Input

Measured variable

Continuous measurement of the change in capacitance between two probe rods depending on the level of a conductive liquid. Maximum viscosity = 2000 cst

Measuring range

The measuring range is between 150...2500 mm, depending on the probe length ordered.

- Probe length: 150...2500 mm
- Adjustable initial capacitance: C_A = 0...2000 pF
- Permitted span: ΔC = 25...2000 pF
- End capacitance: C_E = max. 2100 pF
- Measuring frequency: 250 kHz

Input signal

Probes covered => high capacitance
Probes exposed => low capacitance

Output

Electronic insert FEI20 (4...20 mA)

Output signal

3.8...20.5 mA

Switch-on current

Max. 20 mA (< 500 ms)

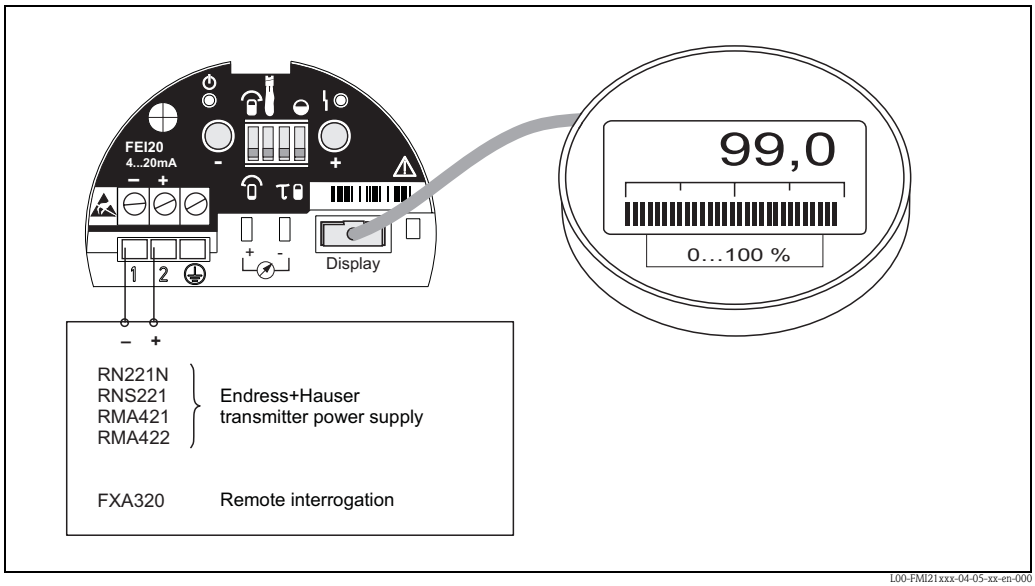
Signal on alarm

> 21 mA

Power supply

Electrical connection (wiring diagram)

FMI21 with electronic insert FEI20 for connection to transmitter power supply units from Endress+Hauser.



Connection of the electronic insert FEI20

Transmitter power supply units from Endress+Hauser

RNS221

Supply unit for supplying power to two 2-wire sensors or transmitters in the "non-Ex area".

RN221N

Active barrier with power supply for intrinsically safe separation of 4...20 mA standard signal circuits.

RMA421

Multi-functional 1-channel top-hat rail device with universal input, transmitter power supply, limit value monitoring and analog output.

RMA422

Multi-functional 1-2-channel top-hat rail device with intrinsically safe current inputs and transmitter power supply, limit value monitoring, mathematics functions and 1-2 analog outputs.

FXA320

Gateway to remote interrogation of sensors and actuators via Internet technology.

Supply voltage (FEI20)

- Connection voltage: U = 10...30 V DC
- Reverse polarity protection (integrated)

Power consumption

- P < 0.7 W

Current consumption

- I < 22 mA

Cable entries

M 20x1.5

- Degree of protection: IP66
- Number in F16 housing: 2 cable entries (1 cable gland included in scope of delivery)

NPT ½

- Number in F16 housing: 2 cable entries with dummy plugs

Cable specifications

Use usual commercial two-core or multi-core cable (25 Ω per core).
Cable cross-section (incl. ferrule): max. 2.5 mm^2

Note!
Use a screened cable in the event of strong, electromagnetic EMC condition.

