

MICROSON 551

Ultrasonic Level Sensor

4...20mA / HART two wire



Technical Specifications

Measuring range	0,25 to 5 meter for liquids
Accuracy	± 10mm
Process connection	Threaded G 1 ½
Process pressure	-0,2 ... 1 bar
Process temperature	-40...70°C
Operating frequency	55 KHz
Measuring angle	10°
Power supply	14...36V DC / optional 220V AC
Protection class	Housing IP67, transducer IP68

Application Area

MICROSON 551 is an ideal sensor for measurement up to 5 meter especially of liquids under easy conditions. It is suitable for level measurement of liquids in small storage tanks with appropriate steam, humidity and pressure and in outer environment without extreme effects of wind. Typical application areas are principally sewage plants, open basins and small vessels.

Measuring Principle

Short ultrasound waves at 55 KHz are sent through the transducer to the medium surface. These pulses are reflected by the medium surface and then received again by the transducer. The level is measured depending on the period between the time of sending and sensing of the pulses.

Advantages

- Non-contact measuring principle
- Simple assembly
- Setting with display or PC
- Robust and maintenance-free structure
- Economical solution

Housing and Materials

The housing of the sensor is manufactured in accordance with the customer requirements as single or double chamber from plastic, aluminium or stainless steel. The protection class for plastic is IP68, for aluminium and stainless steel is IP67. All wetted parts of the sensor are made of PU/PC or as optional of PTFE. The process seals are manufactured depending on request from Viton and Silicone.

Electronic Versions

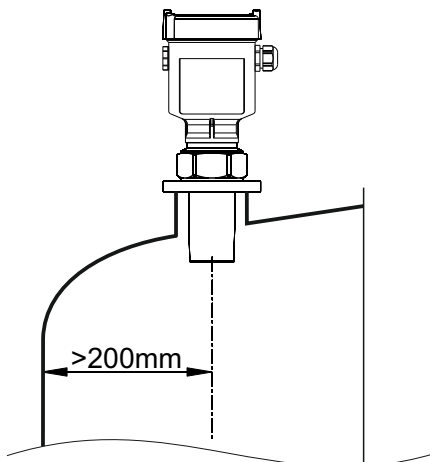
Electronic units are available depending on customer demand and process requirements as 24V DC and 220V AC with two-wire or four-wire 4...20mA HART. They are filled and protected against moisture and vibration.

Approvals

MICROSON 551 is approved according to Intrinsically Safe (Ex ia IIC T6) for use in hazardous areas. The instruments also have CE approvals for EMC Directive 2004/108/EC EN61326-1: 2006 EN61326-2-2: 2006 and Low voltage Directive 2006/95/EC EN 61010-1: 2010.

Installation

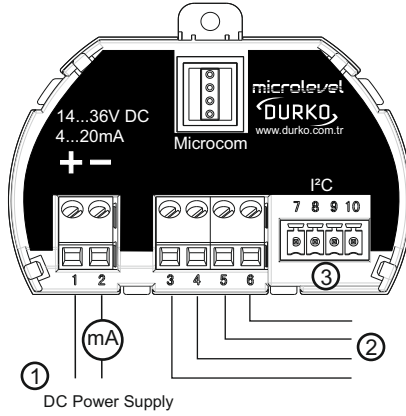
For installation on the silo, the sensor should be placed accurately to the centre of half the diameter of the silo. Furthermore, the mounting axis of the sensor must be at least 200mm from the silo wall. For assembling closer to the wall, special attention should be paid to any surface that may cause failure signal echos. In order to provide pulses to be reflected upright on the surface and thus to improve the measurement quality, the sensor should be mount upright.



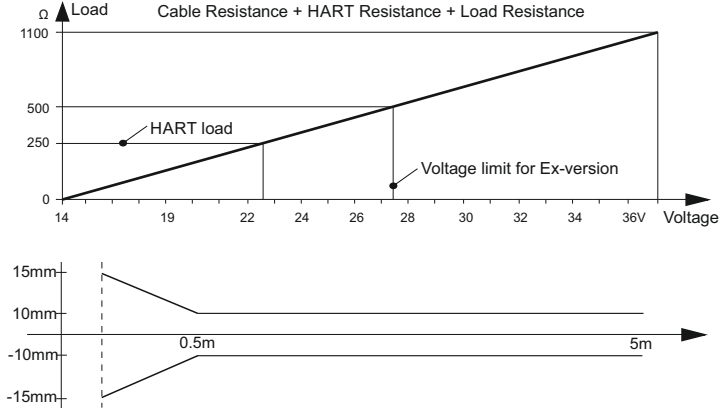
Electrical Connection

The sensor has a system known as two-wire which is operateable with 14..36V DC and which has an 4...20mA output on the same line. The (+) end of the power supply is directly connected to the sensor end 1 and PLC, DCS, indicator and control devices are serially connected to the (-) line 2.

