KOBOLD NCW Capacitive Level Monitor Instruction Manual

KOBOLD NCW Capacitive Level Monitor Instruction Manual

Contents

Note

Please read these operating instructions before unpacking and putting the unit in 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 mpurchased. If you need an instruction manual that correspond 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 mserial 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.

Instruments Inspection

Instruments are inspected before shipping and sent out in perfect condition.

Scope of delivery

The standard delivery includes:

- Capacitive Level Monitor NCW
- Cable gland M20
- Operating Instructions

Description

All NCW level switch instruments can be used in any application where one level of Mliquid in a tank or a silo must be detected.

Regulation Use

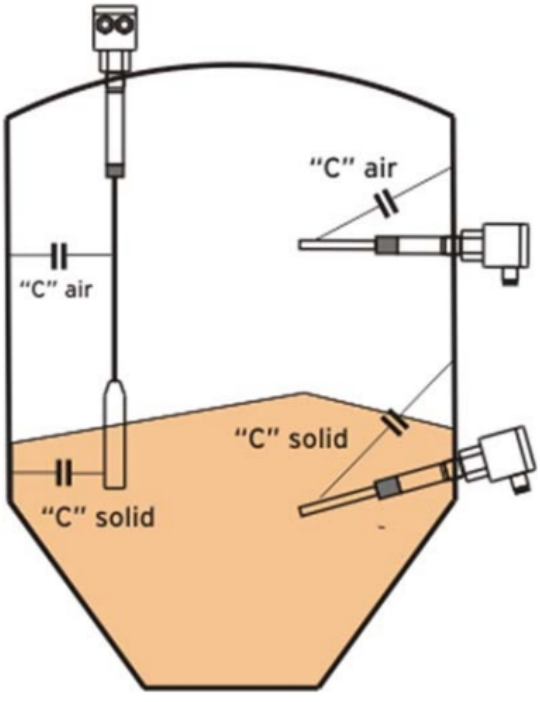
The capacitive Level Monitor is indicated to punctual level detection in tanks containing liquids.

The are 4 basic models:

NCW-N: Rigid probe in PTFE, for general applications in metallic tanks.
NCW-T: Rigid probe in PTFE with stainless steel tube (ground tube). For products with a low dielectrical constant and non metallic tanks.
NCW-H: Rigid probe in PTFE with special thread made of stainless steel for high Temperatures (200ºC)
NCW-S: Double rigid probe in PVDF for NON METALLIC tanks containing aggressive liquids that attack stainless steel.

Operating principle

The NCW sensor together with the wall of the tank is a capacitor.
The dielectric constant of this capacitor is the air when the product (media) doesn't reach the sensor. When the product covers the sensor, the dielectric constant is the product one. The electronic circuit of the NCW detects this change and activates an output relay.



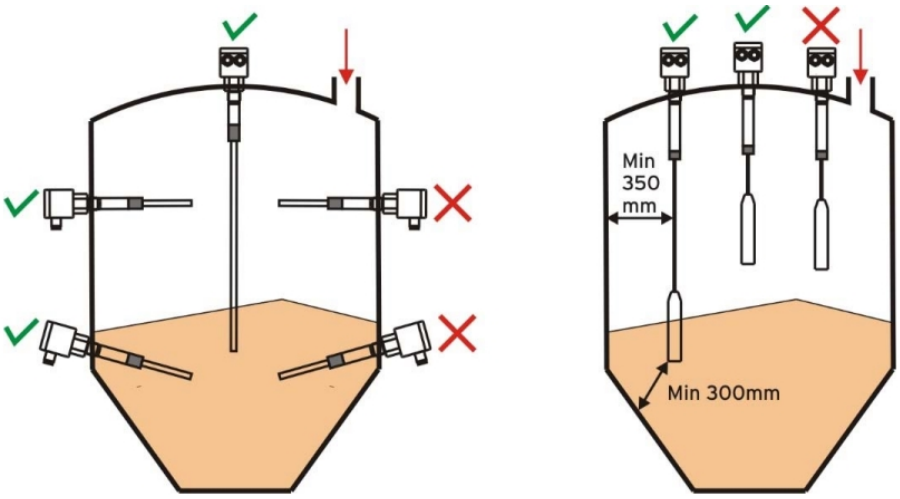
Mechanical connection

Before installation:

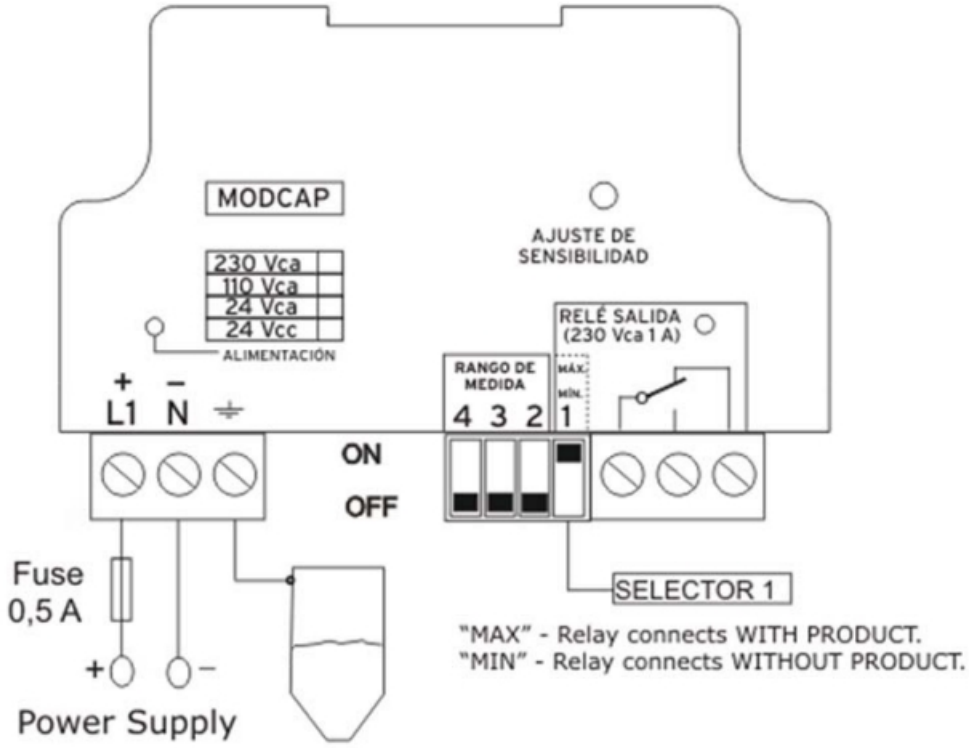
- Remove all packing materials and transport retainers and ensure that no such materials remain in the device.
- Make sure that the permitted max. operational pressure and temperature limits are not exceeded (see Technical Information)

- Protect the measuring sensor from external damage.
- The units may not be installed at a location within an inductive field.
- If possible, check directly after mechanical installation whether the connection thread to the pipe is fully sealed.

Installation:
The NCW is installed using a 1”BSP, (2”BSP Thread in NCW-S version)
Check if probe’s length is correct to detect the level. At the end of the probe there is a stopper to guaranty the electrode water light.
This part (10mm aprox.) is not sensible to the liquid.



Electrical connection



VERY IMPORTANT

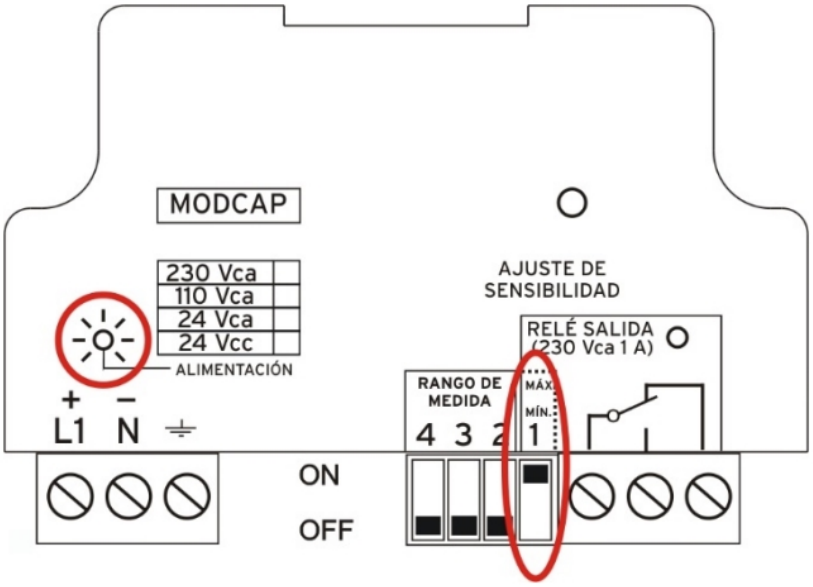
- Be sure that power supply corresponds with the indicated in the equipment’s label.
- GREEN led lighting indicates that equipment is powered

