



Operating instructions for By-pass level indicator Model: NZJ



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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.

as per PED 2014/68/EU

In acc. with Article 4 Paragraph (3), "Sound Engineering Practice", of the PED 2014/68/EU no CE mark.

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:

- By-pass level indicator: NZJ
- Operating instructions
- Capacitive switch (option)

4. Regulation use

Any use of the by-pass level indicator, model: NZJ, which exceeds the manufacturers 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 Unirota NZJ model by-pass level indicator works on the basis of the intercommunicating vessels principle. The NZJ type glass tube level indicator is applicable for the indication of liquid level in small and middle-sized, standing or lying round containers used in food, pharmaceutical and chemical industries. The level of the liquid in the glass tube of the appliance is the same with the level in the round containers. The level of the liquid can be seen through the sight glass.

The loads occurring at the installation is absorbed by the fixing device, thus the glass tube is protected against breaking. The fixing device also protects the glass tube against the mechanical impacts that may occur following the installation. We recommend that the normal design level indicators be fitted on vessels containing pure liquids, while the indicators mounted with cleaning stubs (a low, or low-top stub) be fitted on containers filled with contaminated liquid.

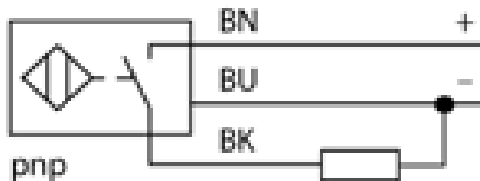
6. Mechanical connection

Before installation:

- Remove all transportation safety locks and ensure that no packing material remains within the unit.
- Be sure that the maximum allowable operating pressure and temperature is not exceeded (see Technical data).
- Install the by-pass level indicator at the side of the round containers, ensure the instrument is under no mechanical stress/tension (install support bracing if necessary).
- Protect the measuring tube from external damage.
- Avoid pressure peaks in the measuring tube, e.g. from sudden surges or stoppage of flow.
- If possible, immediately after making mechanical connections, check whether the connections are properly sealed with no evidence of leakage.
- Make sure that the connections are in plain.

7. Electrical connection

7.1. Capacitive switch (option)



8. Operation

Capacitive proximity switches are designed for non-contact and wear-free detection of metal (electrically conductive) and nonmetal (electrically non-conductive) objects.

Installing of the capacitive switch

- Slide the switch housing up until the glass tube is empty under the switch.
- Set the switching state LED off by adjusting the potentiometer located the end of the switch.
- Slide the switch housing down until the glass tube is full under the switch.
- The LED must be on. If not, repeat the process from the first step until the LED on.

Adjustment of limit-values

The switch-point can be adjusted to the desired levels by using the clamping screw on the holder of switch.

Reference edge: approx. the middle of the sensor.

Slide the switch housing up or down until the reference edge coincides with the desired switch-point scale reading.

9. Maintenance

If the medium to be measured is clean, the series NZJ is virtually maintenance-free.

If deposits form on the inner housing or parts, periodic cleaning of the unit is recommended.

- Remove the units from the container with a suitable tool.
- Screw the side flats out.
- Clean the glass tube with a suitable cleaning.
- Do the reassembly in reverse order.

10. Technical information



Installation position:	vertical
Installation length:	100...540 mm
Measuring length:	60...500 mm
Material:	stainless steel (1.4301/1.4404) / Alu
Gasket:	NBR, FPM, EPDM, PTFE
Process connection:	G ¼, ½" NPT (male) union nut
Scale resolution:	2 mm on stick foil
Max. pressure:	16 bar
Medium and ambient temperature:	-25°C...+100 °C (-25 °C...+70°C with switch)
Density:	any (no float used)
Max. viscosity:	50 mm ² /s

Limit contacts

Type: **capacitive sensor (without ATEX)**

Operating Voltage U_B :	10...36 V _{DC}
Short-circuit protection:	pulsing
Voltage drop U_D :	≤ 2.5 V
Operating current I_L :	0...100 mA
No-load supply current I_0 :	≤ 12 mA
Indication of the switching state:	LED, yellow
Potentiometer:	sensitivity adjustment
Ambient temperature:	-25...70 °C (-13...158 °F)
Connection type:	cable PUR, 2 m
Core cross-section:	0.34 mm ²
Protection:	IP65

