

Capacitance level transmitter

CapFox® EFT 20



- Easy adjustment via magnetic pin
- Degree of protection IP 68 with fixed cable connection
- For tank heights of 100 mm and more
- EX version suitable for mining



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Application Capacitance level indicator with 2-wire or 3-wire technology for continuous level measurement of liquids and bulk solids (flour, sand, cement, plastic granules) in open and closed container, tanks or silos. Particularly suitable for low tank heights.

Description The capacitance level indicator CapFox® EFT 20 detects the change in electrical capacitance caused by the change in level and converts the amount of change into a current signal (4–20 mA) or a voltage signal (0–10 V). The electronics module is contained in a robust stainless steel housing. Flexible probes or rod probes are available as measurement electrode. For level measurement of adhesive, corrosive or electrically conductive media, the electrodes are available with an insulating coating. If media are stored in tanks made of non-conductive materials or in open containers, the probes must be equipped with an additional coax reference pipe.

Technical data

Indication

LED, green: Operation indication
LED, orange: Status indication

Min. measuring range

0 / 100 mm

Max. measuring range

MS: ≤ 2,000 mm
MF: ≤ 6,000 mm
KX: ≤ 1,000 mm
(please specify exact probe length when ordering)

Accuracy

Non-linearity: Max. 1 %
Temperature error: Max. 0.05 %/K

Operating temperature range

Medium (t_m): -40 / +300 °C
Flange (t_f): -40 / +85 °C
(EX version up to 75 °C)
(High temperature up to +200 °C)
Ambient (t_a): -30 / +85 °C
(EX version up to 75° C)

Process pressure

See pressure resistance table

Process connection

Either G1B, G¾B, ¾"-NPT,
Tri-Clamp (Ø 34 or Ø 50.5 mm)

Supply voltage

DC 9–34 V / 2-wire
for Ex version DC 9–28 V
DC 12–34 V / 3-wire

Output signal

4–20 mA / 2-wire (standard)
0–10 V / 3-wire (option)

Current input

Max. 20.5 mA / 2-wire

Load

R_{max} = 700 Ω at 24 V

Housing

Stainless steel 304

Degree of protection

IP 68 (cable gland with fixed cable connection)
IP 67 (connector M12 x 1, 4-pin)

Electrical connection

Plastic cable gland M12 x 1.5
with fixed cable connection, 2 m

Weight

Approx. 0.3 kg
HT version approx. 0.6 kg

Probe material

Stainless steel 316 L (MS)
Stainless steel 316 (MF)
Stainless steel 304 (KX)

Scope of delivery

CapFox® EFT 20 according to configuration
with magnetic pin

Options

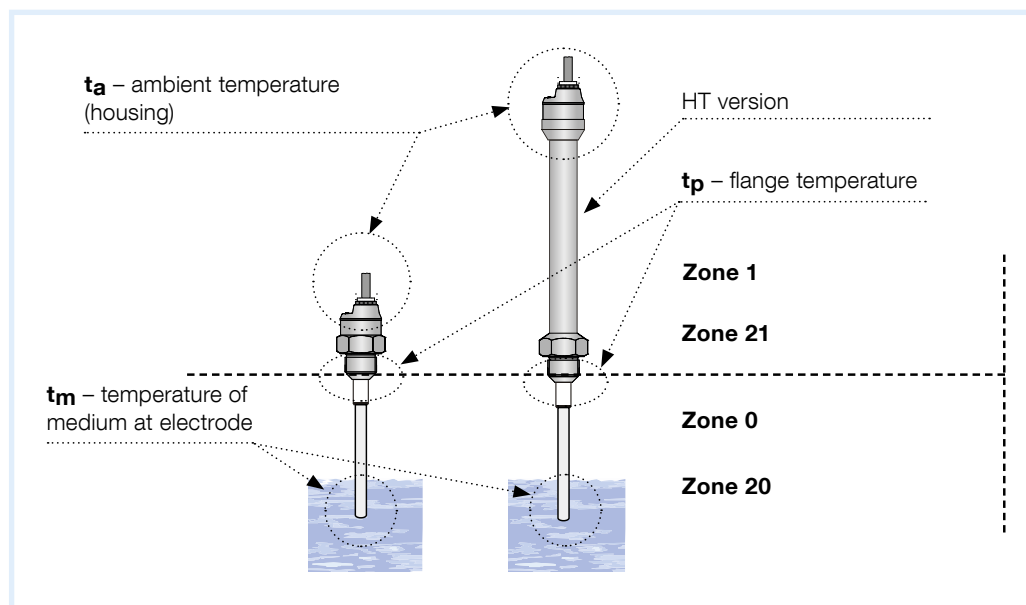
- Other process connections
- PFA coating/FEP coating
- EX version
- Ex II 1 G Ex ia IIB T4 Ga
- Ex II 1/2 D Ex ia IIIC T120°C Da/Db
- Ex M1 Ex ia I Ma