- RED led lighting indicates that output relay is activated.
- Using SELECTOR 1, you can choose relay operation NO or NC when the product covers te probe.
- Protection fuse of 0.5mA must be put in serial with supply line.
- Ground terminal is internally tied to the connection thread.
- Be sure that ground line has same potential than ground of thank.
- If you are not sure, please do not connect the ground terminal since the instrument could be damaged.

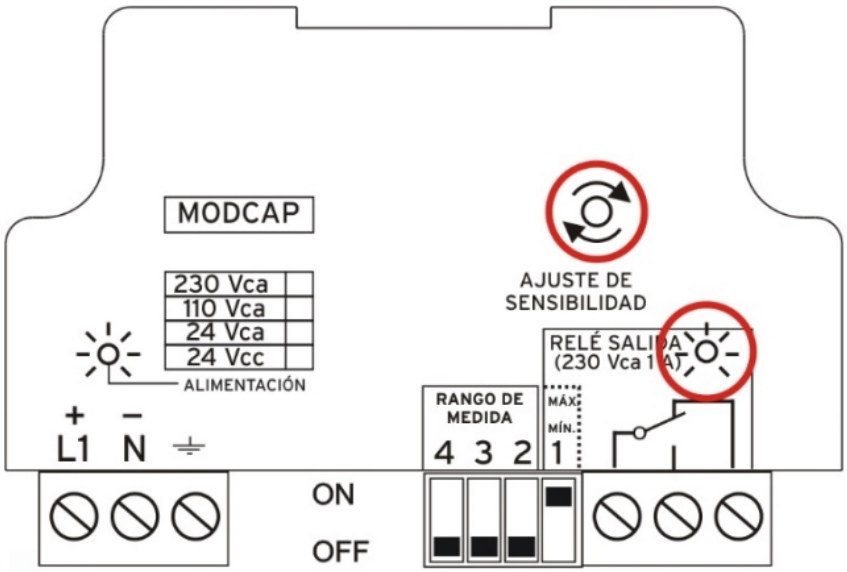
Adjustment

After installation and connection verification, we proceed to AJUST SENSITIVITY to fit the NCW with the tank and the product to measure.
Check that product doesn't reach the probe. Power supply GREEN LED must be ON

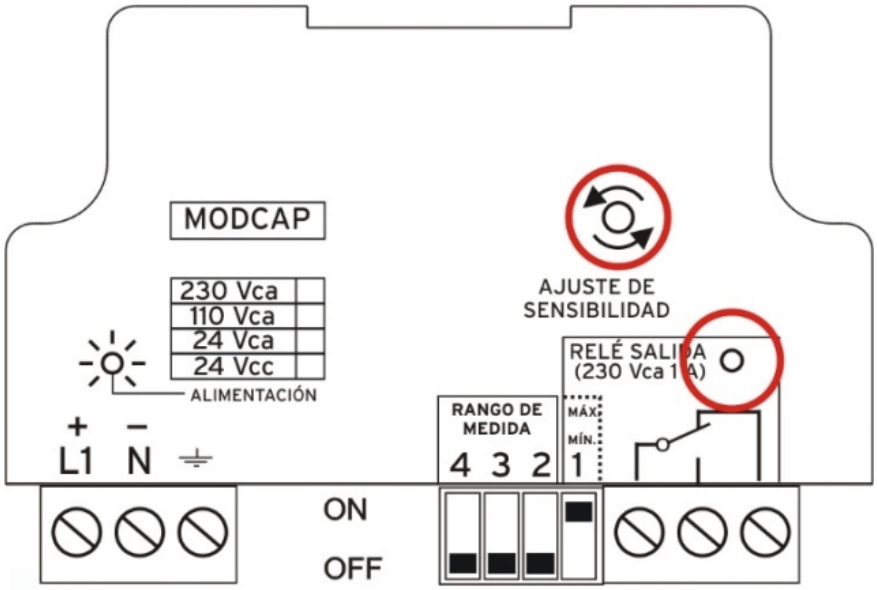
1. Put DIP-SWITCH 1 to "MAX" position.



