# MICROPULS 58

Radar Level Sensor

4...20mA / HART two wire

## Technical Specifications

| | |
|---|---|
| Measuring range | up to 70 meter |
| Accuracy | ± 15mm |
| Process connection | Threaded G 1 ½ or flanged |
| Process pressure | -1 … 40 bar |
| Process temperature | -40...150°C / optional -40...250°C |
| Operating frequency | 26 Ghz |
| Measuring angle | 4°/5°6°/8°/12°/18°(Acc. to antenna size) |
| Power supply | 14...36V DC / optional 220V AC |
| Protection class | IP67 |

## Application Areas

MICROPULS 58 is strongest sensor for measurement up to 70 meter of bulk solids and powders under difficult conditions. Generally it is preferred for use in dusty operating conditions. Due to its robust and maintenance-free structure, MICROPULS 58 is used in measuring up to 70m of all bulk solids such as cement, mine, powders, feed, grain and similar products. Due to the different flange options, the instrument are manufactured suitable for all kind of process connections.

## Measuring Principal

Powerful radar waves with short pulses are sent through the antenna system to the product surface. These pulses are reflected by the product surface and received again by the antenna system. The level is measured depending on the period between the time of sending and sensing of the pulses.

## Advantages

- Simple mounting
- Non-contact measuring principle
- High sensitivity
- Maintanance-free structure
- Independent of dust, pressure, temperature and gas

## Housing and Materials

Sensor bodies are manufactured in accordance with the demands of the customer from single or double chamber plastic, aluminium or stainless steel material. The plastic housing meets the requirements of protection class IP66 and the aluminium and stainless steel housing the protection class IP67. All wet surfaces of the sensor is made from stainless and PTFE material. All sealing gaskets can be manufactured as viton and silicon

## Electronic Options

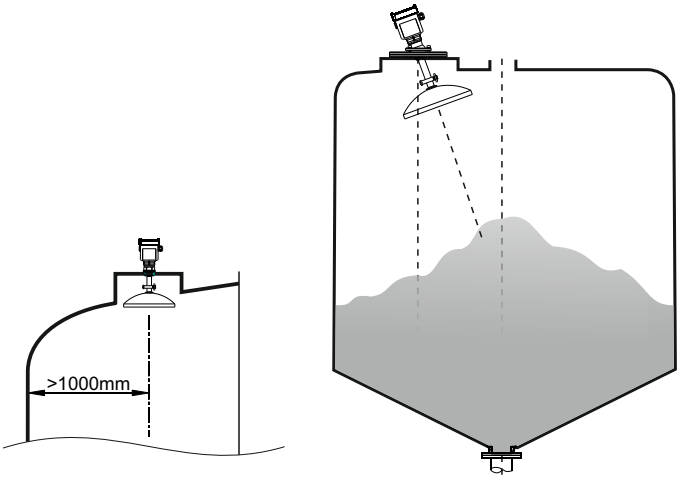
Sensor electronics are available according to customer demands and process requirements as two-wire or four-wire 4…20mA/HART. They're gel filled and protected against moisture and vibration.

## Certificates

MICROPULS 58 has an ATEX approval for use in hazardous areas. The instrument also has 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

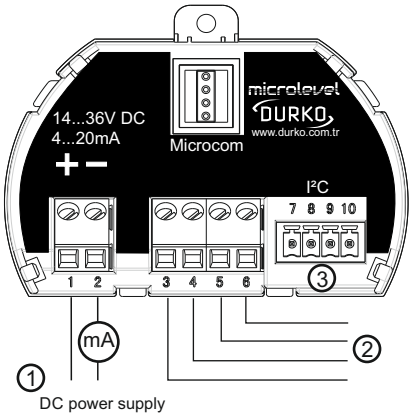
For installation on the silo, the sensor should be placed accurately to the centre of half the diameter of the silo. Furthermore, the mounting axis of the sensor must be at least 1000mm from the silo wall. For assemblying closer to the wall, special attention should be paid to any surface that may cause failure signal echos.