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connection diagram



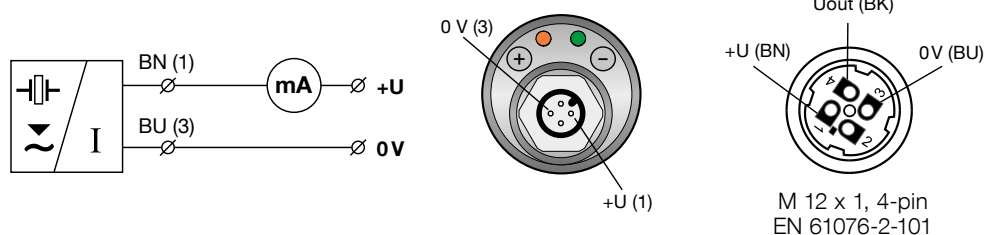
Pressure resistance

Maximum operating pressure at temperature t_p

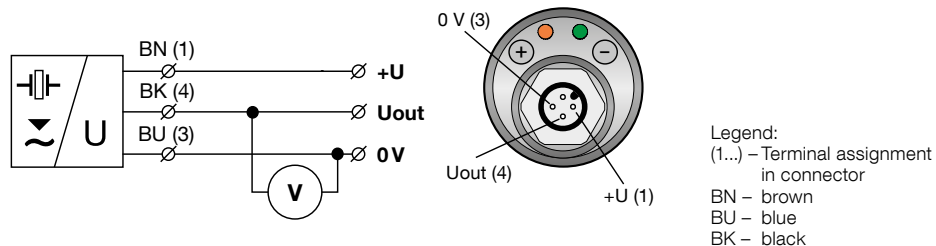
Version	Up to 30 °C	Up to 85 °C	Up to 120 °C	Up to 150 °C	Up to 200 °C
EFT 20 MS – 20	50 bar	25 bar	–	–	–
EFT 20 MS – 21, 22 + KX	50 bar	20 bar	–	–	–
EFT 20 MF	1 bar	1 bar	–	–	–
EFT 20 MS – 20 HT	50 bar	25 bar	15 bar	10 bar	5 bar
EFT 20 MS – 21, 22 + KX HT	50 bar	20 bar	15 bar	10 bar	1 bar
EFT 20 MF – HT	1 bar	1 bar	1 bar	1 bar	1 bar

Pin assignment output signals

Electrical connection, 2-wire system



Electrical connection, 3-wire system



Capacitance level transmitter

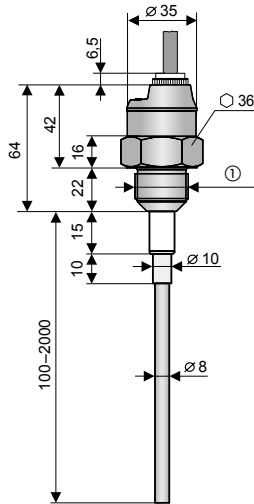
CapFox® EFT 20



Types and dimensions (mm)

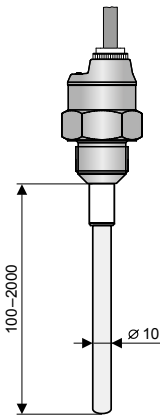
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CapFox® EFT 20 MS – 20 with rigid mono probe

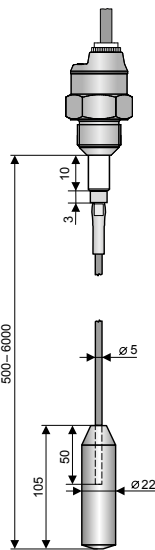


① Process connection

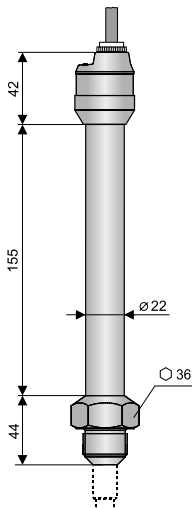
CapFox® EFT 20 MS – 21, 22 with rigid mono probe (FEP- or PFA-insulated)



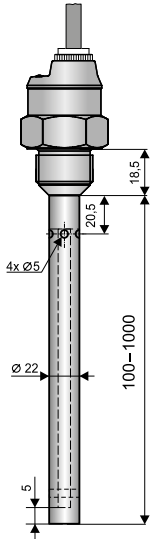
CapFox® EFT 20 MF – 60 with flexible mono probe



