

# MICROPULS 87

Radar Level Sensor

4...20mA / HART® Two wire



## Technical Specifications

Measuring range	up to 120 meter
Accuracy	± 5mm
Process connection	Flanged DN100/DN125/DN150
Process pressure	-1 ... 6 bar
Process temperature	-40...110/130°C / Optional -40...195°C
Operating frequency	80GHz
Measuring angle	4°
Power supply	24V DC / optional 220V AC
Output	4...20mA/HART®
Protection class	IP67

## Application Areas

MICROPULS 87 is strongest sensor for measurement up to 120 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 87 is used in measuring up to 120m 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
- Maintenance-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

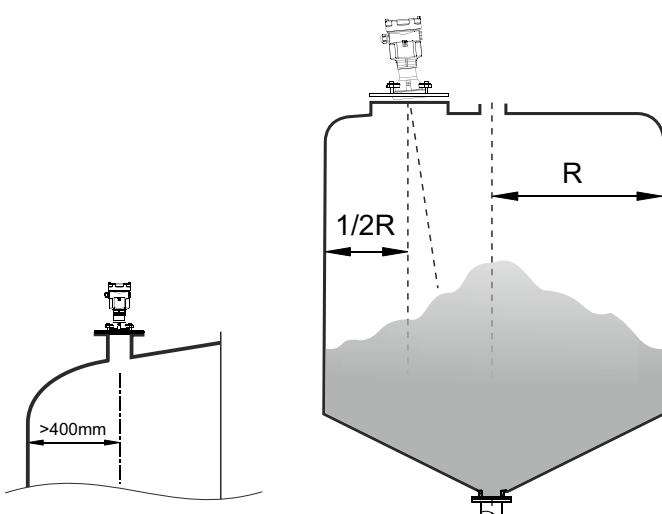
Sensor electronics are available according to customer demands and process requirements as two-wire or four-wire 4...20mA/HART. They're gel filled and protected against moisture and vibration.

## Certificates

MICROPULS 87 has Atex II 1G Ex ia IIC T6...T2 Ga and Atex II 1D Ex ia IIC T85°C...T300 Daapproval for use in hazardous areas.

## Installation

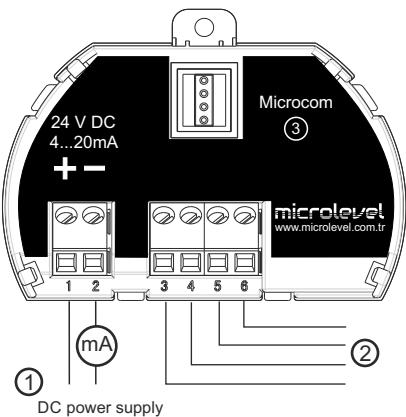
For installation on the silo, the sensor should be placed accurately to the centre of half the diameter of the silo. Furthermore, the mounting axis of the sensor must be at least 400mm from the silo wall. For assembling closer to the wall, special attention should be paid to any surface that may cause failure signal echos.