- 1- Supply / analog output
- 2- Exterior indicator output
- 3- Interface connection socket

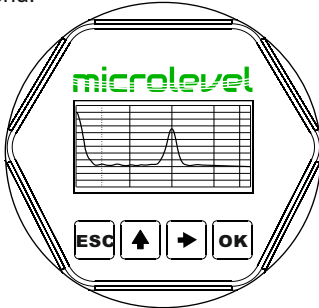
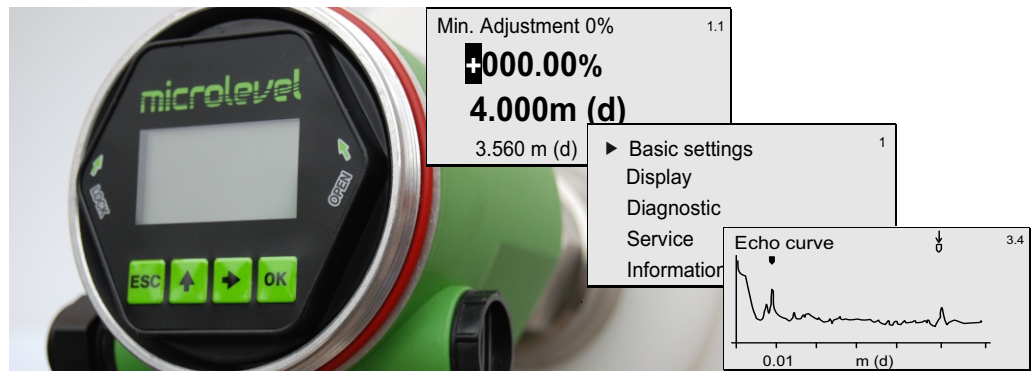


Energy Supply Table / Accuracy Diagram



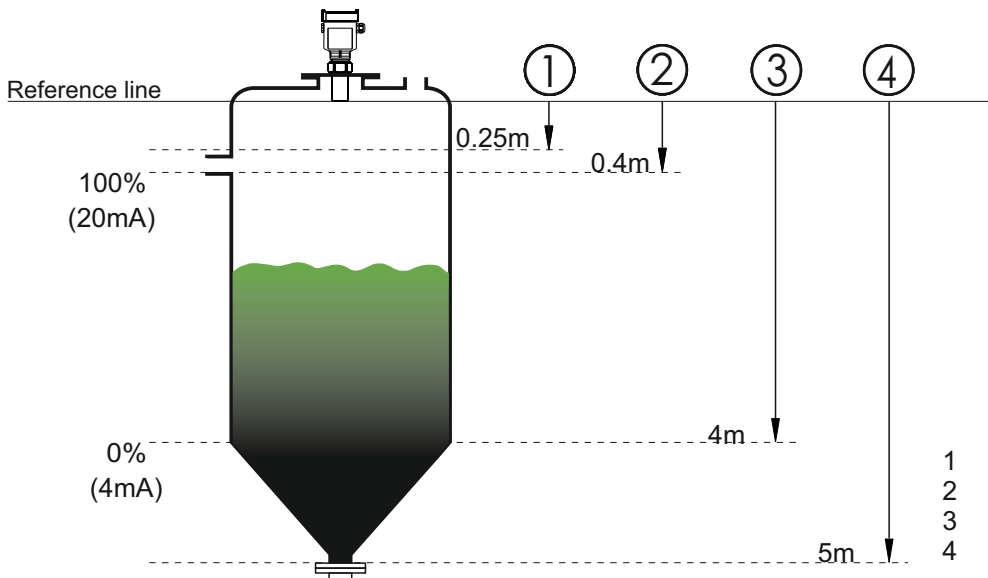
Adjustment with MICROCOM

The basic settings of the sensor can be easily done via the display and adjustment module MICROCOM with different menu language. The measuring range, the product type and the min. and max. values can be easily set. The space to the surface, fullness from ground to top, volumetric values and scaled data and values can be monitored on the display. Many parameters such as signal strength, error codes, simulation can be set under the diagnostic menu and settings such as suppression of faulty echos, type of current output, distance correction setting, reset, enter the PIN etc. can be adjusted under the service menu.



