



Brief Operating Instructions

Micropilot FMR20 HART

Free space radar for bulk solids

These Brief Operating Instructions are not a substitute for the Operating Instructions pertaining to the device.
Detailed information is provided in the Operating Instructions and other documentation.

Available for all device versions via:

- Internet: www.endress.com/deviceviewer
- Smartphone/tablet: Endress+Hauser Operations app

Basic safety instructions

Requirements for personnel

- Personnel must meet the following requirements to perform their tasks:
- ▶ Trained specialists must have a qualification that is relevant to the specific function and task.
 - ▶ Must be authorized by the plant owner/operator.
 - ▶ Must be familiar with national regulations.
 - ▶ Must have read and understood the instructions in the manual and supplementary documentation.
 - ▶ They must follow instructions and comply with general policies.

Intended use

The device is designed for non-contact continuous level measurement of solids.

Application

- ▶ Measured process variables: distance
- ▶ Calculable process variables: volume or mass in any shape of vessel

Operational safety

Risk of injury!

- ▶ Operate the device only if it is in proper technical condition, free from errors and faults.
- ▶ The operator is responsible for the trouble-free operation of the device.

Installation

Wall, ceiling or nozzle installation is possible.

Wall and ceiling installation; see Operating Instructions.

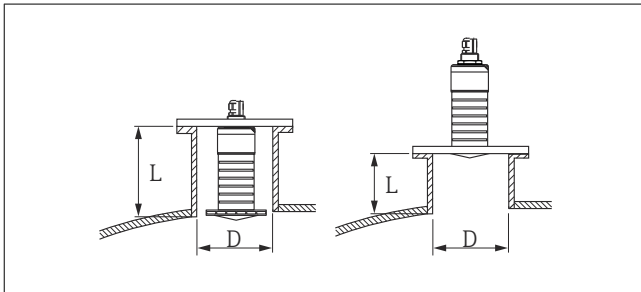


Caution!

- The sensor cables are not designed as supporting cables. Do not use them for suspension purposes.
- Always operate the device in a vertical position in free-space applications.
- In the case of devices with a rear-side process connection "FNPT1/2 conduit", the cable protective plug must be removed before installation.

Nozzle installation

To ensure optimum measurement, the antenna should protrude from the nozzle. The interior of the nozzle must be smooth and may not contain any edges or welded joints. The edge of the nozzle should be rounded if possible.



1 Nozzle installation

L Nozzle length
D Nozzle diameter

The maximum nozzle length **L** depends on the nozzle diameter **D**.

Please note the limits for the diameter and length of the nozzle.

80 mm (3 in) antenna, installation inside nozzle

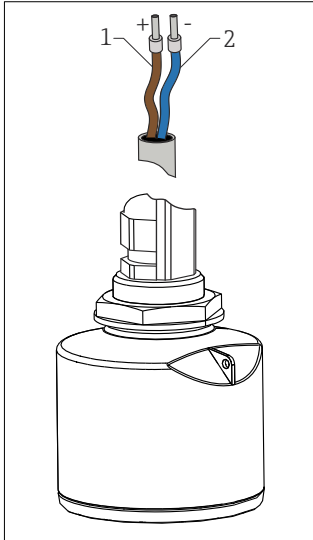
- D: min. 120 mm (4.72 in)
- L: max. 205 mm (8.07 in) + D × 4.5

80 mm (3 in) antenna, installation outside nozzle

- D: min. 80 mm (3 in)
- L: max. D × 4.5

Electrical connection

Cable assignment



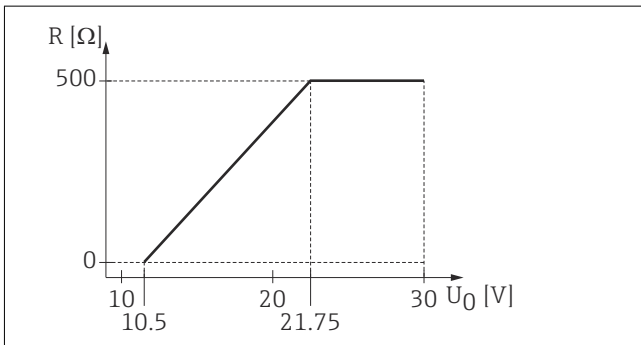
2 Cable assignment

- 1 Plus, brown wire
2 Minus, blue wire

Supply voltage

10.5 to 30 V_{DC}

An external power supply is necessary.



3 Maximum load R , depending on supply voltage U_0 of power supply unit

Battery operation

The sensor's *Bluetooth*® wireless technology communication can be disabled to increase the operating life of the battery.

Potential equalization

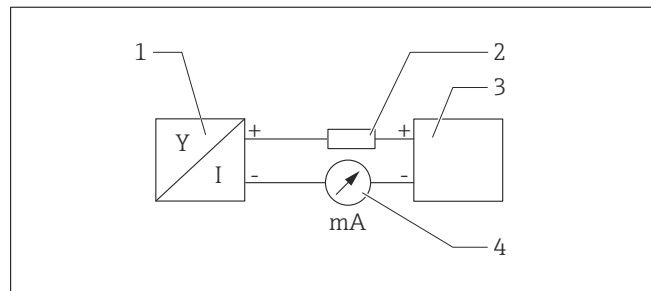
No special measures for potential equalization are required.

i Various power supply units can be ordered as an accessory from Endress+Hauser.

Connecting the device

Block diagram of 4 to 20 mA HART

Connection of the device with HART communication, power source and 4 to 20 mA display



4 Block diagram of HART connection

- 1 Measuring device with HART communication
2 HART communication resistor
3 Power supply
4 Multimeter or ammeter

i The HART communication resistor of 250 Ω in the signal line is always necessary in the case of a low-impedance power supply.

The voltage drop to be taken into account is:
Max. 6 V for 250 Ω communication resistor