Performance characteristics with installed electronic insert

Reference operating conditions

- Ambient temperature: 23 °C
- Medium temperature: 23 °C
- Medium viscosity: medium must expose probe again (drain off < 2000 cst)
- Atmospheric pressure
- Probe installation: vertical from above

Maximum measured error

≤ 1 % of full scale value (active rod probe)

Repeatability

0.25 % of full scale value (range 0...2000 pF)

Start-up settling time

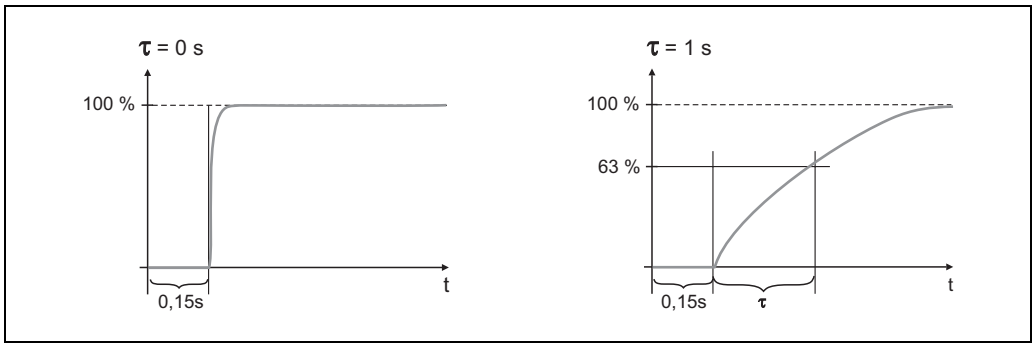
< 2 s (stable measured value after switch-on process)

Influence of ambient temperature

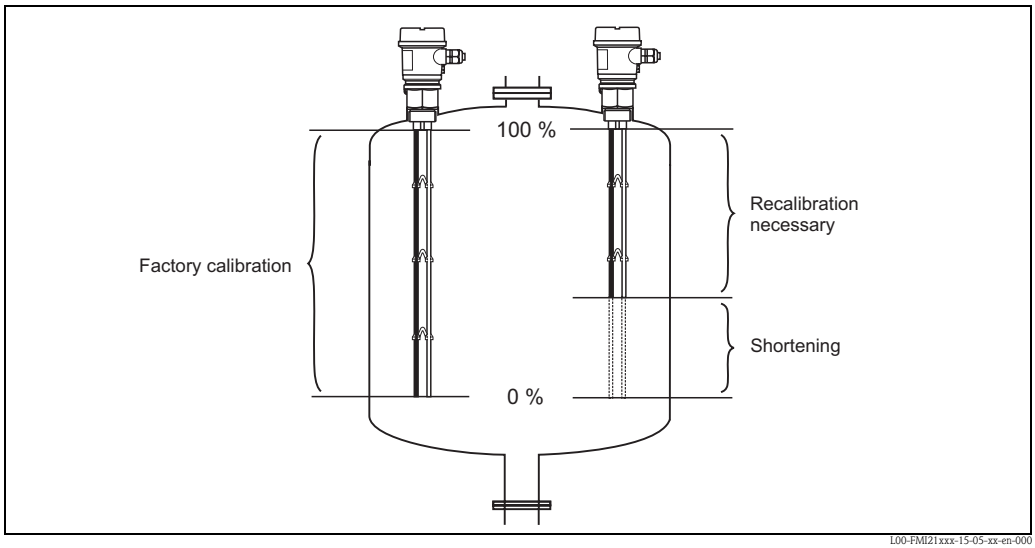
< 0.01 %/K (–40°C...+70 °C) probe length 1 m

Integration time

τ =1 s or 0 s (adjustable)
The integration time affects the speed at which the display and the current output react to changes in the fluid level.



Factory calibration



Factory calibration: medium conductivity ≥ 30 µS/cm
Calibration accuracy 100 % max. -5 mm; 0 % max. -5 mm

In an installed state, recalibration is only necessary if

- The probe rods have been shortened
- The 0 % and 100 % value should be adjusted to suit customer specifications
- The electronic insert was changed