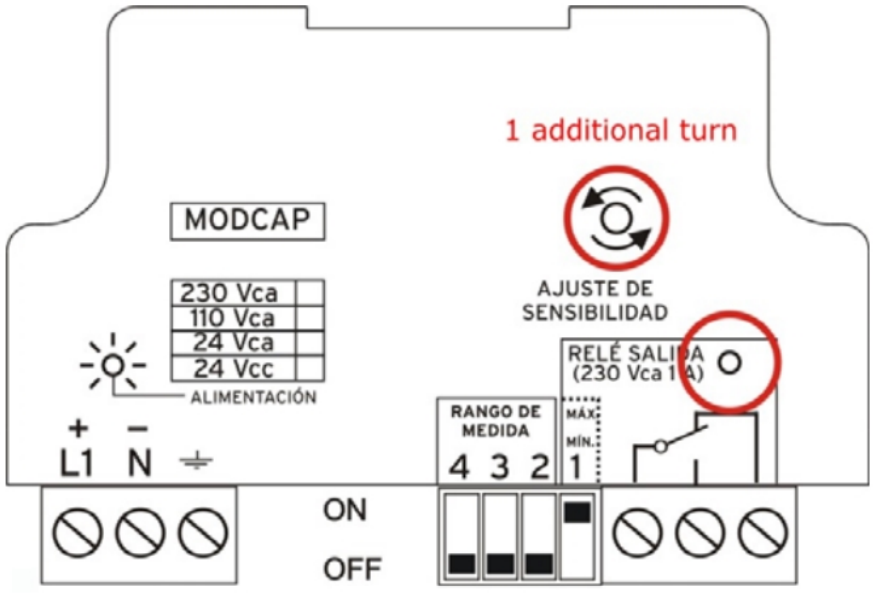
2. Turn the "SENSITIVITY ADJUSTMENT screw" clockwise until RED LED lights.



3. Turn slowly the "SENSITIVITY ADJUSTMENT screw" counter clockwise until RED LED switches off.



4. Turn 360º more counter clockwise to avoid a critical adjustment. In case of sticky products it is recommended to increase this adjustment.