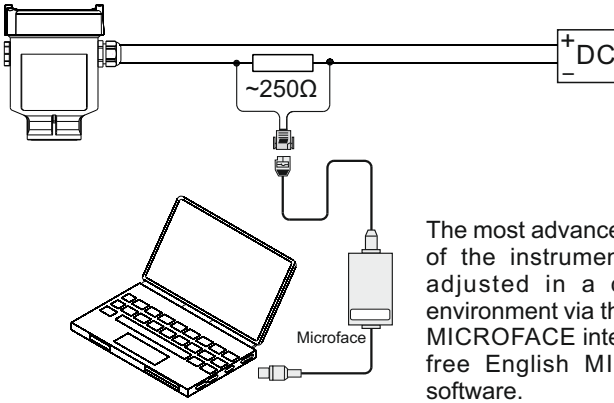
Microcom Adjustment Module

- OK** allows you to enter into the programming mode and to confirm the programming option and the parameter changes.
- allows you to select the programming options and the parameter values to be entered, to read off the parameter contents and to go to the next page.
- ↑** allows you to change the parameter values.
- ESC** allows you to revert from the programming mode to the upper menu.

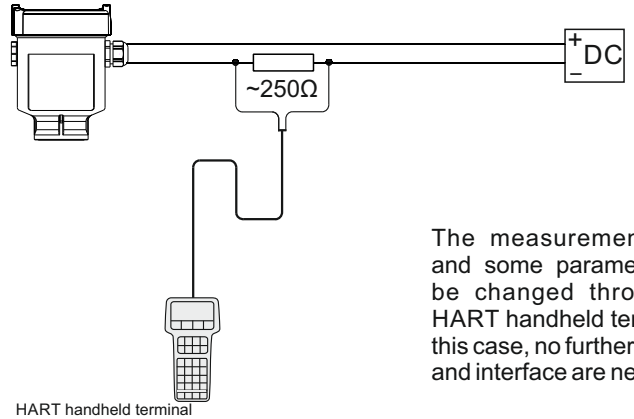


- 1 Dead zone (Menu 1.9)
- 2 Max. set point (Menu 1.2)
- 3 Min. set point (Menu 1.1)
- 4 Total blank height (Menu 1.8)

