Capacitive level probe
- Type NCT -

FEATURES

- CAPACITIVE CONTINUOUS FLUID LEVEL MEASUREMENT OF FLUID MEDIA
- HYGIENE-COMPLIANT INSTALLED VERSION
- IP67 & IP69K STAINLESS-STEEL HOUSING
- EASY CALIBRATION, MAINTENANCE-FREE
- INSTALLATION LENGTHS OF 400MM TO 2000MM
- FULLY SEALED ELECTRONICS

DESCRIPTION

The NCT capacitive level probe operates based on the capacitor principle and is suitable for the continuous measurement of conductive and non-conductive media, e.g. milk, beer, fresh water, etc. The NCT provides an analogue 4...20mA output signal.
Thanks to its hygienic design with elastomer-free sealing cone as a process connection, there are no mounting parts where residues can gather. The probe is therefore easy to clean and is left completely free from residues. In the HT version, the NCT capacitive level probe can also withstand high temperatures, such as in SIP and CIP cleaning processes. Through the stainless-steel field casing rated IP67 and IP69K and the fully sealed electronics, the NCT is optimally protected against moisture. This means that the capacitive level probe is suitable for use in the food and pharmaceutical industries.
Measurement is based on the change in capacitance of a capacitor (which in this case consists of the NCT rod probe and the tank wall). This change in capacitance is caused by the rise or fall of the dielectric fluid, the medium in this case. As the coverage of the rod probe increases, the capacitance of the capacitor grows.
With the help of an infrared remote control, the NCT capacitive level probe can quickly be adjusted to the minimum and maximum value.
The NCT capacitive level probe is particularly suitable for measurements in small tanks and containers where pressure measurement procedures are not possible.

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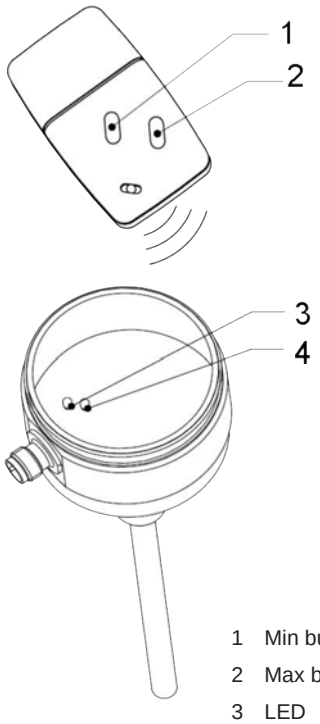
TECHNICAL DATA

General details		
Device type/measuring principle	NCT level probe / capacitive continuous	
Output		
Output signal	- 0…20mA, 3-wire (factory setting: adjusted over entire nominal length) - 4…20mA, 3-wire (factory setting: adjusted over entire nominal length)	
Burden	(UB-9V)/20mA	
Electronics		
Version S	Standard version, set to a dielectric constant (D_K value), factory setting ε=20 Parametrised by pressing on teach-in key (3...4 seconds) in the device, probe must be covered	
Conditions of use		
Ambient temperature	-10…+80°C	
Temperature of the medium	- Standard version -10…80°C - High-temperature version max. 140°C (with extension tube)	
Operating pressure	max. 10bar	
Construction		
Electrical connection	Round plug-in connector M12x1, 4-pin, nickel-plated brass (stainless steel available on request)	
Process connection	- G1/2" with elastomer-free sealing cone (TP16)	
Materials	- Field housing / lid: - Housing seal: - Process connection/extension tube: - Electrode rod: - Sealing compound (electronics):	CrNiSt 1.4301 FPM (Viton®) CrNiSt 1.4305 CrNiSt 1.4404, ECTFE coating (FDA-compliant) Polyurethane
Installation lengths	400…2000mm (in 100mm lengths)	
Auxiliary energy resources		
Supply voltage	9...32V DC, max. 30mA without fault signal	

Mounting

The NCT capacitive level probe is intended for vertical mounting. It is to be screwed into a suitable welded-in lug or G1/2 connection adapter for elastomer-free sealing cones. An electrically conductive connection between the tank wall and the connection thread must be ensured. During mounting, a clearance of 10 mm must be upheld between the bottom of the tank and the end of the rod probe (sludge formation).

In order to guarantee correct measurement, the probe coating must not be damaged. The probe rod cannot be shortened. A correct electrical connection must also exist between the NCT and the tank wall.



1 Min button
2 Max button
3 LED
4 Receiver

Commissioning and adjustment

After successful mounting, the NCT capacitive sensor can be put into operation. Adjustment takes place in two stages. First, the tank is emptied down to the lowest level. The zero point is then adjusted. For this, the “min” button is pressed on the remote control. For control purposes, the LED will start to flash quickly. The measured value is permanently saved when the LED lights up continuously. The button can now be released. If the tank is filled to the highest level, the end point can be adjusted. For this, press the “max” button until the LED lights up continuously. This measured value is now also saved. The button can be released. The probe has now been adjusted for 0/4…20mA.
If the filling levels for the lowest and highest measuring values are changed, the adjustment can be repeated at any time. If only one of the two filling levels are changed, only the initial value (“min”) or end value (“max”) needs to be re-adjusted.

For a falling characteristic (tank empty = large output signal and tank full = small output signal) it is sufficient to adjust the MAX when the tank is empty and MIN when the tank is full!

