

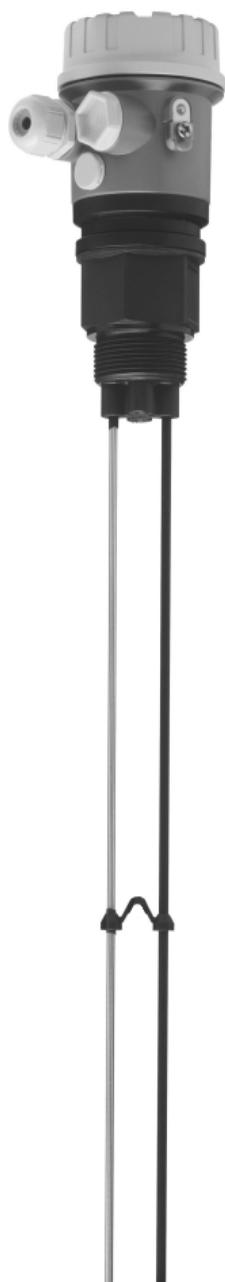


## Technical Information

# Liquicap T FMI21

Capacitive level measurement

Two-rod probe for continuous measurement in liquids



### Application

The Liquicap T sensor is used in conductive liquids (as of 30  $\mu\text{S}/\text{cm}$ ) for continuous level measurement and is preconfigured from factory 0 %...100 % to probe length ordered.

As of a conductivity of 30  $\mu\text{S}/\text{cm}$ , the measurement is independent of the dc-value (dielectric constant) of the liquid. It can also be deployed in Ex area, Zone 2.

The Liquicap T is particularly suited to the following applications:

- Small measuring ranges (as of 150 mm)
- Cistern measurements
- Aggressive liquids such as acids and alkalis
- Independent of the tank material (plastic, stainless steel or concrete) or the tank shape

Used in conjunction with the Fieldgate FXA320 (remote measured value interrogation using Internet technology), Liquicap T is an ideal solution for inventorying material and optimising logistics (inventory control).

### Your benefits

- Safe function regardless of tank geometry thanks to probe design
- No calibration necessary (preconfigured from factory 0 %...100 % to probe length ordered)
- High quality, non-corrosive materials (carbon fibre, stainless steel) for use in aggressive liquids and liquids which present a hazard to water (WHG-approved (German Water Resources Law))
- No moving parts in tank - long operating life - dependable function without wear
- Cost-effective solution for continuous measurement of levels in conductive liquids
- Optimised storage by simply shortening the probe rods on site (probe shortening set)

## Function and system design

### Measuring principle

The probe, medium and ground rod (counter electrode) form an electric capacitor.

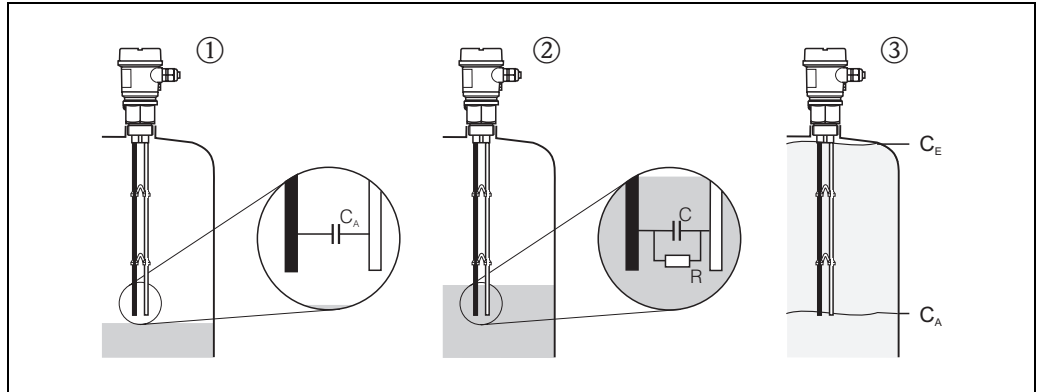
If the probe is in the air ①, a certain low initial capacitance is measured.

When the tank is filled, the capacitance increases the more the probe is covered ② ③.

As of a conductivity of 30  $\mu\text{s}/\text{cm}$ , the measurement does not depend on the dc-value of the liquid.

The electronic insert of the probe converts the capacitance measured to a current, in proportion to the level, in the range of 4...20 mA, thus making it possible to interpret the level.

All input and output channels are safely galvanically isolated from one another.



