



# Pressure measurement

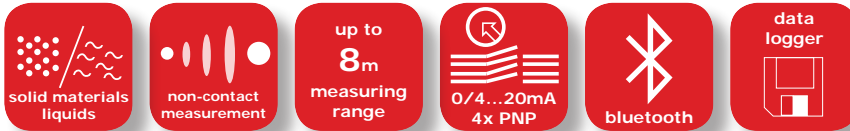


Type:

Sonicont® USN4

Ultrasonic level transmitter / level switch  
Non-contact measurement of filling levels  
in liquids, pastes and coarse bulk materials

## In brief



## Application

- Non-contact level and volume measurement or flow measurement at open channels and measuring weirs for
  - Water and waste water sector
  - Process industry
  - Environmental technology
  - Storage tanks, storage bunkers, silos

## Your benefits

- *Wide range of applications*
- Measuring ranges up to 8m in liquids and bulk materials
- Wide process temperature range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- High protection class IP65 / IP67
- Wide environmental temperature range  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- Ceramic *front-flush diaphragm*
- Increased accuracy – characteristic deviation  $\leq 0,2\%$  of measuring range
- Integrated evaluation electronic: Graphic display, keyboard / 4x PNP switch output / 1x current output 0/4...20mA – voltage output 0...10V / Measure data memory for more than 500.000 measuring values / Battery powered data logger function / Bluetooth / Connector plug M12
- *High operating comfort*: enclosure and display rotatable for *optimal operability* in each installation position
- High contrast high brightness TFT-LCD display for *best readability*
- 3-key operation without additional assistance with tactile feedback

## Description

The device is an electronic level transmitter / level switch for monitoring, control as well as continuous measurement of filling levels in liquids, pastes and coarse bulk materials.

Additional application fields are volume or flow measurement. The software was optimized and extended by a new algorithm. The Sonictrack is a better algorithm for the detection of ultrasonic signals, so that interference signals e.g. agitators etc. can be recognized even better and thus a safe operation can be ensured. Due to the device construction with measuring ranges of 2m / 5m / 8m, process temperatures from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  and process materials PVDF / CrNi-steel / EPDM as well as the availability of extensive equipment and functionality predefined vessel types for fast commissioning, predefined linearization curves for volume and flow measurement, integrated error signal suppression for adaption the

installation situation, integrated compensation of the process temperature, limit value function for two-point control, pump control function, impulse output function for quantity counter and error indication function for error monitoring the device is especially suitable for the use for level and volume measurement and flow measurement at open channels and measuring weirs for water and waste water sector, process industry, environmental technology, storage tanks, storage bunkers, silos. The device is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors,



high shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

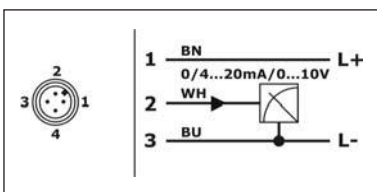
A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1. Customer specific special versions can be realized on request, e.g. software adaption (menu navigation, special functions, etc.), changed terminal assignment resp. connector orientation, design adaption of the user surface, special designs for the process connection.



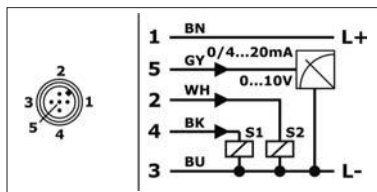
# Technical Data

Technical Data	
Supply voltage:	Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected Setting output 0...10 V: 14...30 VDC, reverse polarity protected
Supply current:	≤ 50mA up to ≤ 100mA (depending on output, bluetooth ON/Off, US)
Start-up time:	≤ 1s
Operating range:	Analogue output – current 0...20mA IOut: 0...20,5mA, max. 22mA Analogue output – current 4...20mA IOU: 3,8...20,5mA, min. 3,6mA, max. 22mA Analogue output – voltage 0...10V UOut: 0 ... 10,5 V, max. 11 V
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Measuring accuracy	
Characteristic deviation:	≤ ±2mm or ±0,2% of set measuring range
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	≤ ±0,006% FS / K
Materials	
Sensor	PVDF
Process connection	Steel 1.4404/316L / Steel 1.4571/316Ti
Gaskets	EPDM – ethylene-propylene-dienmonomere
Terminal enclosure	CrNi-steel
Control panel surface	PES
Electrical connection part	Device plug PUR
Pressure compensation element	Acrylic copolymer
Gaskets	FPM – fluorelastomere (e.g. Viton®)
Environmental conditions	
Environmental temperature:	– 20°C...+70°C
Process temperature:	-40...+85°C
Process pressure:	-0,3...2 bar
Protection:	IP65/IP67 EN/IEC 60529