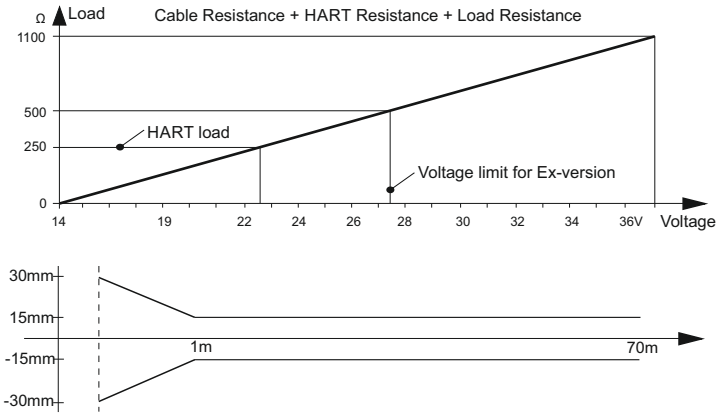
## Electrical Connection

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

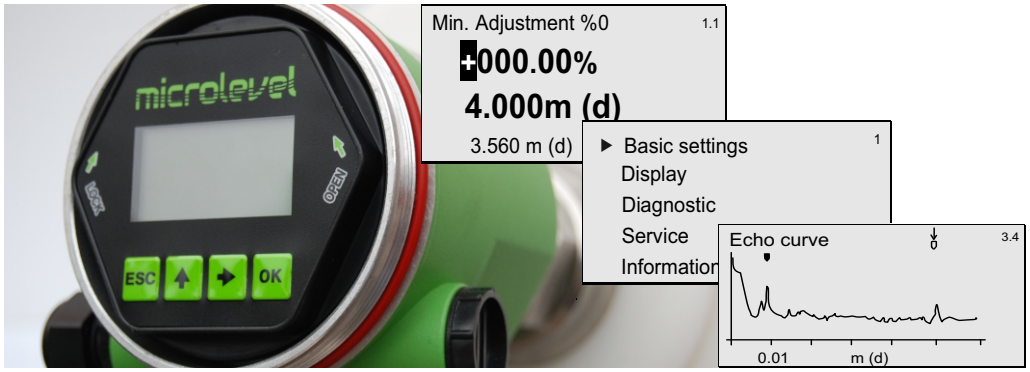


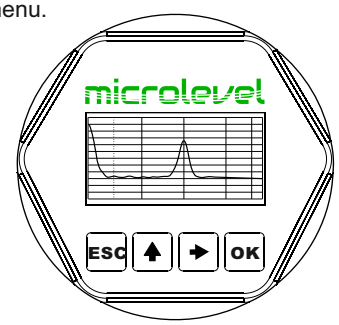




## Adjustment with MICROCOM

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.



