



## Ultrasonic Level Transmitter for Liquids



measuring  
•  
monitoring  
•  
analysing

### NUS-7



- Measuring range:  
Liquids: up to 6 m
- Accuracy:  
 $\pm 0.2\%$  of reading  
 $+0.05\%$  of full scale
- Material: PP, PVDF
- $p_{\max}$ : 3 bar abs;  
 $t_{\max}$ :  $+80^{\circ}\text{C}$
- Connection:  
G2, 2" NPT
- Output: 4-20 mA, HART®,  
relay

N2



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### Description

NUS-7 is a rugged, high performance ultrasonic level measurement transmitter, having transducer and processing electronics incorporated in one single housing.

NUS-7 saves costs – NUS-7 is a low cost transmitter unit from KOBOLD: it has all the sophisticated echo detection features of the well accepted NUS-4 measurement systems, packaged into the 2 wire NUS-7 sensor housing.

If powered by DC and low power switching capability is sufficient, 2-wire transmitters are recommended. These are best applicable for multiple tank applications using HART® multi-drop systems linked to a modem plus PC. The 2-wire NUS-7 comes with HART® protocol as standard.

Liquid measurement – whether for liquid level measurement in sumps or tanks, for tank contents measurement, or open channel flow measurement, NUS-7 transmitters provide the answer.

### Application

The NUS-7 is a liquid level transmitter, measuring by the non-contacting ultrasonic principle.

The transmitter comes with scaleable 4-20 mA output, programmable relay and HART® communication. This intelligent microprocessor based smart level transmitter is suited to measure most liquids under various process conditions.

### Programmable Features

- Relay functions (differential, flow pulse, etc.)
- Measurement configuration (Units, function, close-end blocking)
- Measurement optimisation (Damping, tracking speed, sound velocity correction, etc.)
- Tank contents profiles: 14 different shapes
- Open Channel Flow Metering: 21 different profiles
- 32 point linearisation, measurement simulation
- Information/diagnostics (Echo map and signal/noise)

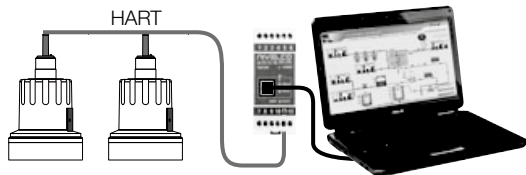
### Technical Details

Measuring range:	0.25 ... 6 m / 0.8 ... 20 feet <sup>1)</sup>
Total beam angle:	5°
Ambient temperature:	-30 °C ... +80 °C (-22 °F ... +176 °F)
Process pressure abs.:	0.5 ... 3 bar (7.5 ... 43.5 psig)
Process connection:	G2, 2" NPT
Materials:	
housing:	PP or PVDF
transducer:	PP or PVDF
cable sealing:	EPDM,
cable isolation:	PVC
Accuracy <sup>1)</sup> :	± 0.2% of measured distance +0.05% of range
<sup>1)</sup> Under optimal circumstances of reflection and stabilised transducer temperature	
Resolution (dep. on distance):	<2 m (6.5 feet): 1 mm (0.04 inch); 2 ... 5 m (6.5 ... 16.5 feet): 2 mm (0.075 inch); 5 ... 10 m (16.5 ... 33 feet): 5 mm (0.2 inch);
Ingress protection:	IP68
Outputs 2-wire:	standard: 4-20 mA + HART®, max. 600 Ω, relay (SPDT, 30 V/ 1 A DC; 48 V/0.5 A AC)
Power supply 2-wire:	12 ... 36 V <sub>DC</sub> /44 ... 800 mW
Connection cable 2-wire:	LIYCY type 2x0.5 mm <sup>2</sup> (AWG 20) shielded cable, Ø6 mm (0.25 inch); standard length 5 m (16.5 feet) can be ordered max. 30 m (100 feet)

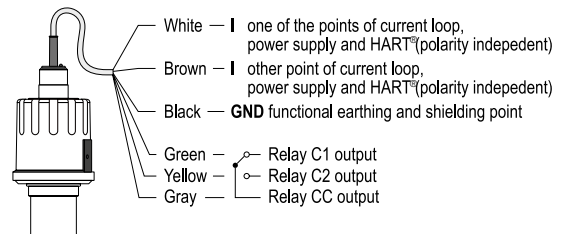
**NUS-7 in systems with PC**

Using a PC and HART® modem (e.g. model KM-HART), it is possible to create your own multi-drop HART® network, where the PC displays all NUS-7 measurement data and also allows reprogramming of the units as necessary. In this way the outputs derived from the displayed data can be programmed via the PC, which acts as the master. A maximum of 15 transmitters can be connected to one HART® modem and KOBOLD's **NUS-NTB-Soft** software can be used for configuration.

**Multichannel application with HART® modem and PC**



**Wiring of the 2-wire NUS-7**



**Order Details** (Example: NUS-7 0 06 R9 3 4H 5)

Model	Sensor material	Range	Connection	Power supply	Output	Cable length
NUS-7	0 = PP (standard) 9 = PVDF	06 = 0.25 - 6 m	R9 = G 2 N9 = 2" NPT	3 = 12-36 V <sub>DC</sub>	4H = 4-20 mA + HART® RH = 4-20 mA + relay + HART®	5 = 5 m (standard) Y = according to customer specifications, max. 30 m

Order code HART® modem: **KM-HART** (includes configuration software NUS\_NTB\_Software)



**Dimensions [mm]**

**NUS-7 level transmitter for liquids - 2-wire series**