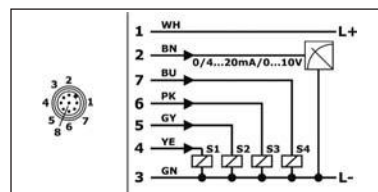
## Electrical connection



Electronic output type M  
1x signal 0/4...20mA-0...10V, supply 24VDC

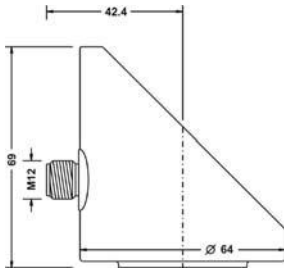


Electronic output type K  
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC

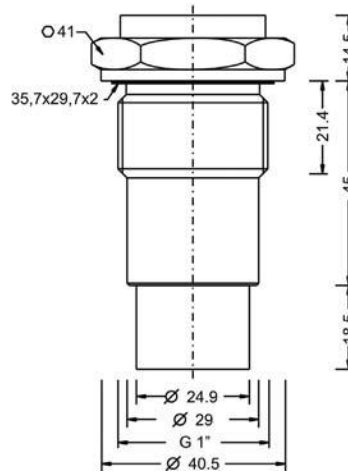


Electronic output type R  
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

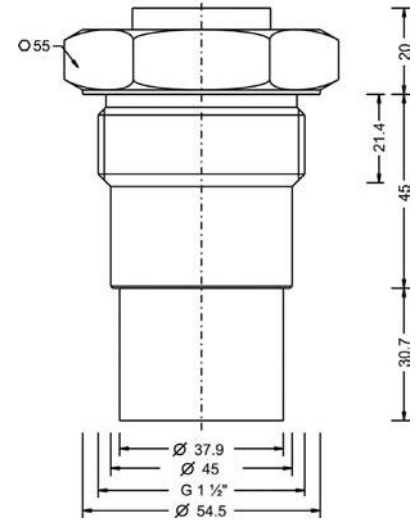
Terminal enclosure



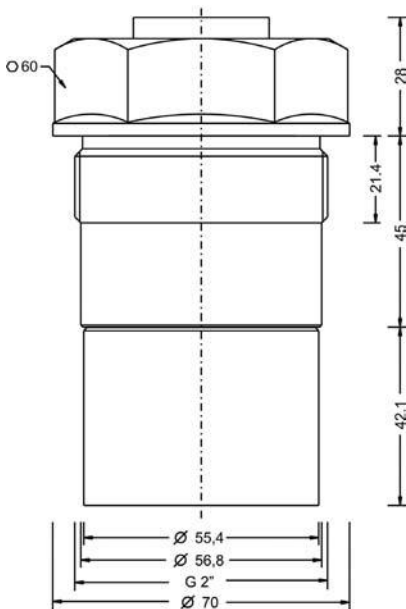
Type 5 – Thread ISO 228-1 –  
G1" B / Measuring range type 02  
– 2m



Type 7 – Thread ISO 228-1 –  
G1½" B / Measuring range type  
05 – 5m



Type D – Thread ISO 228-1 –  
G2" B / Measuring range type 08  
– 8m



# Order code

**Type**  
USN4S Standard

**Measuring system – material diaphragm (process wetted) / sensor type**  
P PVDF / Piezo

**Approval**  
S Standard

**Process connection**  
5 Thread ISO 228-1 – G1" B  
7 Thread ISO 228-1 – G1½" B  
D Thread ISO 228-1 – G2" B  
Y others

**Material process gaskets (process wetted)**  
3 EPDM – ethylene-propylene-dienmonomere

**Material process connection (process wetted)**  
V CrNi-steel

**Material terminal enclosure**  
C CrNi-steel

**Measuring range**  
02 2 m  
05 5 m  
08 8 m

**Electronic – output**  
M 1x signal 0/4...20mA-0...10V, supply 24VDC  
K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC  
R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

**Electronic – function**  
0 without  
1 Bluetooth-Interface  
2 Data logger with time stamp, battery powered  
3 Bluetooth-Interface / Data logger with time stamp, battery powered  
Y others

**Process temperature**  
0 Standard -40°C...+85°C

0

0

**Electrical connection**  
S Plug M12

Order code

**Sonicont®** USN4 P S V C 0 0 0 S