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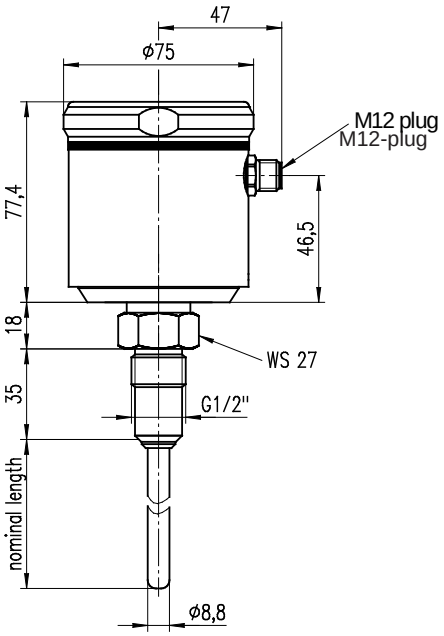
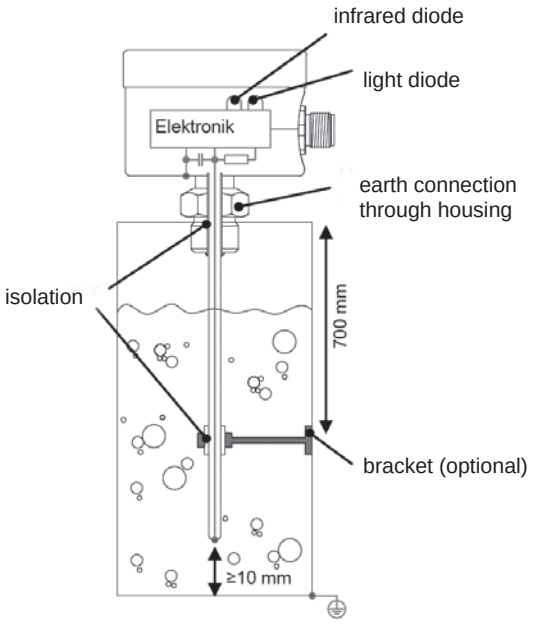
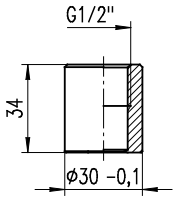
DIMENSIONAL DRAWINGS (dimensions in mm)



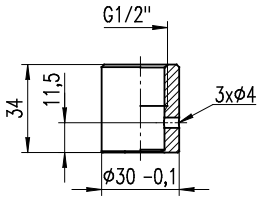
capacitive level probe NCT



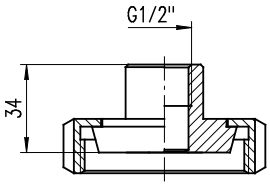
functional outline



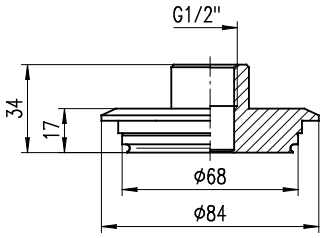
Z-TEM1FTP16
welding socket



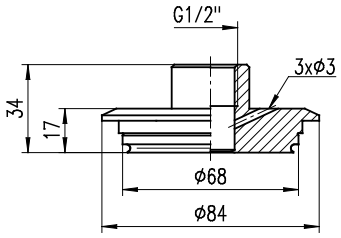
Z-TEM1LTP16
welding socket
with 3 leakage holes



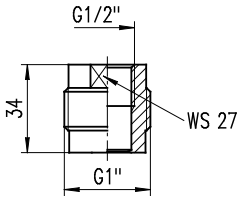
Z-TMN...FTP16
conical coupling
DIN 11851 - DN25 ... DN50



Z-TVA6FTP16
VARIVENT® - flange d=68mm



Z-TVA6LTP16
VARIVENT® - flange d=68mm
with 3 leakage holes



Z-NAM1JLVT
reduction socket
G1" to G1/2"

ELECTRICAL CONNECTION ELECTRONICS

1 Supply +
2 -
3 Supply -
4 Signal, 0/4...20mA

N-NCT-D-19/3

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ORDER INFORMATION for NCT

Nominal lengths

0400	400mm
0500	500mm
0600	600mm
0700	700mm
0800	800mm
0900	900mm
1000	1000mm
1100	1100mm
1200	1200mm
1300	1300mm
1400	1400mm
1500	1500mm
1600	1600mm
1700	1700mm
1800	1800mm
1900	1900mm
2000	2000mm

Electronics

AE	0…20mA; 9…32V DC, 3-L
PE	4…20mA; 9…32V DC, 3-L

Design

B	Standard version, medium max. +80°C
HT	High-temperature version, medium max. +140°C

NCT					

ORDERING INFORMATION for NCT ACCESSORIES

Process connection adapter (please order separately)	**Article number**
Welding socket Ø30mm, 1.4404 (316L)	TEM1FTP16
Welding socket Ø30mm, with 3 leakage holes Ø3mm, 1.4404 (316L)	TEM1LTP16
VARIVENT® Ø 68 mm, DN40-125/PN40, 1.4404 (316L)	TVA6FTP16
VARIVENT® Ø 68 mm, DN40-125/PN40, with 3 leakage holes, 1.4404 (316L)	TVA6LTP16
Conical couplings with groove union nut DIN 11851, DN25/PN40, 1.4404 (316L)	TMN2FTP16
Conical coupling with DIN 11851 groove union nut, DN40/PN40, 1.4404 (316L)	TMN4FTP16
Conical coupling with DIN 11851 groove union nut, DN50/PN25, 1.4404 (316L)	TMN5FTP16
Adapter socket for fitting in internal thread G1", 1.4404 (316L)	NAM1FTP16
Welding dummy MS58	TED1FTP16
RC-NCT infrared remote control for remote calibration	Z-RC-NCT

Please observe the permissible nominal pressure of the process connection selected.
All specifications and certifications specified are only guaranteed when Hengesbach original components are used.
Our devices are subject to constant development; subject to technical modification.

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