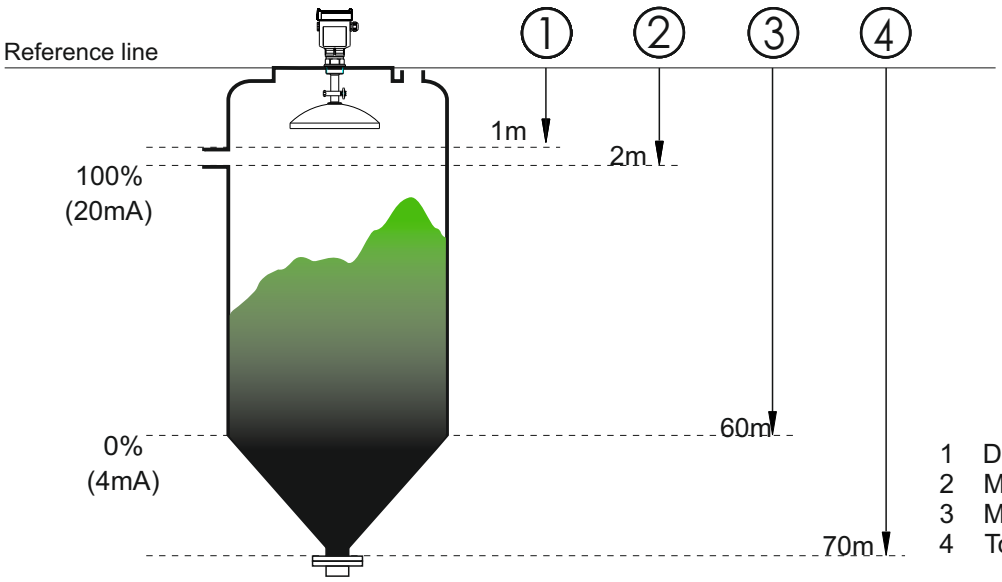

Microcom Adjustment Module

**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.

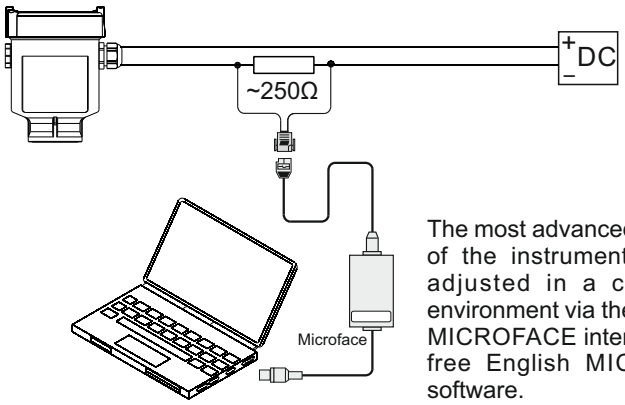
allows you to change the parameter values.

**ESC** allows you to revert from the programming mode to the upper menu.



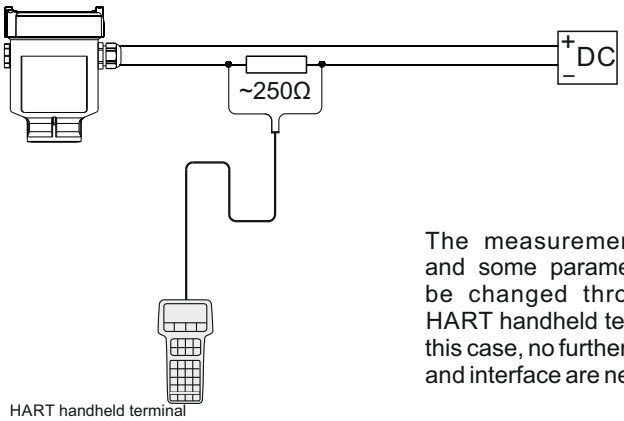

1 Dead zone (Menu 1.9)
2 Max. set point (Menu 1.2)
3 Min. set point (Menu 1.1)
4 Total blank height (Menu 1.8)

## Connection and Adjustment via PC



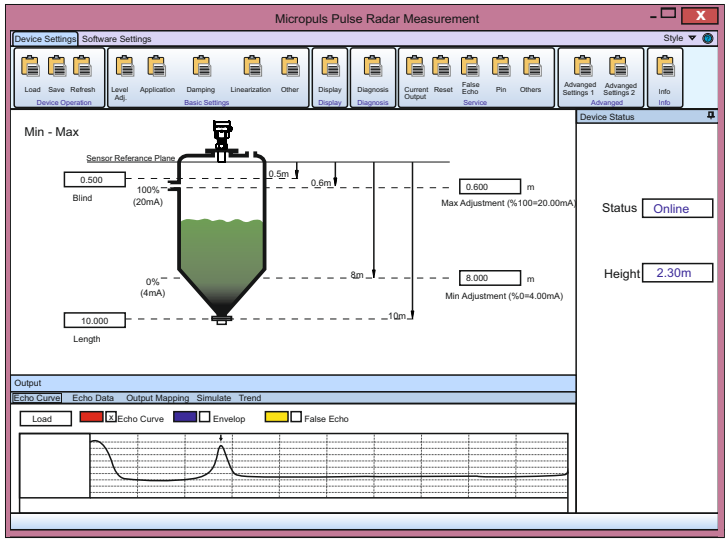

The most advanced settings of the instrument can be adjusted in a computer environment via the optional MICROFACE interface with free English MICROWIN software.