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$C_A$  : Initial capacitance (probe exposed)

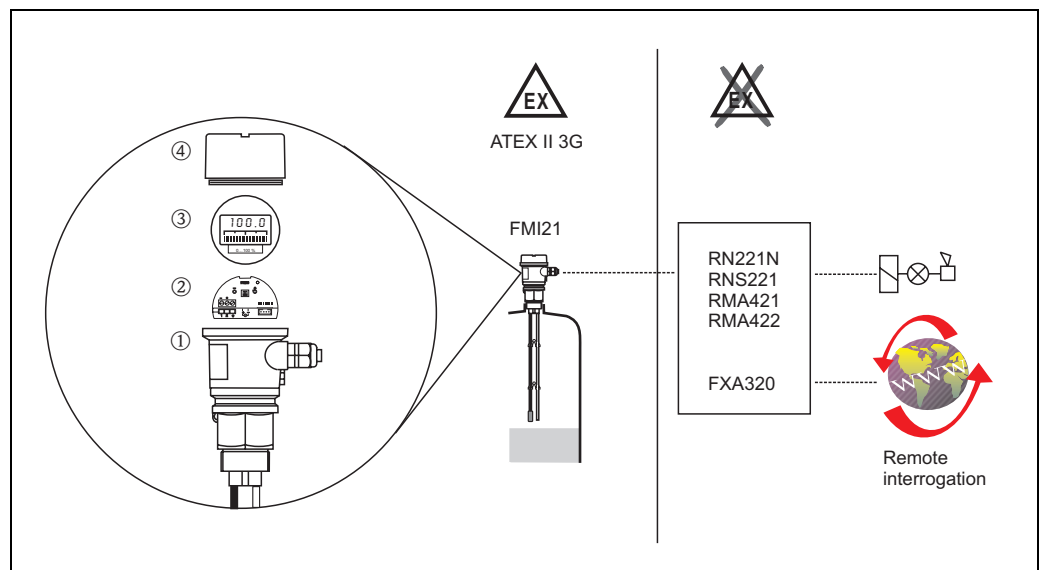
$C_E$  : Final capacitance (probe covered)

### Measuring system

#### Probe with integrated electronic insert

The measuring system consists of:

- The components of a capacitive probe Liquicap T FMI21:
  - ① Housing with two probe rods (one probe rod fully insulated and the second uninsulated (ground potential))
  - ② Electronic insert FEI20
  - ③ Display (optional)
  - ④ Housing cover (optional: cover with sight glass in conjunction with display)
- A transmitter power supply unit



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## Ordering information

### Liquicap T FMI21

<b>10</b>	<b>Approval:</b>			
	A	Non-hazardous area		
	B	Non-hazardous area, WHG		
	C	ATEX II 3 G EEx nA IIC T6, WHG		
	D	CSA General Purpose, CSA C US		
	Y	Special version		
<b>20</b>	<b>Process Connection:</b>			
	1	Thread ISO228 G 1½, PPS		
	2	Thread ANSI NPT 1½, PPS		
	9	Special version		
<b>30</b>	<b>Probe Length; Material; 150...2500 mm (6...100 inch):</b>			
	A	... mm L, PP 316L		
	B	... mm L, PP carbon fiber (< 1000 mm)		
	C	... mm L, PP carbon fiber (> 1000 mm)		
	D	... inch L, PP 316L		
	E	... inch L, PP carbon fiber (< 40 inch)		
	F	... inch L, PP carbon fiber (> 40 inch)		
	Y	Special version		
<b>40</b>	<b>Housing; Cable Entry:</b>			
	1	F16 polyester IP66 NEMA4X; gland M20		
	2	F16 polyester IP66 NEMA4X; thread NPT ½		
	3	F16 polyester IP66 NEMA4X; thread G ½		
	9	Special version		
<b>50</b>	<b>Electronics; Output:</b>			
	A	None		
	B	FEI20; 4...20 mA		
	C	FEI20; 4...20 mA + display		
	Y	Special version		
<b>60</b>	<b>Additional Option:</b>			
	1	Basic version		
	2	Shortening kit PP		
	9	Special version		
FMI21				Complete product designation

## Accessories

### Liquicap T

- Mounting nut G 1½  
Hexagon head, AF 60  
PN 52014146
- Shortening kit FMI21  
PN 52024300

### Spare parts

- Electronics FEI20  
PN 52025603
- Cover F16 high, transparent, with gasket  
PN 52025605
- Cover F16 grey, PBTP, with gasket  
PN 52025606
- Digital display, with holder  
PN 52025604
- Spacer probe rods, 5 pieces  
(5 pieces are included in the scope of delivery)  
PN 52025607

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