Connection and Adjustment via PC

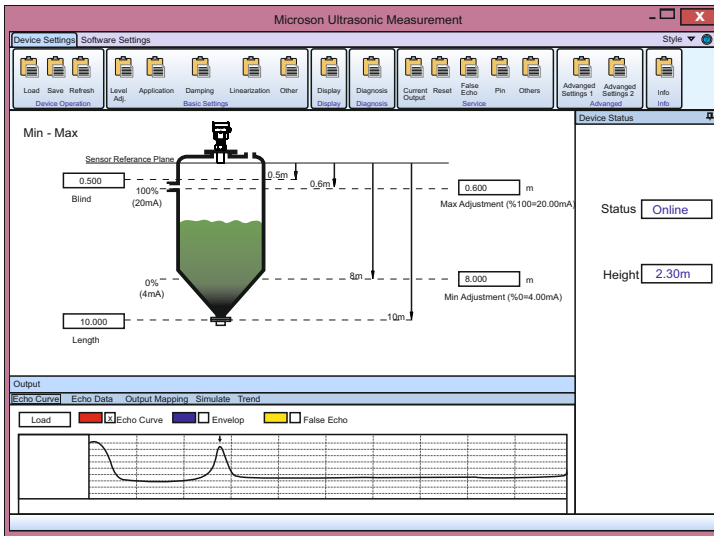


Adjustment with HART Handheld Terminal

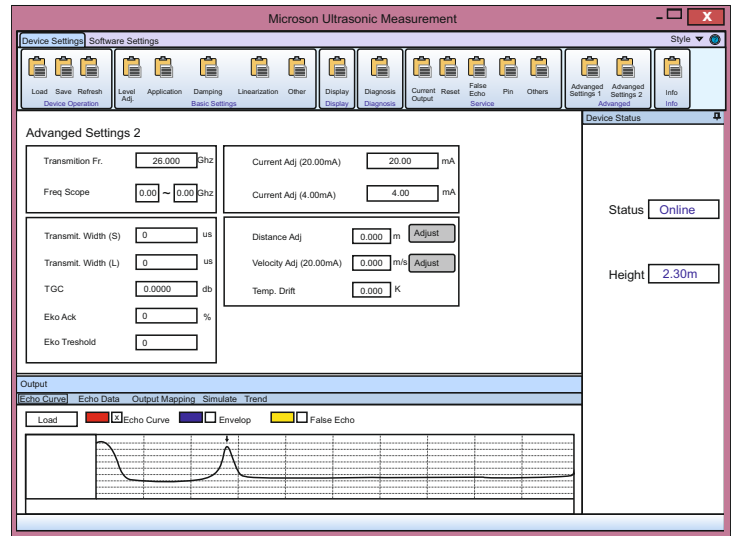


HART handheld terminal

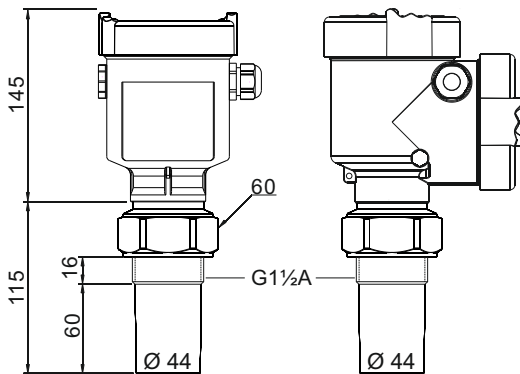
Adjustment with Software



Advanced Parameter Setting

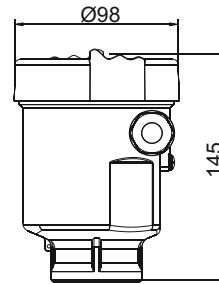


Technical Dimensions

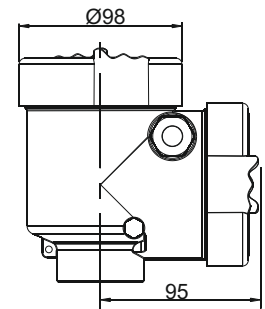


Technical Dimensions (Housing)

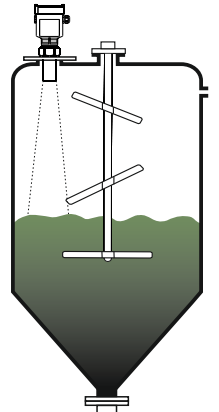
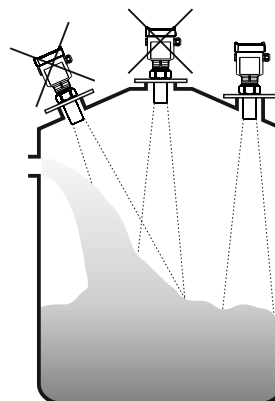
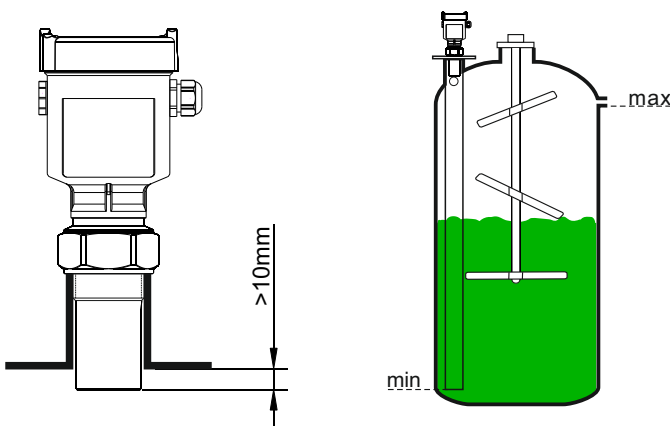
Single Chamber Housing



Double Chamber Housing



Various Applications / Considerations



Model: MICROSON 551 (5m)**Explosion Proof Approval**

- P - Standard (Without Approval).....
 I - Intrinsically Safe (Exia IIC T6).....

Transducer Material / Process Temp. / Protection

- A - PU / PC / -40...70°C / IP68.....
 B - PTFE / -40...70°C / IP68.....

Process Connection

- GDX - Thread G1 1/2 A.....
 NDX - Thread 1 1/2 NPT.....

Electronic

- B - 4...20mA / HART Two wire 14...36VDC.....
 C - 4...20mA / HART Four wire 14...36VDC.....
 D - 4...20mA / HART Four wire 198...242VAC.....

Housing / Protection

- A - Aluminium / IP67.....
 B - Plastic / IP66.....
 D - Aluminium Two Chamber / IP67.....
 G - Stainless Steel 316L / IP67.....

Cable Entry

- M - M20x1.5.....
 N - 1/2 NPT.....

Display / Programming

- A - Yes.....
 X - No.....

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Notes:

- Intrinsically Safe (Exia IIC T6) is only under "B" electronic and "A" "G" housing
 -Four wire is only used with "D" housing