Type: **capacitive sensor (with ATEX)**

Ambient temperature:	-25...+70 °C
Operating voltage:	10...30 V _{DC}
DC rated operational current:	≤ 200 mA
No-load current I_0 :	≤ 15 mA
Residual current:	≤ 0.1 mA
Output function:	3-wire, NO contact, PNP
Voltage drop at I_a :	≤ 1.8 V
Connection type:	cable PUR, 2 m
Protection:	IP67
ATEX version:	 II 3G Ex nA IIC T4 Gc
	 II 3D Ex tc IIIC T91°C Dc

Material combinations

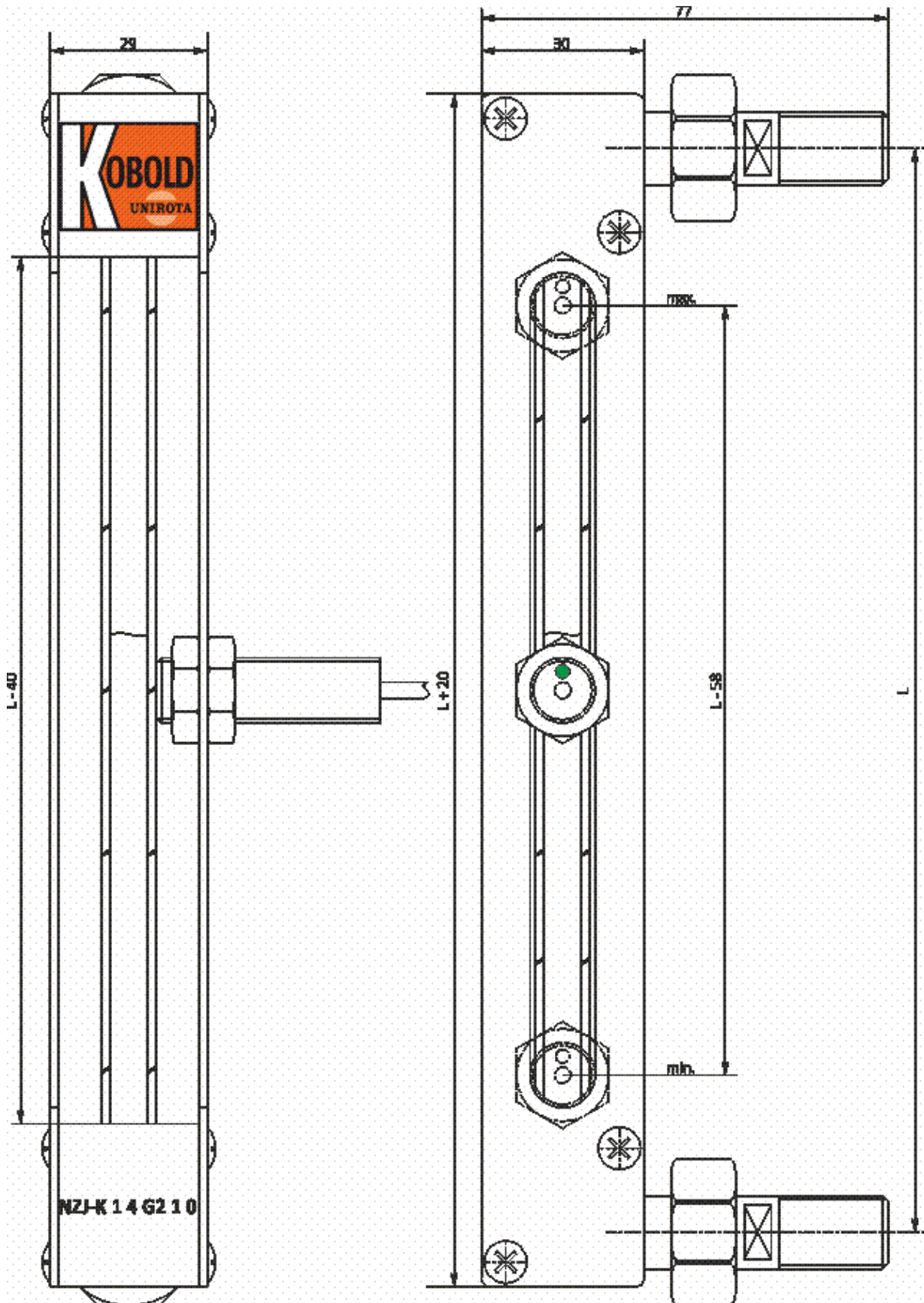
Code	Tube	Body	Connection	Seal
NZJ-A	glass	aluminium	1.4404	NBR
NZJ-K		stainless steel 1.4301		FPM
NZJ-S		stainless steel 1.4301		FPM