## Adjustment with HART Handheld Terminal

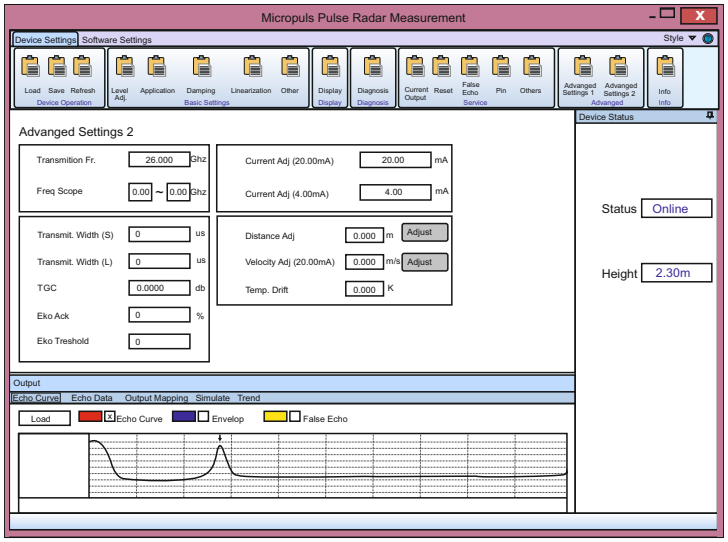



The measurement range and some parameters can be changed through the HART handheld terminal. In this case, no further software and interface are needed.

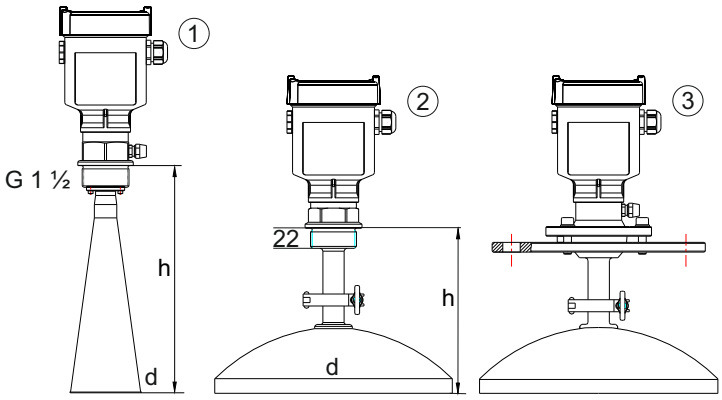
## Adjustment with Software




## Advanced Parameter Setting



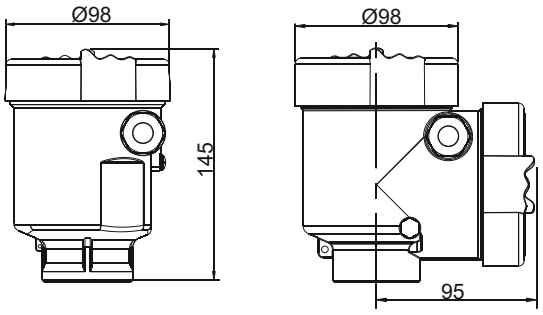

## Technical Dimensions




## Technical Dimensions (Housing)

Single Chamber Housing

Double Chamber Housing



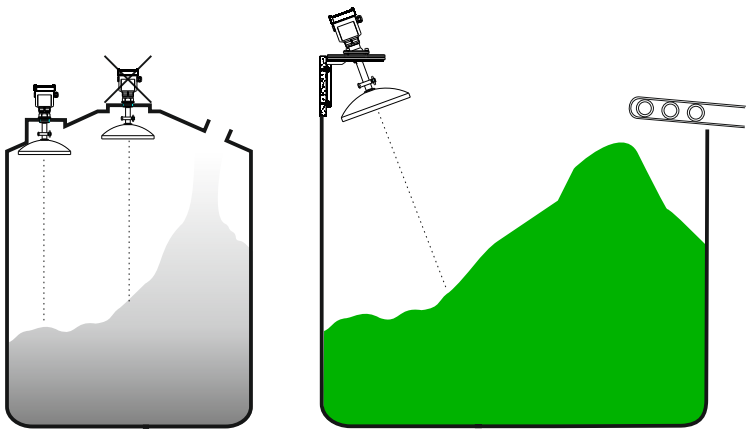

## Antenna Informations

1-Standard temperature / threaded / rinsing connection / horn
2-Standard temperature / threaded / parabolic
3-Standard temperature / swivelling holder / parabolic

