

Translation

# EU-Type Examination Certificate

Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

EU-Type Examination Certificate Number: **BVS 05 ATEX E 103 X** Issue: **01**

Equipment: **Measuring unit Liquicap M type F\*I5\*-\*\*\*\*\***

Manufacturer: **Endress+Hauser SE+Co. KG**

Address: **Hauptstr. 1, 79689 Maulburg, Germany**

This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 05.2068 EU. This issue of the EU-Type Examination Certificate replaces the previous issue of the EU-Type Examination Certificate BVS 05 ATEX E 103 X including supplements 1 to 7.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

<b>EN IEC 60079-0:2018</b>	<b>General requirements</b>
<b>EN 60079-11:2012</b>	<b>Intrinsic Safety "i"</b>
<b>EN 60079-26:2015</b>	<b>Equipment with equipment protection level (EPL) Ga</b>

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

 see cl. 15.1

DEKRA Testing and Certification GmbH  
Bochum, 2023-08-07

Signed: Oliver Brumm

Managing Director

13 **Appendix**

14 **EU-Type Examination Certificate**

**BVS 05 ATEX E 103 X issue 01**

15 **Product description**

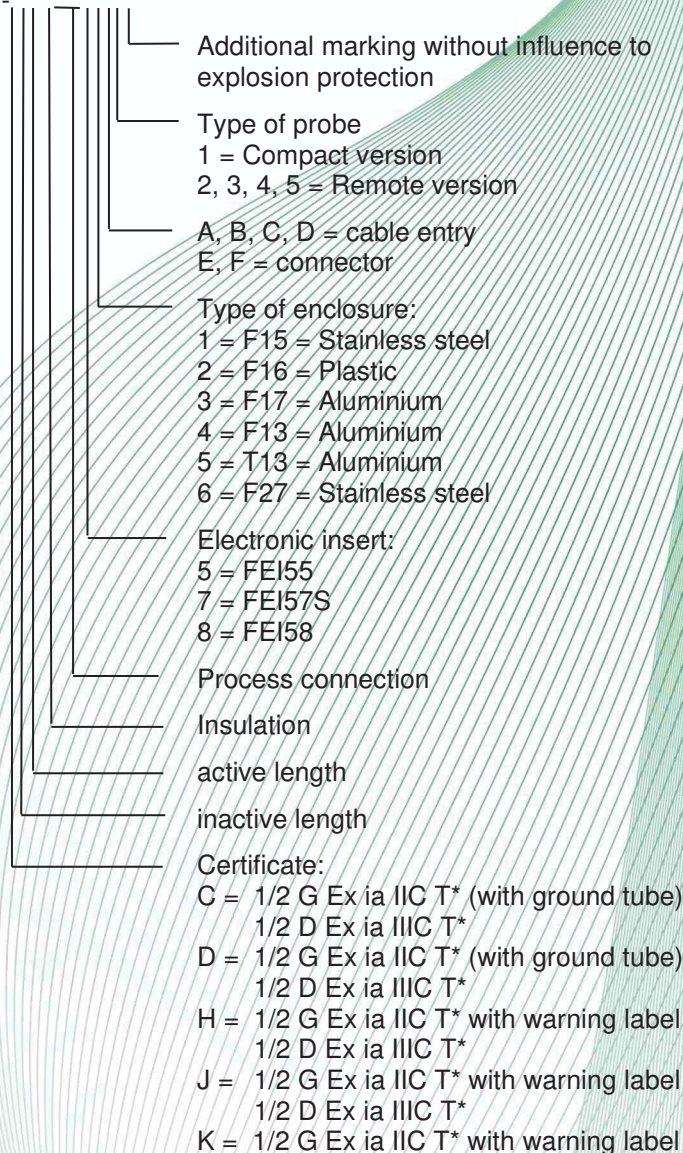
15.1 **Subject and type**

Measuring unit Liquicap M type FTI5\*\_\*\*\*\*\*

Measuring unit Liquicap M type FMI5\*\_\*\*\*\*\*

Instead of the \*\*\* in the complete denomination letters and numerals will be inserted which characterize modifications:

Liquicap M Typ FTI51\_\*\*\*\*\*



Liquicap M Typ FTI52-\*\*\*\*\*

Additional marking without influence to explosion protection

Type of probe

1 = Compact version

2, 3, 4, 5 = Remote version

A, B, C, D = cable entry

E, F = connector

Type of enclosure:

1 = F15 = Stainless steel

2 = F16 = Plastic

3 = F17 = Aluminium

4 = F13 = Aluminium

5 = T13 = Aluminium

6 = F27 = Stainless steel

Electronic insert:

5 = FEI55

7 = FEI57S

8 = FEI58

Process connection

Insulation

active length

inactive length

Certificate:

H = 1/2 G Ex ia IIC T\* with warning label  
1/2 D Ex ia IIIC T\*

J = 1/2 G Ex ia IIC T\* with warning label  
1/2 D Ex ia IIIC T\*

K = 1/2 G Ex ia IIC T\* with warning label

Liquicap M Typ FMI51-\*\*\*\*\*

Additional marking without influence to explosion protection

Type of probe  
1 = Compact version  
2, 3, 4, 5 = Remote version

A, B, C, D = cable entry  
E, F = connector  
Y = wire

Type of enclosure:  
1 = F15 = Stainless steel  
2 = F16 = Plastic  
3 = F17 = Aluminium  
4 = F13 = Aluminium  
5 = T13 = Aluminium  
6 = F27 = Stainless steel  
9 = Tube enclosure with flange

Electronic insert:  
A = FEI50H with display  
B = FEI50H  
C = FEI57C

Process connection

active length / Insulation

inactive length

Certificate:

C = 1/2 G Ex ia IIC T\* (with ground tube)  
1/2 D Ex ia IIIC T\*

D = 1/2 G Ex ia IIC T\* (with ground tube)  
1/2 D Ex ia IIIC T\*

E = 1/2 G Ex ia IIB T\* with warning label  
1/2 D Ex ia IIIC T\*

F = 1/2 G Ex ia IIB T\* with warning label  
1/2 D Ex ia IIIC T\*

H = 1/2 G Ex ia IIC T\* with warning label  
1/2 D Ex ia IIIC T\*

J = 1/2 G Ex ia IIC T\* with warning label  
1/2 D Ex ia IIIC T\*

K = 1/2 G Ex ia IIC T\* with warning label  
Y = 1G Ex ia IIB T4 with warning label

Liquicap M Typ FMI52-\*\*\*\*\*

Additional marking without influence to explosion protection

Type of probe  
 1 = Compact version  
 2, 3, 4, 5 = Remote version

A, B, C, D = cable entry  
 E, F = connector

Type of enclosure:  
 1 = F15 = Stainless steel  
 2 = F16 = Plastic  
 3 = F17 = Aluminium  
 4 = F13 = Aluminium  
 5 = T13 = Aluminium  
 6 = F27 = Stainless steel

Electronic insert:  
 A = FEI50H with display  
 B = FEI50H  
 C = FEI57C

Process connection

active length / Insulation

inactive length

Certificate:

E = 1/2 G Ex ia IIB T\* with warning label  
 1/2 D Ex ia IIIC T\*

F = 1/2 G Ex ia IIB T\* with warning label  
 1/2 D Ex ia IIIC T\*

H = 1/2 G Ex ia IIC T\* with warning label  
 1/2 D Ex ia IIIC T\*

J = 1/2 G Ex ia IIC T\* with warning label  
 1/2 D Ex ia IIIC T\*

K = 1/2 G Ex ia IIC T\* with warning label

The marking of the device must contain the following information:

type Liquicap M	Marking Gas	Marking Dust
FTI5*-K***** FTI5*-*****2**	II 1/2 G Ex ia IIC T <sup>3</sup> ) Ga/Gb	--
FTI51-D***** FTI51-C***** FTI5*-H***** FTI5*-J*****	II 1/2 G Ex ia IIC T <sup>3</sup> ) Ga/Gb	II 1/2 D Ex ia IIIC T* Da/Db but not for type FTI5*-*****2**
FMI5*-K*****	II 1/2 G Ex ia IIC T <sup>3</sup> ) Ga/Gb but not for types FMI5*-K*****2E** FMI5*-K*****2F**	--
FMI5*-K*****2E** FMI5*-K*****2F**	II 1/2 G Ex ia IIB T <sup>3</sup> ) Ga/Gb	--
FMI5*-F*****1)2)** FMI5*-E*****1)2)**	II 1/2 G Ex ia IIB T <sup>3</sup> ) Ga/Gb	II 1/2 D Ex ia IIIC T* Da/Db
FMI51-D*****1)2)** FMI51-C*****1)2)** FMI5*-H*****1)2)** FMI5*-J*****1)2)**	II 1/2 G Ex ia IIC T <sup>3</sup> ) Ga/Gb	II 1/2 D Ex ia IIIC T* Da/Db
FMI51-Y*****B9Y1*	II 1 G Ex ia IIB T4 Ga	--

- 1) Here the number 1, 3, 4, 5 or 6 will be inserted.
- 2) Here the letter A, B, C or D will be inserted.
- 3) Here the number 3, 4, 5 or 6 or 'T6...T3' will be inserted.

## 15.2 Description

The measuring device is used for continuous capacitive level measurement.

The measuring unit is mounted to a tank by a flange. The unit is inserted into the tank and, in case of the rod probe or the rope probe, it forms a capacitor with the tank walls or, in case of the rod probe, with a grounded tube.

The apparatus meets the requirements of Category 2G (Some types additionally Category 2D). The intrinsically safe probe circuit and the probes meet the requirements of Category 1G (Some types additionally Category 1D).

The type FMI51-Y\*\*\*\*\*B9Y1\* meets the requirements of category 1G.

### Reason for this issue

A temperature graph in the Parameters section has been updated  
A new type FMI51-Y\*\*\*\*\*B9Y1\* was added  
The special conditions for use have been updated

## 15.3 Parameters

### 15.3.1 Type Liquicap M FMI5\*-\*\*\*\*\*A\*\*\*\* and type Liquicap M FMI5\*-\*\*\*\*\*B\*\*\*\*

Input / signal circuit (terminals 1 – 2)

Voltage	$U_i$	DC	30	V
Current	$I_i$		120	mA
Power	$P_i$		1	W
Effective internal inductance	$L_i$			negligible
Effective internal capacitance	$C_i$		2.4	nF

Ambient temperature range

$T_a$

Temperature class T6

-50 °C up to +60 °C

Temperature class T5, T4 and T3

-50 °C up to +70 °C

for type Liquicap M FMI5\*-\*\*\*\*\*2\*\*\*

Temperature class T6

-40 °C up to +60 °C

Temperature class T5, T4 and T3

-40 °C up to +70 °C

for type Liquicap M FMI51-Y\*\*\*\*\*B9Y1\*

Temperature class T4

-40 °C up to +70 °C

### 15.3.2 Type Liquicap M FMI5\*-\*\*\*\*\*C\*\*\*\*

Input / signal circuit (terminals 1 – 2)

Voltage	$U_i$	DC	19.2	V
Current	$I_i$		108	mA
Power	$P_i$		1	W
Effective internal inductance	$L_i$			negligible
Effective internal capacitance	$C_i$		2.4	nF

Ambient temperature range

$T_a$

Temperature class T6

-50 °C up to +60 °C

Temperature class T5, T4 and T3

-50 °C up to +70 °C

for type Liquicap M FMI5\*-\*\*\*\*\*2\*\*\*

Temperature class T6

-40 °C up to +60 °C

Temperature class T5, T4 and T3

-40 °C up to +70 °C

### 15.3.3 Liquicap M type FTI5\*-\*\*\*\*\*5\*\*\*\*

Input / signal circuit (terminals 1 – 2)