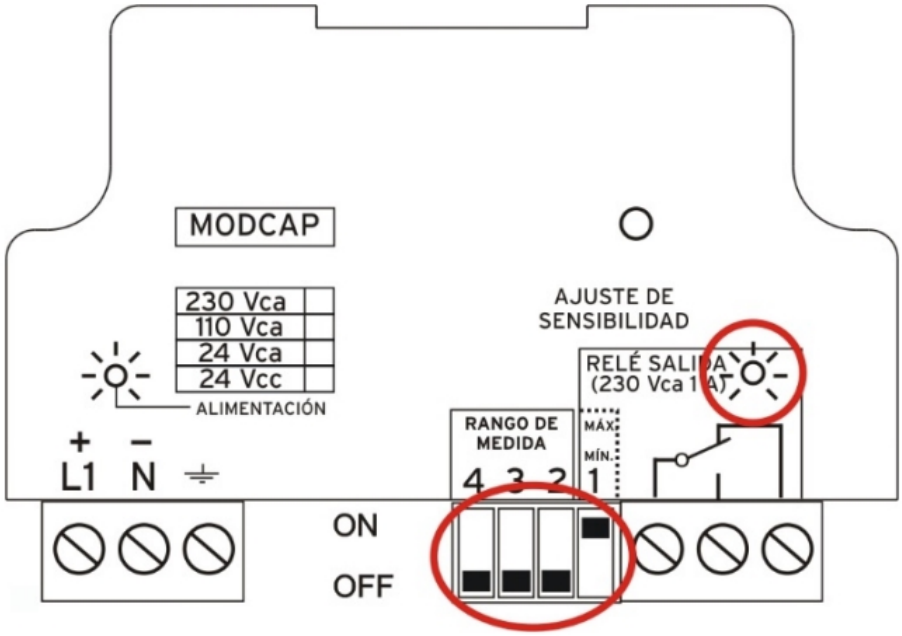


The instrument is now adjusted. When product will reach the probe relay will be activated and RED LED will light.
If we want the relay to work the REVERSE, put DIP-SWITCH 1 to “MIN”.
Check that no product remains on the probe when unloading the tank.

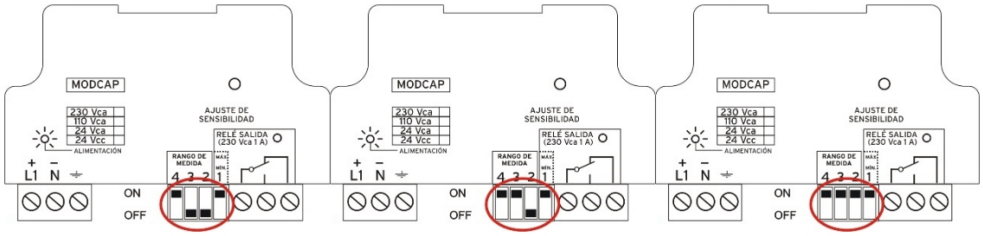
Module replacement

MODCAP modules are delivered with DIP-SWITCHES 2, 3 and 4 adjusted with its own probe. In case of replacement, following procedure must be done with the probe free of product:

1. With DIP-SWITCH 1 to “MAX” and 2, 3 and 4 to “MIN”, turn the multiturn potentiomenter totally to clockwise (20 turns). RED LED will switch ON.