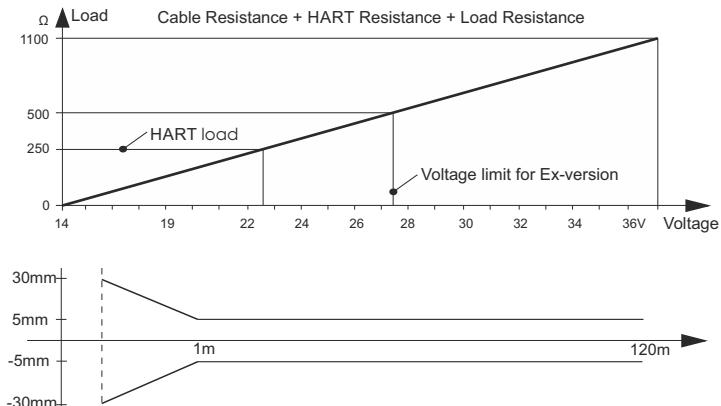
## Electrical Connection

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

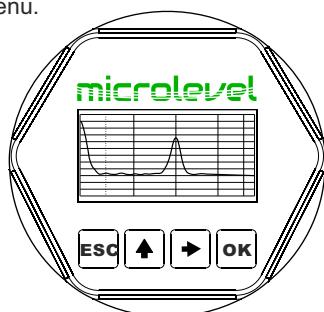


## Energy Supply Table / Accuracy Diagram



## 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.



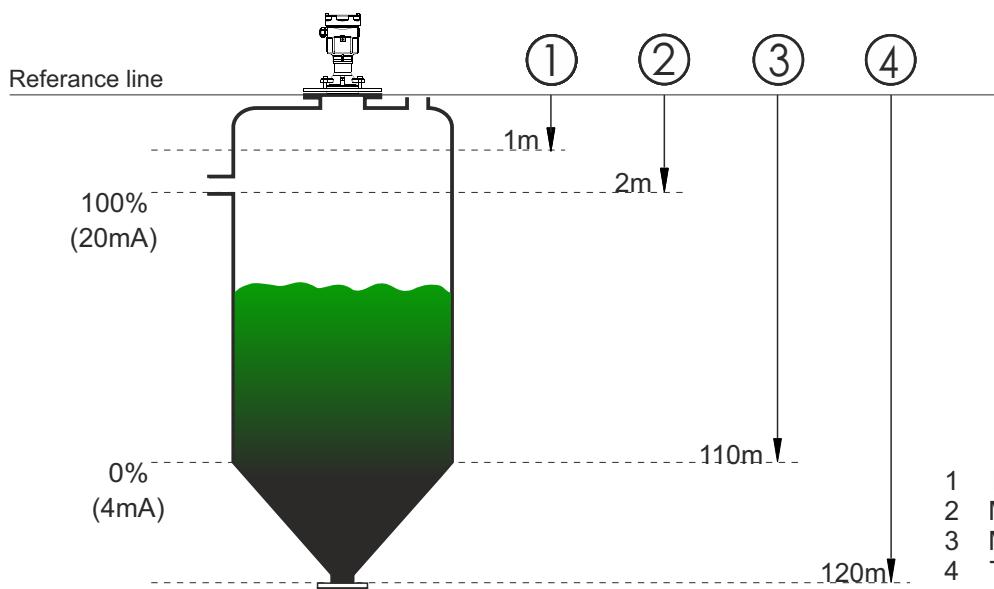
Microcom Adjustment Module

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.

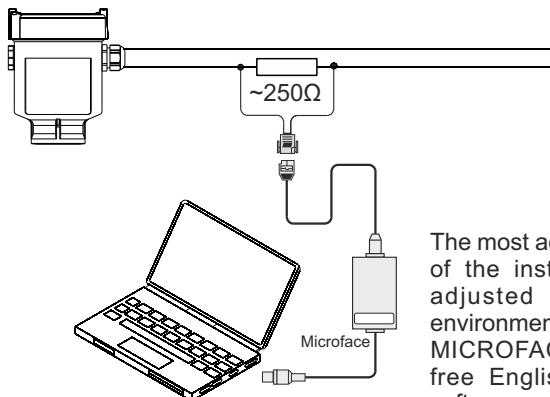
allows you to change the parameter values.