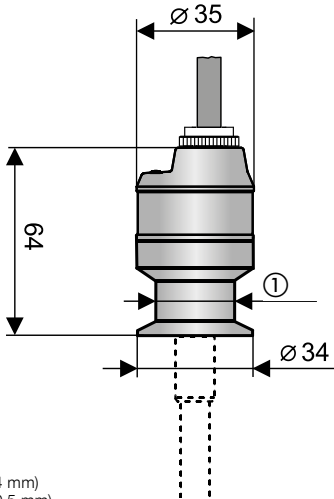
High temperature version



CapFox® EFT 20 KX – 40, 41 with coax probe



Process connection Tri-Clamp DIN 32676



① Tri-Clamp (ø 34 mm)
Tri-Clamp (ø 50.5 mm)

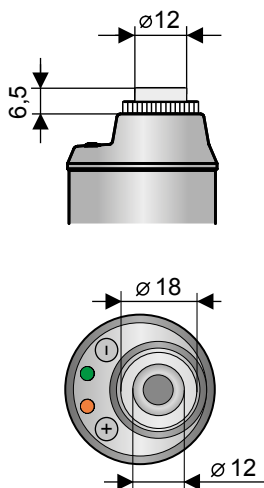
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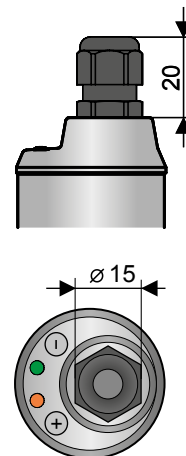


Electrical connections (mm)

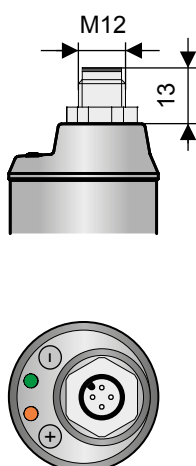
Version A with short stainless steel cable gland



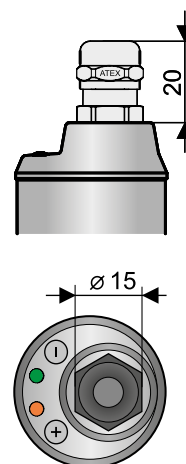
Version B with plastic (PVC) cable gland M12 x 1.5



Version C with connector M12 x 1, 4-pin



Version D with dust-tight cable gland (ATEX)



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Ordering data

DG: H, PG: 4

Price €

1 Capacitance level transmitter	
56550	CapFox® EFT 20
2 Probe type / max. measuring range / application / base price incl. 1 m electrode	
20	Mono probe rigid without insulation EFT 20 MS, max. 2,000 mm, for non-conductive media
21	Mono probe rigid with FEP insulation EFT 20 MS, max. 2,000 mm, for conductive media and food
22	Mono probe rigid with PFA insulation EFT 20 MS, max. 2,000 mm, for conductive media
40	Coax probe without insulation, EFT 20 KX, max. 1,000 mm, for non-conductive liquids
41	Coax probe with FEP-insulated measuring electrode, EFT 20 KX, max. 1,000 mm, for non-conductive liquids
60	Mono probe flexible, with weight Ø 22 mm, EFT 20 MF, max. 6,000 mm, for bulk solids
3 Temperature range	
ST	Standard for max. flange temperature t _p 85 °C (EX version 75 °C)
HT	High temperature version for max. flange temperature t _p 200 °C
4 Probe length (L) Extra charge for each 100 mm probe length for lengths > 1,000 mm	
2000	Length in mm e.g. 2,000 mm
	Rigid mono probe without insulation for EFT 20 MS
	Rigid mono probe with FEP insulation for EFT 20 MS
	Rigid mono probe with PFA insulation for EFT 20 MS
	Flexible mono probe without insulation for EFT 20 MS
5 Process connection	
1	G1B
2	G¾B
3	¾ NPT
4	Tri-Clamp DIN 32676, Ø 34 mm
5	Tri-Clamp DIN 32676, Ø 50.5 mm
6 Electrical connection	
A	Short stainless steel cable gland
B	Plastic cable gland M12 x 1.5
C	Connector M 12 x 1, 4-pin
D	Dust-tight cable gland (ATEX)
7 Output signal	
01	4–20 mA / 2-wire / DC 9–34 V
02	0–10 V / 3-wire / DC 12–34 V
EX	4–20 mA (ia) / 2-wire / DC 9–28 V (gas and dust EX) Ui=30 V DC; li=132 mA; Pi=0.99 W; Ci=35 nF; Li=10 mH
MEX	4–20 mA (ia) / 2-wire / DC 9–28 V (mining) Ui=30 V DC; li=132 mA; Pi=0.99 W; Ci=35 nF; Li=10 mH

Ordering code example

56550	21	ST	1000	1	A	01
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