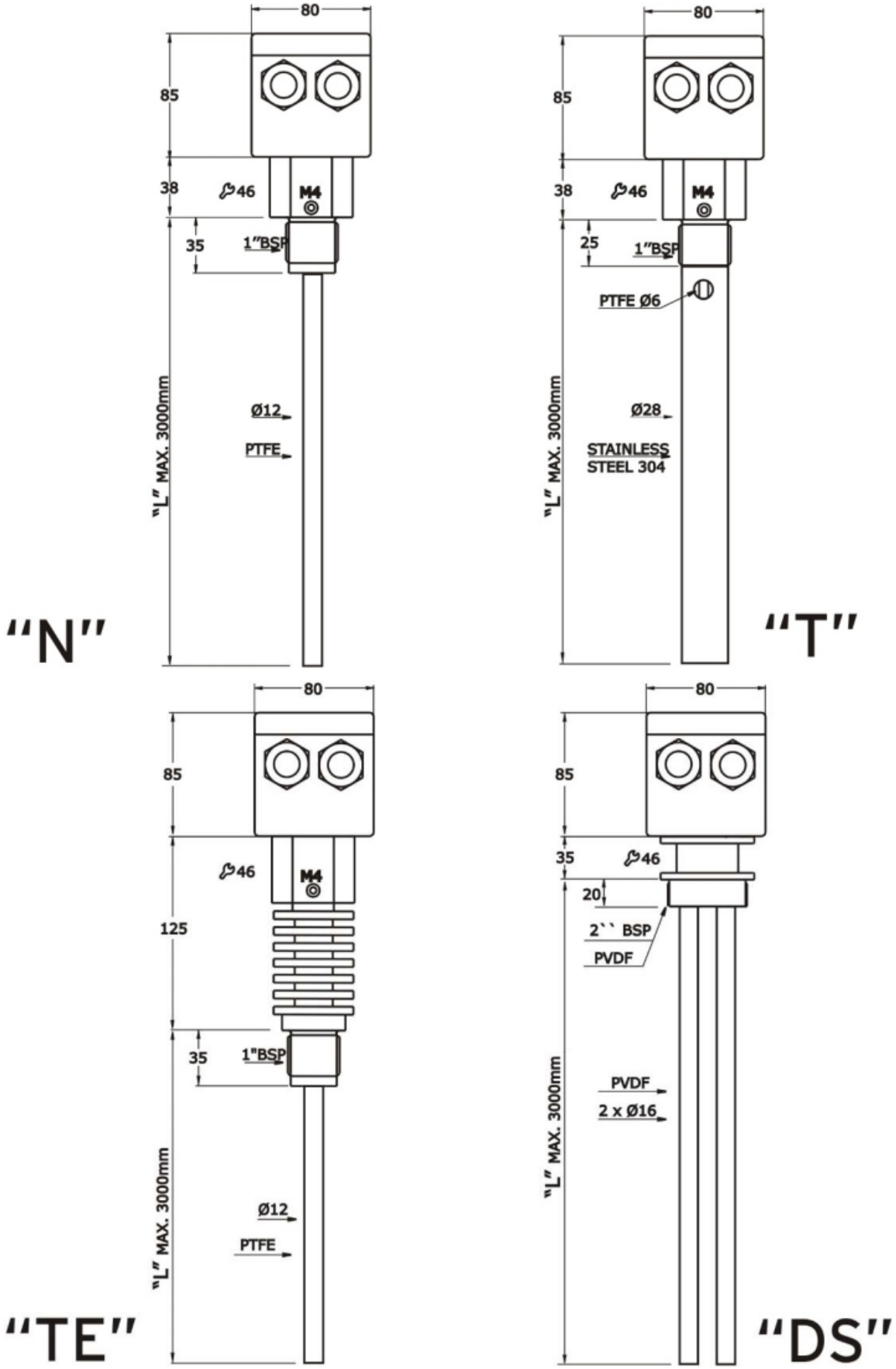
2. In case that RED LED doesn't lights, move DIP-SWITCH 4 (drawing 1) to ON. If RED LED still remains OFF, do same with DIP SWITCH 3 (drawing 2) and finally with DIP-SWITCH 2 (drawing 3) until RED LED finally lights.



