Operating Instructions

for

Magnetostrictive Level Meter

Model: NMT

1. Contents

Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
D-65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and with the prevailing regulation applying to procedural safety and the prevention of accidents.

3. Instrument Inspection

These devices are checked before shipping and sent out in perfect condition. Should damage to a device be visible, we recommend a thorough inspection of the delivery packing. In case of damage, please inform your parcel service/ forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

- Magnetostrictive Level Meter, model: NMT
- Operating Instructions

4. Regulation Use

The level meter is to be installed only in the specified applications. Any usage which exceeds the specifications is considered to be non-specified. Any damages resulting therefrom are not the responsibility of the manufacturer. The user assumes all risk for such usage. The application specifications include the installation, start-up and service requirements specified by the manufacturer.

5. Operation Principle

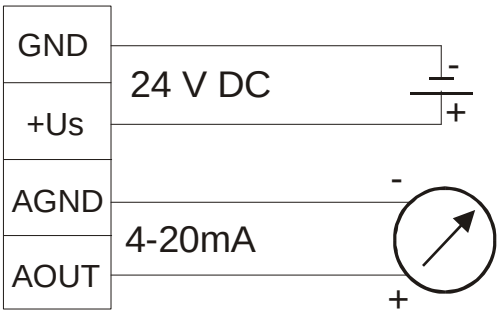
The Kobold level meter NMT is a very accurate float-controlled sensor for the continuous measurement of levels.
The principle of measurement is based on echo time measurement. A magnetostrictive wire is tensioned in the guide tube. Current pulses are transmitted through the wire thus generating an annular magnetic field around the wire. The wire is also magnetized axially by magnets fitted in the float. Due to the superimposition of both magnetic fields, a torsional impulse is generated in the vicinity of the float magnet, which propagates with ultrasonic speed in both directions. The distance from the float magnet to a defined zero-point is measured by an echo time measurement. The integrated electronics transforms the signal to a standardized analog signal.

6. Mechanical Connection

Mount the level meter with guide tube on the vessel.
Use a suitable flat gasket for screwing.

7. Electrical Inspection

Connect level meter according to the following wiring diagram:



Terminal assignments

GND: 0 V supply
$+U_S$: 24 V_{DC} supply
AGND: analog output GND
AOUT: analog output 4-20 mA

8. Commissioning

The magnetostrictive level meter is ready for operation after mechanical and electrical connection.

9. Maintenance

The instrument needs no maintenance when the measured medium is not polluted.
Remove any dirt from guide tube and float with a suitable cleaning agent.
To dismantle the float, undo the retaining washer with the flat-head screw.
For installation after cleaning, secure the flat-head screw with a Locktite fluid to prevent loosening.

