

LEVEL SENSOR WITH FLOAT

Type: **MELS-FTE_x**

- RANGE 100 ... 2000 mm
- ATEX AND IECEx, Ex ia IIC
- 4 ... 20 mA OR 0 ... 10 V
- ZONE 0, 1 AND 2



ORDER CODE

Code	Field	Meaning
GI	series	Level Sensor with Float, intrinsically safe
0 ... 3	output	0 4 ... 20 mA, two wires · 1 0 ... 10 V · 2 0.5 ... 10.5 V · 3 2 ... 10 V, each three wires
1 · 2	float	plastic Ø 24 · plastic Ø 29 (standard)
1	resolution	4.5 mm
0 · 1 · 2 · 3	process connection	1" · 1.5" · 1" NPT · 3/4" (for float 24 mm)
100 ... A00	fitting length	100 · 200 · 300 · 400 · 600 mm · A00 for 1000 mm
0 ... 9	electrical connection	0 M12 4-pole · 1 M12 5-pole · 2 M12 8-pole · 3 Deutsch DT04 3-pole · 4 Deutsch DT04 4-pole · 5 Super Seal 1.5 3-pole · 6 bayonet (DIN) 4-pole · 7 valve plug 4-pole · 8 cable, 2 m · 9 MIL 6-pole
0 · 1	connection position	lateral (standard) · top
0 · 1	configuration	factory setting · customized, please indicate
0 · 1	special model	no (standard) · yes, please indicate

Further fitting lengths from 150 to 2000 mm are listed in the manufacturer document. The float of stainless steel offered on the MELS-FT is not available on this type.



OVERVIEW

The intrinsically safe version of the MELS-FT, for plants where an explosive atmosphere can occur. A float carrying a magnet rides on the surface and travels along a stainless steel protecting tube; inside the tube the magnet is read out, so nothing rubs and nothing wears. The range covers 100 to 2000 mm in steps of 4.5 mm, and the output is either 4 ... 20 mA over two wires or a voltage of 0 ... 10 V, 0.5 ... 10 V or 2 ... 10 V over three wires. The device is approved to ATEX and IECEx as Ex ia IIC T6..T1 and may be fitted in zone 0, 1 or 2; the marking depends on the version. Range start, range end and filter are set with the TrComm software through a DEV-KMA configurator — the sensor carries no display and no keys.

MEASUREMENT	EXPLOSION PROTECTION
• Float with magnet, read out inside the protecting tube • Range 100 ... 2000 mm, resolution 4.5 mm • Hysteresis about 3 mm, measuring amplifier resolution 24 bit • 4 ... 20 mA over two wires, the sensor feeds from the loop • Or 0 ... 10 V, 0.5 ... 10 V, 2 ... 10 V over three wires • Accuracy max. 0.1 % of measuring range plus the sensor error • Process connection 3/4", 1", 1.5" or 1" NPT through an adaptor • Electrical connection lateral as standard, upwards as an option	• ATEX TÜV 21 ATEX 201293 X, IECEx TUN 21 0005X • Ex ia IIC T6..T1, intrinsically safe, for gases • II 1 G Ga · II 1/2 G Ga/Gb · II 2 G Gb • Fitting in zone 0, zone 1 and zone 2 • Ui 30 V DC · Ii 110 mA · Pi 1 W • Operating range –20 ... +75 °C as 2-wire, –20 ... +50 °C as 3-wire • Medium max. 0 ... +100 °C, lower for T5 and T6 • Set with the TrComm software through a DEV-KMA configurator



TECHNICAL DATA

MEASUREMENT

Principle	float with magnet, read out in the protecting tube
Level	100 ... 2000 mm
Resolution, sensor	4.5 mm
Hysteresis	approx. 3 mm
Medium	non-aggressive liquids
Fitting position	vertical
Turn-on delay time	< 1 s
Note	medium density depends on the float, see the order code

OUTPUT AND SUPPLY

Current signal	4 ... 20 mA, 2-wire
Current range	3.8 ... 20.5 mA
Signal on error	< 3.6 mA sensor short circuit, underflow · > 21 mA sensor break, overflow
Voltage signal	0 ... 10 V · 0.5 ... 10 V · 2 ... 10 V, 3-wire
Supply voltage	12 ... 30 V DC
Reverse voltage, short circuit	protection available · short-circuit resistant
Electrical connection	lateral · option: top

PROCESS AND MATERIALS

Process connection	3/4" · 1" · 1.5" · 1" NPT (adaptor)
System pressure	25 bar
Protecting tube	stainless steel 1.4571
Float	PE Ø 24 (medium density 1 or more) · PE Ø 29
Adaptor, process connection	stainless steel 1.4571
Body, cover	PBT GF30
Weight	approx. 200 g (1", 300 mm, M12)
Protection class	IP65 electronics at least · IP68 sensor · PCB potted

ACCURACY

Accuracy, measuring amplifier	max. 0.1 % of measuring range plus the sensor error
Resolution, measuring amplifier	24 bit
Filter setting	5 ... 5000 ms
Configuration	per software (TrComm)

EXPLOSION PROTECTION AND ENVIRONMENT

Approval	ATEX TÜV 21 ATEX 201293 X · IECEx TUN 21 0005X · directive 2014/34/EU · EMC directive 2014/30/EU
Marking	II 1 G Ex ia IIC T6..T1 Ga · II 1/2 G Ex ia IIC T6..T1 Ga/Gb · II 2 G Ex ia IIC T6..T1 Gb · for gases, fitting in zone 0, 1 and 2
Safety values	Ui 30 V DC · Ii 110 mA · Pi 1 W; voltage output U0 12.6 V · IO 48 mA · PO 148 mW, linear
Environment	operating range -20 ... +75 °C as 2-wire, -20 ... +50 °C as 3-wire · storing -20 ... +85 °C · medium max. 0 ... +100 °C · condensation uncritical; the limits per temperature class T1 ... T6 are given in the manufacturer's operating instructions



ELECTRICAL CONNECTION

View onto the connector pins at the device

M12x1, 8-pole

2-wire

4 ... 20 mA

+

-

1

3

3-wire

4 ... 20 mA

+

OUT

-

1

3

8

Plug M12x1, 8-pole

As a 2-wire device pin 1 and pin 3 carry the 4 ... 20 mA loop. As a 3-wire device pin 1 is plus, pin 3 the output and pin 8 minus. The data sheet gives the function of each pin, not its position in the connector; the view onto the connector pins is taken from the manufacturer's operating instructions. The barrier belongs outside the hazardous area.

ACCESSORIES

DEV-KMA configurator	required for programming; the TrComm configuration and calibration software is included in the scope of delivery, and is available separately on request
Connecting cable	to suit the connector form ordered, with the matching protection class
Adaptor	stainless steel 1.4571, for the process connections listed above

Installation and commissioning only by personnel trained in types of protection and in the rules for explosion protection. The classification of the device must suit the application — see the marking on the type plate.

COMPLIANCE

	ATEX	TÜV 21 ATEX 201293 X, directive 2014/34/EU
	IECEx	IECEx TUN 21 0005X
	Protection class, electronics	IP65 at least
	Protection class, sensor	IP68, PCB potted
	Wetted material	stainless steel 1.4571; float of PE Ø 24 or Ø 29
	Electrical connection	M12 × 1 and eight further connector forms

The full certificates are available from the manufacturer on request. CE marking to the EMC directive 2014/30/EU.



DIMENSIONS (mm)

