally the cables should be checked for damages. A float switch with a damaged cable should be replaced immediately.

9. Technical Information

9.1 NAB

Float material:	polypropylene (PP)
Cable material:	neoprene
Length of cable:	3 and 10 m
Max. temperature:	85 °C
Max. pressure:	3.5 bar
Class of protection:	IP 68 (Cable-ends may not be immersed under water at any time)
Medium density:	0.5 ... 1.15 kg/dm ³
Contact:	Microswitch, changeover contact
Switch capacity:	20 A at resistive load 8 A at inductive load
Power supply:	250 V _{AC} ; 50 / 60 Hz
Weight:	approx. 1200 g for 10 m cable
Actuating angle:	110° (55° from the horizontal plane in both directions)
Optional:	Ballast weight: Loaded resin, 175 g

9.2 NEC

Float:	Double cone
Float material (standard model):	Polypropylene (PP)
Float material (HY model):	PP with Hypalon coating
Cable:	3 x 1 mm ² , Hypalon
Contact:	microswitch, changeover contact 250 V _{AC} , 16 A resistive load, 6 A inductive load
Actuating angle:	±25° from the horizontal
Medium density:	NEC: 0.7-1.15 kg/dm ³ NEC-HY: 0.8 -1.10 kg/dm ³
Max. pressure:	NEC: 3.5 bar; NEC-HY: 4 bar
Max. temperature:	85 °C
Class of protection:	IP 68 (Cable-ends may not be immersed under water at any time)

All level switches of model NEC are supplied complete with ballast weight.

10. Order Codes

10.1 NAB

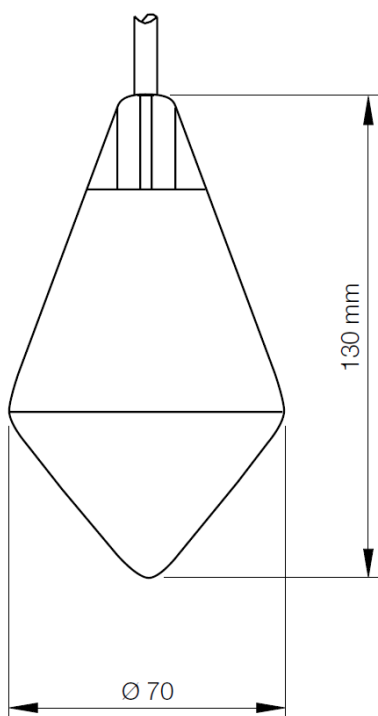
Model	Description
NAB-W03	Changeover contact, 3 m cable
NAB-W10	Changeover contact, 10 m cable
NAB-BESCHWER	Ballast weight

10.2 NEC

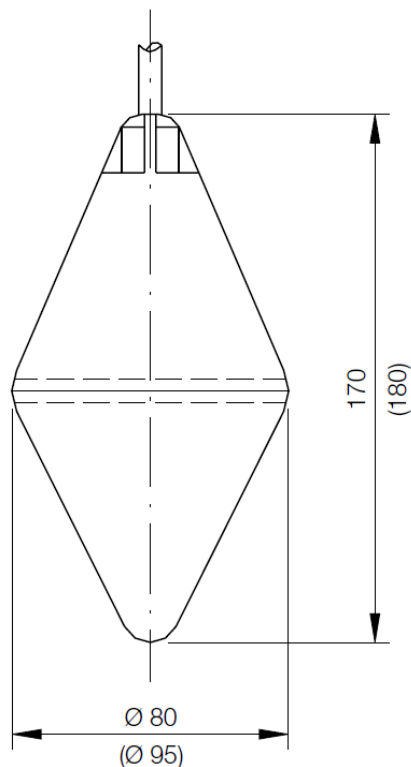
Model	Float material/ cable
NEC -	<p>930= PP/ 5 m Hypalon cable</p> <p>930N10= PP m Hypalon cable</p> <p>HY930= PP Hypalon coated / 5 m Hypalon cable</p>

11. Dimensions

NAB



NEC



12. EU Declaration of Conformance

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

Level Switch for Liquids model: NAB/NEC

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

EN 60730-2-15:2010 Automatic electrical controls for household and similar use - Part 2-15: Particular requirements for automatic electrical air flow, water flow and water level sensing controls

Also the following EU Directives are fulfilled:

2014/35/EU **Low Voltage Directive**
2014/30/EU **EMC Directive**
2011/65/EU **RoHS** (category 9) industrial monitoring and control instruments, compliant, no CE-marking for the transitional period until 2017

Hofheim, 14. June 2016



H. Peters
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