Size / Length of antenna / signal angle

d: 48mm h: 140mm 18°
d: 78mm h: 227mm 12°
d: 98mm h: 288mm 8°
d: 98mm (lengthen) h: 474mm 6°
d: 123mm h: 620mm 6°
d: 198mm h: 163mm 5°
d: 246mm h: 163mm 4°

## Various Applications / Considerations



Selection Table

# Model: MICROPULS 58 (70m)

## Explosion Proof Approval

P - Standard (Without Approval)
G - ATEX II 1G Ex ia IIC T6...T3 Ga
D - ATEX II 1D Ex ia IIIC T76°C...T146°C Da

### Types of Antenna / Material

B - Horn Antenna Ø 48mm / Stainless Steel 316L
C - Horn Antenna Ø 78mm / Stainless Steel 316L
H - Horn Antenna Ø 98mm / Stainless Steel 316L
I - Horn Antenna Ø 98mm (Lengthen) / Stainless Steel 316L
J - Horn Antenna Ø 123mm / Stainless Steel 316L
K - Horn Antenna Ø 98mm / PP / PTFE Dust Shield
L - Horn Antenna Ø 98mm / (Lengthen) / PP / PTFE Dust Shield
M - Horn Antenna Ø 98mm / Stainless Steel 316L / PTFE Dust Shield
N - Horn Antenna Ø 98mm / (Lengthen) / Stainless Steel 316L / PTFE Dust Shield
P - Horn Antenna Ø 123mm / Stainless Steel 316L / PTFE Dust Shield
Q - Parabolic Antenna Ø 198mm / Stainless Steel 316L
R - Parabolic Antenna Ø 246mm / Stainless Steel 316L
X - Special Antenna

### Process Connection / Material

GDX - Thread G1 1/2A / Stainless Steel 316L
NDX - Thread 1 1/2 NPT / Stainless Steel 316L
FCX - Flange DN50 PN16 / Stainless Steel 316L
FDX - Flange DN80 PN16 / Stainless Steel 316L
FEX - Flange DN100 PN16 / Stainless Steel 316L
FEP - Flange DN100 / POM (Delrin 100°C)
FE4 - Flange DN100 PN16 / Stainless Steel 304L
FFX - Flange DN125 PN16 / Stainless Steel 316L
FGX - Flange DN150 PN16 / Stainless Steel 316L
FHX - Flange DN200 PN10 / Stainless Steel 316L
FIX - Flange DN250 PN10 / Stainless Steel 316L
HCX - Gimbal Flange DN50 / Stainless Steel 316L
HDX - Gimbal Flange DN80 / Stainless Steel 316L
HEX - Gimbal Flange DN100 / Stainless Steel 316L
HED - Gimbal Flange DN100 / POM (Delrin 100°C)
HE4 - Gimbal Flange DN100 / Stainless Steel 304L
HFX - Gimbal Flange DN125 / Stainless Steel 316L
HGX - Gimbal Flange DN150 / Stainless Steel 316L
HHX - Gimbal Flange DN200 / Stainless Steel316L
HIX - Gimbal Flange DN250 / Stainless Steel 316L
ZXX - Special Connection

### Temperature

1 - -40...100°C
2 - -40...150°C
3 - -40...250°C (Cooling adapter)

### 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

### Additional Options

L - Antenna extention length 500mm (per 100mm 10.00€)
P - Air cover (suitable for DN150 or bigger flange connection only)
R - Rinsing connection
X - No option

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**Notes:**
-ATEX instruments can be used with only “B” Electronic and “A” “G” Housing
-Four wire is only used with “D” Housing

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