Ultrasonic Level Transmitter
for Liquids

NUS-7

HART
COMMUNICATION FOUNDATION

- Measuring Range: Liquids up to 20 Feet

- Accuracy:
  ±0.2% of Reading
  +0.05% of Full Scale

- Material: PP or PVDF

- p_{max}: 40 PSIG

- t_{max}: 176 °F

- Connection: 2" NPT, G 2

- Output: 4-20 mA, HART®, Relay

Description

The NUS-7 is a rugged, intelligent, high performance ultrasonic level transmitter, with both transducer and processing electronics incorporated into a single housing. The economical NUS-7 has all the sophisticated echo detection features of our proven NUS-4 measurement systems, packaged into the 2 wire NUS-7 sensor housing. 2-wire transmitters are recommended for applications powered by DC and for low switching capability. They excel in multiple tank applications using HART® multi-drop systems linked to a modem plus PC. The NUS-7 comes standard with HART® protocol. NUS-7 transmitters can provide the answer for level measurement in sumps and tanks or open channel flow measurement, It is suited for most liquids under various process conditions. It comes with scalable 4-20 mA output and programmable relay.

Programmable Features

- Relay Functions (Differential, Flow Pulse, etc.)
- Measurement Configuration (Units, Function, Close-end Blocking)
- Measurement Optimization (Damping, Tracking Speed, Sound Velocity Correction, etc.)
- Tank Contents Profiles: 14 Different Shapes
- Open Channel Flow Metering: 21 Different Profiles
- 32 Point Linearization, Measurement Simulation
- Information/Diagnostics (Echo Map and Signal/Noise)

Technical Data

Measuring Range: 0.8…20 feet[1] (0.25…6 meters)

Total Beam Angle: 5°

Ambient Temp: -22…176 °F (-30…80 °C)

Process Pressure Abs.: 7.5…40 PSIG (3…30 bar)

Process Connection: 2" NPT or G2

Materials:

Housing: PP or PVDF
Transducer: PP or PVDF
Cable Sealing: EPDM
Cable Isolation: PVC

Accuracy[1]: ± 0.2% of measured distance +0.05% of range

Resolution

(Dep. on Distance): < 6.5 feet (2 m): 0.04" (1 mm); 6.5…16.5 feet (2…5) m: 0.075 inch (2 mm); 16.5…33 feet (5…10 m): 0.2" (5 mm)

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$_{DC}$/44…800 mW

Connection Cable 2-wire: LIYCY type 2x0.5 mm² (AWG 20) shielded cable, Ø0.25 inch (6 mm); standard length 16.5 feet (5 m) can be ordered max. 100 feet (30 m)

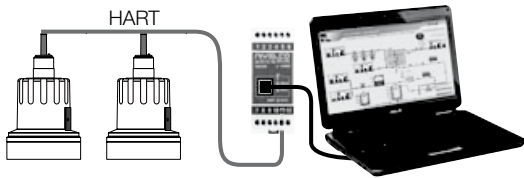[1] Under optimal circumstances of reflection and stabilized transducer temperature
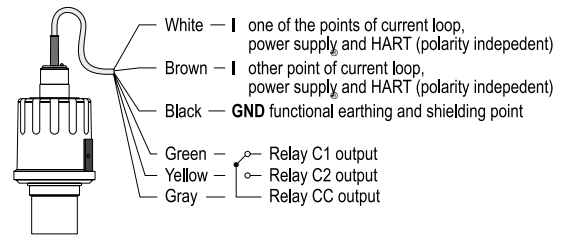
www.cabriggs.com

NUS-7 in Systems with PC

Using a PC and a HART® modem (e.g. model HARTCOMM), 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. 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-NRM-SW software can be used for configuration.

Multichannel Application with HART® Modem and PC

HART

Wiring of the 2-wire NUS-7

White — one of the points of current loop, power supply and HART (polarity indepedent)

Brown — other point of current loop, power supply and HART (polarity indepedent)

Black — **GND** functional earthing and shielding point

Green — Relay C1 output
Yellow — Relay C2 output
Gray — Relay CC output

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

Model	Sensor/Housing Material	Range	Connection	Power Supply	Output	Cable Length
NUS-7..	**..0..** = PP (Standard) **..9..** = PVDF	**..06..** = 0.8...20 feet	**..N9..** = 2" NPT **..R9..** = G 2	**..3..** = 12-36 V$_{DC}$	**..4H..** = 4-20 mA + HART® **..RH..** = 4-20 mA + Relay + HART®	**..5** = 16.5' (Standard) **..EC** = Custom Cable Length, Max. 100', custom length to be specified on your order

Order Code HART® Modem: HARTCOMM

Download NUS-NTB-NRM-SW Configuration Software at www.kobold.com)

Dimensions (mm)

NUS-7 Level Transmitter for Liquids - 2-wire Series

1" BSP

22

16

BSP:15,NPT:22

199

96

2" BSP or NPT

60

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