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

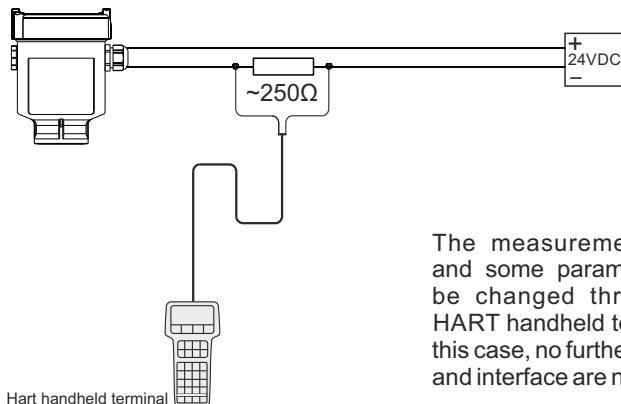


- 1 Dead zone
- 2 Max. set point
- 3 Min. set point
- 4 Total blank height

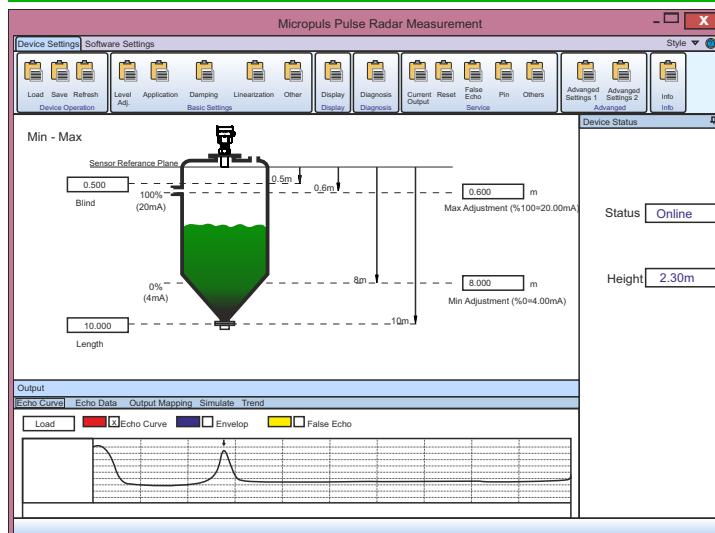
## Connection and Adjustment via PC



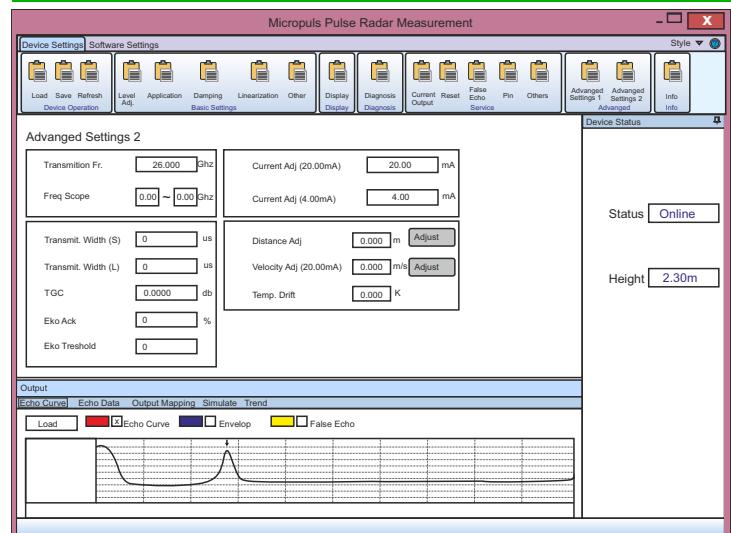
## Adjustment with HART Handheld Terminal