drawing 1 *drawing 2* *drawing 3*

3. Once DIP-SWITCHES are correctly settled the SENSITIVITY ADJUSTMENT must be done .

Models



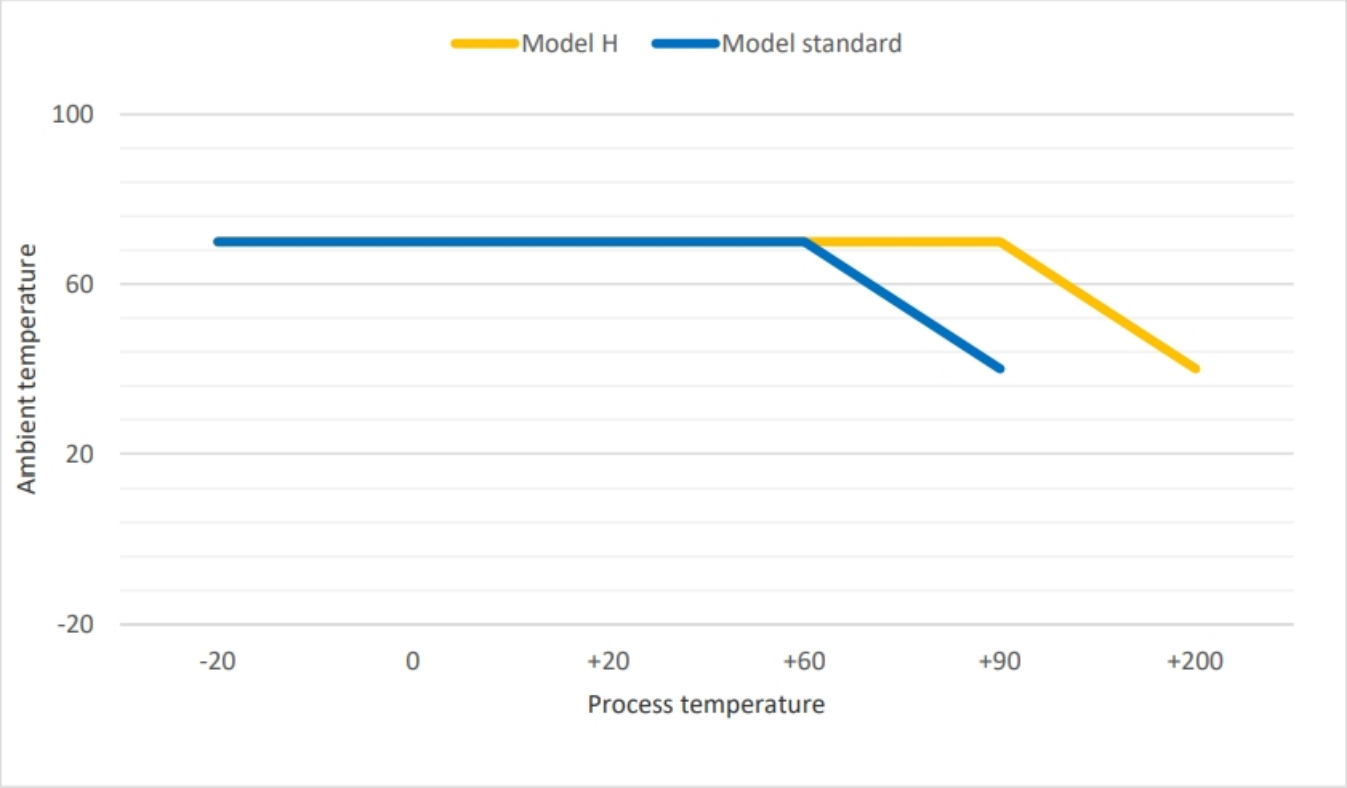
Technical Data

Note: Kobold Mesura makes every attempt to ensure the accuracy of these specifications but reserves the right to change them at any time.