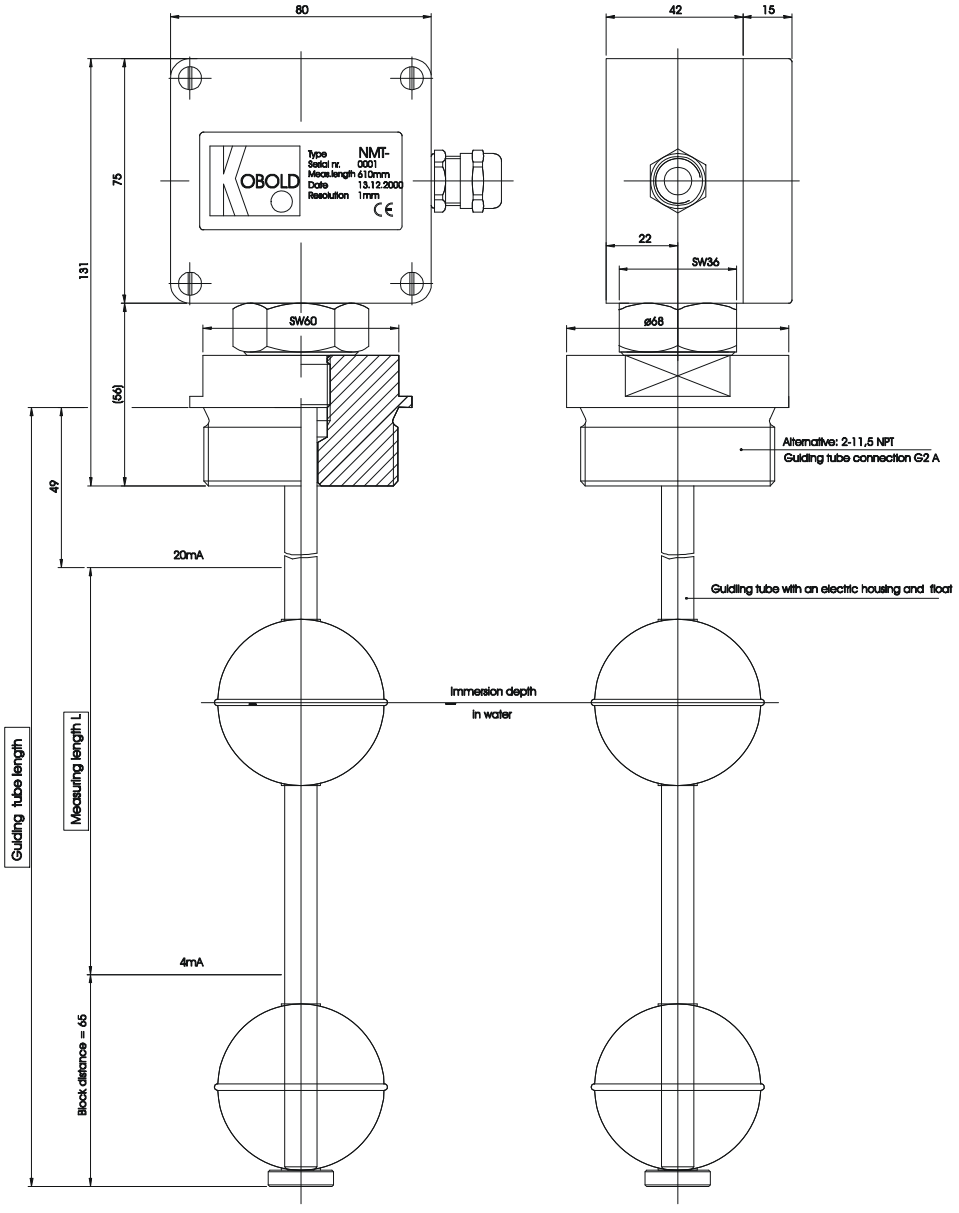
10. Technical Data

Accuracy:	± 1 mm
Measuring length:	300...4000 mm
Length of guide tube:	measuring length + 114 mm
Overall length:	see Dimensions
Standard density:	1.0 g/cm^3
Special density:	0.7 g/cm^3
Max. service temperature:	80 °C
Max. operating pressure:	PN 10
Connection / guide tube:	stainless steel 1.4571
Float:	stainless steel 1.4701
Connection box:	aluminium
Process connection:	G 2 male or 2 NPT
Electrical connection:	terminal block in connection box
Analog output:	4...20 mA 4-wire
Load:	500 ohm
Power supply:	24 V_{DC} ± 20%
Power consumption:	< 4 W
Protection model:	IP 65

11. Order Codes

Description	Model	Connection
Transducer Measuring tube st. steel Connection G 2 AG Density 1.0 kg/dm^3	**NMT-1201**	**R50** = G2 **N20** = 2 NPT
Transducer Measuring tube st. steel Connection 4 – 20 mA Density 0.8 kg/dm^3	**NMT-1208**	

12. Dimensions



13. Declaration of Conformance

We, KOBOLD-Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Magnetostrictive Level Meter model: NMT

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

EN 61000-6-2:2006
Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

EN 61000-4-2:2009
Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test

EN 61000-4-4:2013
Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test

EN 61010-1:2011
Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

EN 60529:2014
Degrees of protection provided by enclosures (IP Code)

Also the following EC guideline is fulfilled:

2014/30/EU	**EMC Directive**
2011/65/EU	**RoHS** (category 9) industrial monitoring and control instruments, compliant, no CE-marking for the transitional period until 2017

Hofheim, 27. Apr. 2016

H. Peters
General Manager

M. Wenzel
Proxy Holder