Voltage	$U_i$	DC	36	V
Current	$I_i$		100	mA
Power	$P_i$		1	W

Effective internal inductance

$L_i$

negligible

Effective internal capacitance

$C_i$

2.4 nF

Ambient temperature range

$T_a$

Temperature class T6

-50 °C up to +55 °C

Temperature class T5, T4, T3

-50 °C up to +70 °C

for type Liquicap M FTI5\*-\*\*\*\*\*2\*\*\*

Temperature class T6

-40 °C up to +55 °C

Temperature class T5, T4, T3

-40 °C up to +70 °C

15.3.4 Liquicap M type FTI5\*-\*\*\*\*\*7\*\*\*\*

Input / signal circuit (terminals 1 – 2)

Voltage	$U_i$	DC	16.1 V
Current	$I_i$		100 mA
Power	$P_i$		1 W
Effective internal inductance	$L_i$		negligible
Effective internal capacitance	$C_i$		2.4 nF

Ambient temperature range

Temperature class T6	$T_a$		-50 °C up to +55 °C
Temperature class T5, T4, T3			-50 °C up to +70 °C

for type Liquicap M FTI5\*-\*\*\*\*\*2\*\*\*

Temperature class T6			-40 °C up to +55 °C
Temperature class T5, T4, T3			-40 °C up to +70 °C

15.3.5 Liquicap M type FTI5\*-\*\*\*\*\*8\*\*\*\*

Input / signal circuit (terminals 1 – 2)

Voltage	$U_i$	DC	18 V
Current	$I_i$		52 mA
Power	$P_i$		170 mW
Effective internal inductance	$L_i$		negligible
Effective internal capacitance	$C_i$		negligible

Ambient temperature range

for type Liquicap M FTI5*-*****2*** limited to	$T_a$		-50 °C up to +60 °C
			-40 °C up to +60 °C

15.3.6 Temperature class, process temperature and surface temperature

15.3.6.1 Temperatures for gas application (EPL G\*) without Liquicap M FMI51-Y\*\*\*\*\*B9Y1\*

Process temperature  $T_p$

Temperature class T6		up to + 85 °C
Temperature class T5		up to +100 °C
Temperature class T4		up to +135 °C
Temperature class T3		up to +200 °C

for type Liquicap M FMI51-Y\*\*\*\*\*B9Y1\*

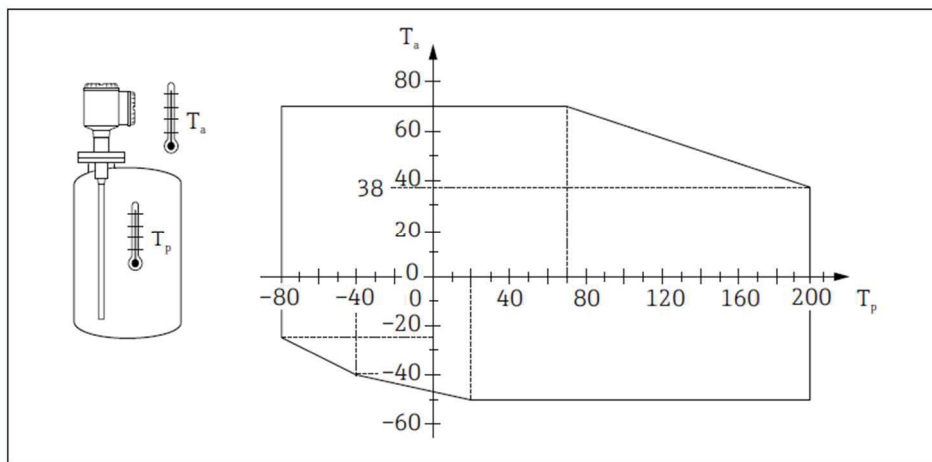
Temperature class T4: Ambient- and process temperature -40 up to +70 °C



Compact version Liquicap M Typ - type FMI5\*-\*\*\*\*\*1\* or FTI5\*-\*\*\*\*\*1\* without type Liquicap M FMI51-Y\*\*\*\*B9Y1\*

$T_a$  = ambient temperature [°C]

$T_p$  = process temperature [°C]