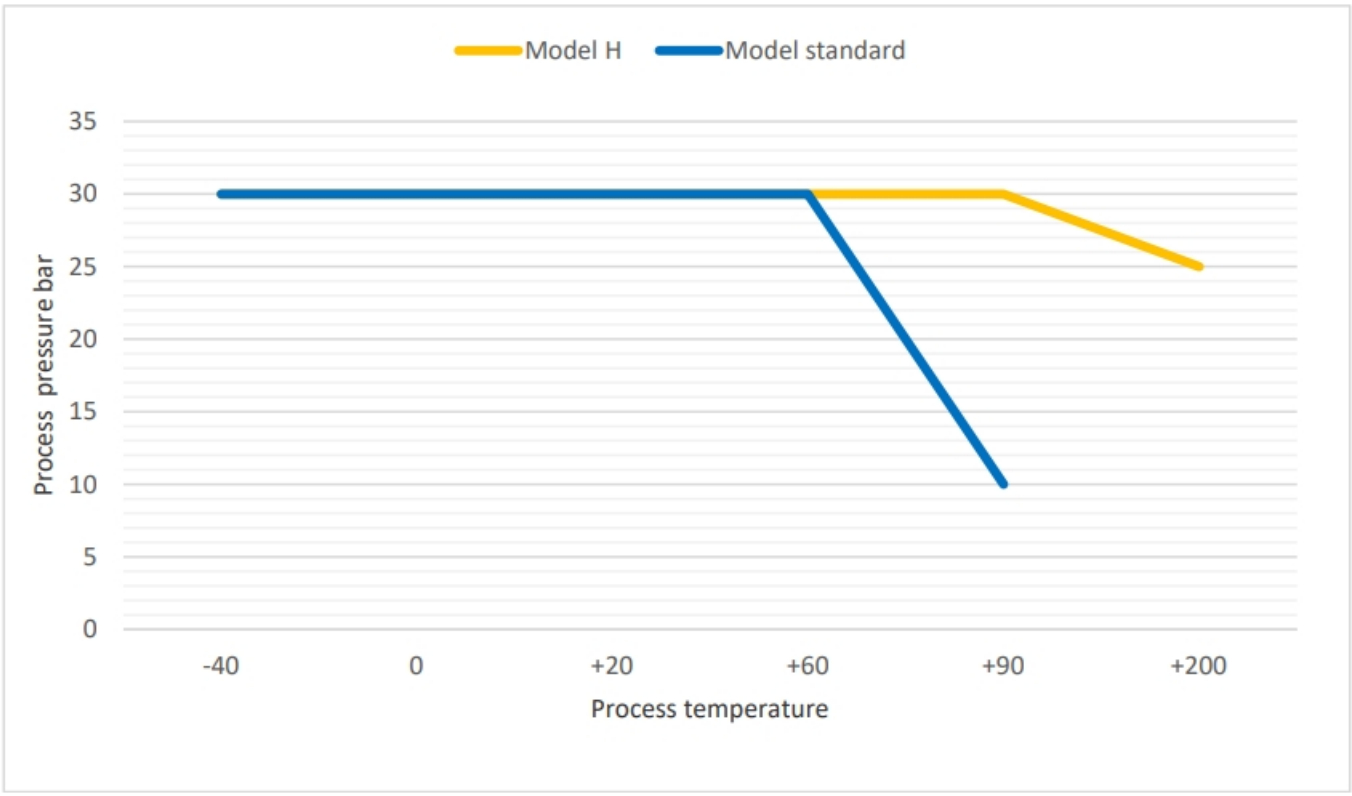
- Measuring principle: Capacitive

- Probe length: 100…4000 mm (shorter versions on request)
- Medium temp.: standard -20…+ 90 ºC, NCW-H -20…+200 ºC
- Max. pressure.: -1…30 bar
- Media DC-value: εr = min. 1.5
- Materials:
  - **Housing:** Polycarbonate
  - **Connection:** St.steel 1.4305 (NCW-N,NCW-T,NCW-H) PVDF (NCW-S)
  - **Probe:** St.steel with PTFE coating (NCW-N, NCW-T, NCW-H) PVDF coating (NCW-S)
- **Mech. connection:** G1 male (NCW-N, NCW-H, NCW-T) G2 male (NCW-S)
- **Supply voltage:** 24, 115 or 230 Vac 18…36 Vdc
- **Electr. connection:** Via 1 (2) cable gland M20x1,5
- **Output:** 1 x SPDT 250 V 1 A
- **Protection:** IP 65

Process temperature range



Process pressure range



EU Declaration of conformity

DECLARATION OF CONFORMITY

Declares under our sole responsibility, that the product To which this declaration relates is in conformity with the following European Directives:

EMC2014/30/EU LVD2014/35/EU RoHS2011/65/EU

Applied harmonised standards and normative documents:

- EN61010-1:2011
- EN61000-6-2:2019

Made in:
HergesteltIt in:

UK Declaration of Conformity

DECLARATION OF CONFORMITY

We Kobold Mesura S.L.U. declare under our sole responsibility that the product:

Level Switch NCW-..

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

BS EN 61010-1:2010

Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

BS EN 61000-6-2:2019

Electromagnetic compatibility (EMC) — Part 6-2: Generic standards – Immunity for industrial environments

Also, the following UK guidelines are fulfilled:

- **S.I. 2016/1091** Electromagnetic Compatibility Regulations 2016.
- **S.I. 2016/1101** Electrical Equipment (Safety) Regulations 2016.
- **S.I. 2012/3032** The Restiction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

Customer Support

KOBOLD MESURA S.L.U
Avda Conflent Nº68 Nave 15
08915 Badalona
Tel.: +34 93 460 38 83
Fax: +34 93 460 38 76
E-Mail: info.es@kobold.com
Web: www.kobold.com

Documents / Resources

 Operating instructions for Capacitive Level Monitor NCW	KOBOLD NCW Capacitive Level Monitor [pdf] Instruction Manual NCW, Capacitive Level Monitor, NCW Capacitive Level Monitor, Level Monitor, Monitor

References

- Industrial measuring and control equipment in the field of flow, pressure, level & temperature | Kobold Messring GmbH