11. Order codes

Model	Version	Seals	Switch	Option
NZJ-A NZJ-K NZJ-S	0 = without scale 1 = with scale in mm 2 = with scale in %*	1 = FPM 3 = EPDM 4 = NBR 5 = PTFE	0 = without switch 1 = 1x N/O 2 = 2x N/O A = 1x ATEX B = 2x ATEX	0 = without Y = customer specification

*Please specify the 0% and 100% level relative to the bottom and top connection level in clear text.

12. Dimensions



13. EU Declaration of conformance

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

Bypass Level Indicator Model: NZJ

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

Version without ATEX:

EN 60947-5-2:2007/A1:2012

Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches

Version with ATEX:

EN 60079-0:2012+A11:2013

General requirements

Explosive atmospheres - Part 0: Equipment -

EN 60079-15:2010

protection by type of protection "n"

Explosive atmospheres - Part 15: Equipment

EN 60079-31:2014

Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

Also the following EC guidelines are fulfilled:

2014/30/EU

EMC Directive

2014/34/EU

ATEX (only for models with ATEX)

2011/65/EU

RoHS (category 9)

EN 50581:2012

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances



H. Peters
General Manager



M. Wenzel
Proxy Holder

Hofheim, 23. Aug. 2017

14. Type Examination

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Translation:

(1) **Type Examination Certificate**

(2) Equipment or Protective systems intended for use in potentially explosive atmosphere **Directive 2014 / 34 / EU**

(3) **Number:** **TURCK Ex-03025H X** **issue No.: 2**

(4) **Product:** Proximity switch types:
BC3-S12-RP6X/S90/3GD
BC3-M12-AP6X/S90/3GD

(5) **Manufacturer:** Hans Turck GmbH & Co KG

(6) **Address:** Witzlebenstr. 7
45472 Mülheim an der Ruhr

(7) The design of this product and any acceptable variation thereto is specified in the appendix to this Type Examination Certificate.

(8) The Hans Turck GmbH & Co. KG certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test are recorded in the confidential Assessment Report TURCK Ex-03025H X.


(9) Compliance with the Essential Health and Safety Requirements has assured by compliance with:

EN 60079-0:2012/A11:2013 EN 60079-15:2010 EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 2014 / 34 / EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment protective system must include the following:

 **II 3 G Ex nA IIC T4 Gc**
II 3 D Ex tc IIIC T91°C Dc

Hans Turck GmbH & Co. KG

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Mülheim an der Ruhr, Date 30.06.2017



(i.A. W. Dick)
Certification Representative

Your Global Automation Partner

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Translation:

(13) **Appendix**

(14) **Statement of Conformity TURCK Ex-03025H X**

(15) Product description

The use of capacitive sensors is allowed in zone 2 resp. zone 22 depending on the marking. They are suitable for non-contact and wear-free detection of both metallic (electrically conductive) and non-metallic (electrically non-conductive) objects and conversion into a digital output signal.

Ambient temperature range: -25°C ... +70°C

Electrical Data

Nominal voltage: 10...30V d.c.
Nominal current: < 200mA

(1) Report Number:

Zone2+22_3_D_NGW_~_Turck Ex-03025HX

(2) Special conditions for safe use:

- The device must be supplied from power supply units with secure separation according to IEC 60364 which ensure that the rated voltage of the equipment is not exceeded by more than 40% by transient disturbances.
- Plug-in devices or connection cables may only be connected or disconnected in a de-energized state.
- Fix a warning in the near of connector permanently in suitable form with following text: DO NOT SEPARATE WHEN ENERGIZED.
- Protect the device against any mechanical damage.
- The device shall be protected against ultraviolet radiation.

(3) Essential health and safety requirements:

- no additional ones