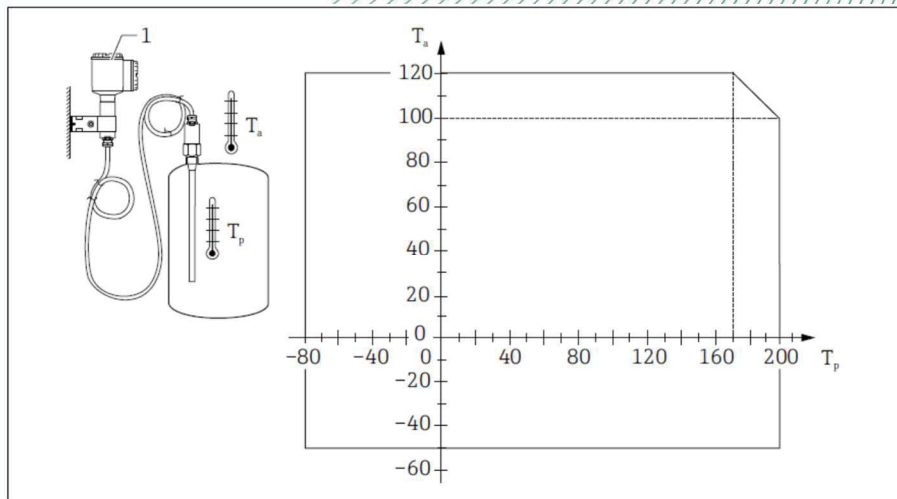


Version with separate electronics enclosure

Liquicap M type FMI5\*-\*\*\*\*\* (2, 3, 4, 5)\* or FTI5\*-\*\*\*\*\* (2, 3, 4, 5)\*

$T_a$  = ambient temperature [°C]

$T_p$  = process temperature [°C]



<sup>1</sup> Temperature at electronics enclosure  $\leq 70$  °C

15.3.6.2 Temperatures for dust application (EPL D\*)  
max. surface temperature probe

≤ T<sub>200</sub> 200 °C

Electronics enclosure for dust

Ambient temperature range electronics enclosure

T<sub>a</sub>

-50 °C up to +70 °C

	Probe in EPL Da	Electronics enclosure in EPL Db
Max. surface temperature at process resp. ambient temperature of 40 °C	T <sub>200</sub> 60 °C at T <sub>p</sub> = +40 °C	T60 °C at T <sub>a</sub> = +40 °C
Max. surface temperature at process resp. ambient temperature of 70 °C	T <sub>200</sub> 90 °C at T <sub>p</sub> = +70 °C	T90 °C at T <sub>a</sub> = +70 °C
Max. surface temperature for a process temperature of ≥ 80 °C...+180 °C at the probe under observation of the permissible ambient temperature of the electronics enclosure	T <sub>200</sub> 100 °C at T <sub>p</sub> = +80 °C	T90 °C at T <sub>a</sub> = +70 °C
	T <sub>200</sub> 200 °C at T <sub>p</sub> = +180 °C	T90 °C at T <sub>a</sub> = +38 °C

16 **Report Number**

BVS PP 05.2068 EU, as of 2023-08-07

17 **Specific Conditions of Use**

For use in hazardous areas caused by gases:

The measuring units Liquicap M type FMI5\*-\*\*\*\*\*2\*\*\* (plastic enclosure), type FTI5\*-\*\*\*\*\*2\*\*\* (plastic enclosure) and type FMI51-Y\*\*\*\*\*B9\*\*\* may only be installed in a way that electrostatic charges will be avoided.

The measuring units Liquicap M type FTI5\*-(K,H,J)\*\*\*\*\* (without ground tube) and type FMI5\*-(E,F,K,H,J)\*\*\*\*\* (without ground tube) shall only be used where electrostatic charging of the probe is not possible.

For use in hazardous areas caused by dust:

An electrostatic charging of the sensor cable of the measuring units Liquicap M type FTI5\*-\*\*\*\*\* (2, 3, 4, 5)\* (remote version) and type FMI5\*-\*\*\*\*\* (2, 3, 4, 5)\* (remote version) has to be excluded.

18 **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.



**Remarks and additional information**

Drawings and documents are listed in the confidential report.

---

We confirm the correctness of the translation from the German original.  
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH  
Bochum, 2023-08-07  
BVS-Ben/Mu A 20230400 /



---

Managing Director