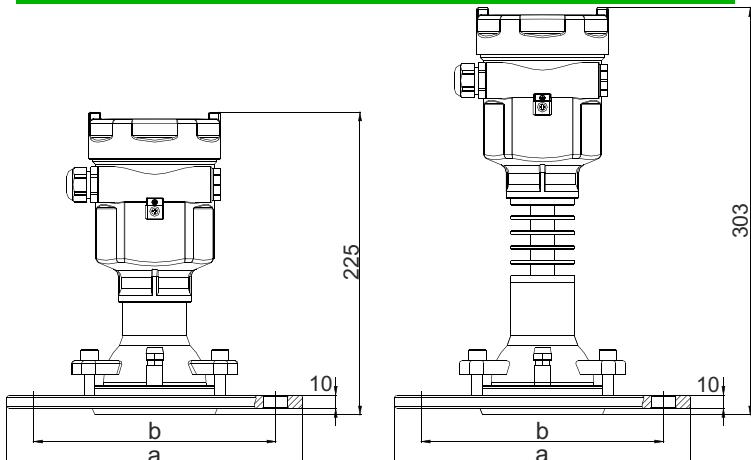
## Adjustment with Software



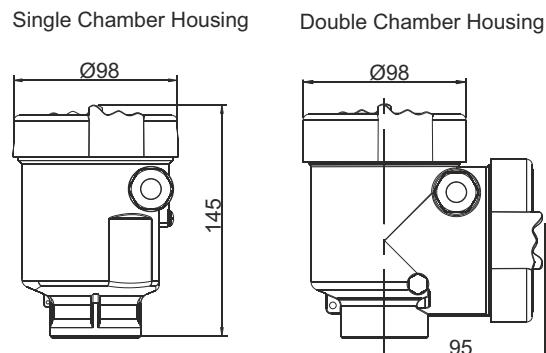
## Advanced Parameter Setting



## Technical Dimensions

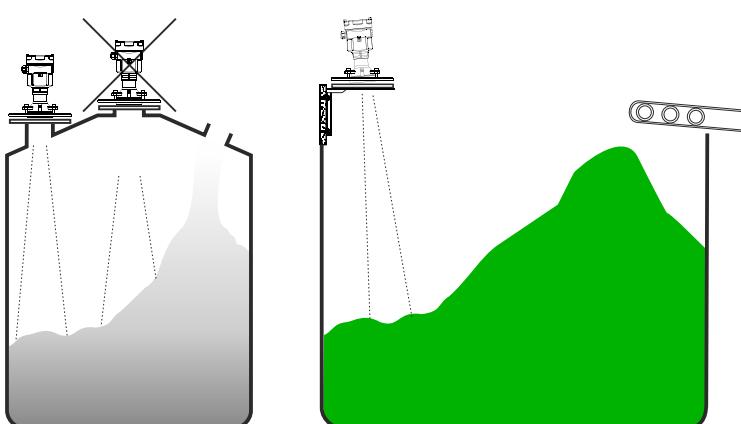


## Technical Dimensions (Housing)



## Various Applications / Considerations

	a	b
DN 100	Ø220	Ø180
DN 125	Ø250	Ø210
DN 150	Ø285	Ø240



## Seçim Tablosu

### Model: MICROPULS 87

#### Explosion Proof Approval

- P - Standard (Without Approval).....  
G - Atex II 1G Ex ia IIC T6...T2 Ga.....  
D - Atex II 1D Ex ia IIC T85°C...T300 Da.....

#### Antenna material / Temperature

- A - Aluminium substrate plastic +PP / -40...110°C.....  
B - Stainless steel 316 + PP / -40...110°C.....  
C - Stainless steel 316 + PEEK / -40...130°C.....  
D - Stainless steel 316 + PEEK with heat sink / -40...195°C.....

#### Process Connection

- FEX - Stainless steel flange Dn100.....  
FFX - Stainless steel flange Dn125.....  
FGX - Stainless steel flange Dn150.....  
FXX - Special flange.....

#### Electronic

- B - 4...20mA / Hart® two wire 24 VDC.....  
C - 4...20mA / Hart® four wire 24 VDC (two chamber housing).....  
D - 4...20mA / Hart® four wire 220 VAC (two chamber housing).....  
R - RS485/MODBUS.....

#### 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 (Microcom V3).....  
X- No.....

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#### Notes:

- EX instruments can be used with only "B" Electronic and "A" "G" Housing  
-Four wire is only used with "D" Housing



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