



## EU - Type Examination Certificate

Equipment or Protective Systems Intended for Use  
in Potentially Explosive Atmospheres  
(Directive 2014/34/EU)

(3) EU - Type Examination Certificate number:

**FTZÚ 18 ATEX 0117X**

(4) Product: **Inductive flow meter type FLONEX**

(5) Manufacturer: **ELIS PLZEŇ a.s.**

(6) Address: **Luční 425/15, 301 00 Plzeň, Czech Republic**

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physical-Technical Testing Institute, Notified Body number 1026, in accordance with Articles 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26.02.2014, 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 confidential Report number:

**18/0117 dated 20.12.2018**

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015, EN 60079-11:2012, EN 60079-31:2014**

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.

(11) This certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:



**II 2G  
II 2D**

**Ex db eb ib [ib] IIB T6...T3 Gb  
Ex tb IIIC T80°C...T155°C Db**

This certificate is valid till: **31.12.2023**

Responsible person:

Dipl. Ing. Lukáš Martinák  
Head of Certification Body



Date of issue: 21.12.2018

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Annex: 1 (3 pages)

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Schedule

(14) EU - Type Examination Certificate No. FTZÚ 18 ATEX 0117X

(15) Description of Product:

The inductive flow meter FLONEX FXx11x is a liquid flow meter in a fully flooded pipeline designed for potentially explosive atmospheres.

The flow meter is designed for two variants – compact and separate.

a) compact design:

The evaluation unit is situated inside of instrument head with type of Ex protection Ex db and Ex tb, certificate No. FTZÚ 04 ATEX 0332U and connected with Ex- sensor type ISx.1xxEx, certificate No. FTZÚ 12 ATEX 0139U through line – bushing in Ex protection Ex db, certificate No. EPS 11 ATEX 1342X. Into the instrument head are created intrinsically safe circuits which are connected directly to the intrinsically safe parts of sensor type ISx. 1xxEx.

b) separate design:

The evaluation unit with "chimney" is connected and terminated in connection box with Ex protection Ex db and Ex tb, certificate No. FTZÚ 07 ATEX 0134U. The connection box is connected with Ex inductive sensor with connection box type ISx.1xxEx, Ex protection Ex eb ia and Ex tb, certificate No. FTZÚ 14 ATEX 0160X by cable (the length can be 150m). Into the instrument head are created intrinsically safe circuits which are connected by connecting boxes and cable to the intrinsically safe parts of sensor type ISx. 1xxEx.

**The type and Ex marking of the variants – see Annex No.1.**

Electrical parameters:

**Power Supply AC:** 95 - 250 V AC, 45 - 65 Hz, 3 VA max

**Power Supply DC:** 24 V ± 20% (19,2 ÷ 28,8 V), 3 W max

**Verified degree of IP protection:** IP 67

Intrinsically safe parameters:

- Power supply  $U_m = 250$  V

- 1x current output 4-20 mA :  $U_{max} = 30$  V; passive: galvanically isolated from ground and other outputs, HART communication

- 2x Binary output:  $U_{max} = 30$  V,  $I_{max} = 30$  mA; galvanically isolated from ground and all outputs

- Communication interface:  $U_{max} = 30$  V; interface RS-485 MODBUS RTU galvanically isolated from ground and all outputs

(16) Report Number.: 18/0117

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(13) **Schedule**

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(17) Specific Conditions of Use:

1. Ambient temperature range:
  - Compact design:  $-35^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ ;
  - Separate design: - the evaluation unit:  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +70^{\circ}\text{C}$   
- the inductive sensor type ISx.1xxEx:  $-35^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$
2. The maximum permitted fluid temperature depends on the pipe lining material; the temperature class and the maximum permitted surface temperature - see Annex No1;
3. The inductive sensor shall be fully flooded at all times;
4. The cable glands shall be only used with Ex protection:
  - Ex db IIB Gb and Ex tb IIIC Db – The evaluation unit,
  - Ex eb IIB Gb and Ex tb IIIC Db – The connection boxes.
5. When product is used in the zones 1 or 2 so electronic circuits which are connected to the product have to be limited to overvoltage category I/II according to standard IEC 60664-1.
6. Maximal length of cable between a head part and sensor part of separate design of product have to be lower than 150m.

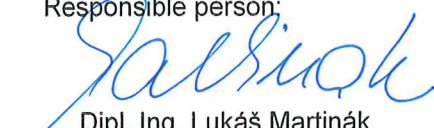
(18) Essential Health and Safety Requirements:

Compliance with the Essential Health and Safety Requirements is covered by standards mentioned in clause (9) of this certificate.

(19) Drawings and Documents:

| Number      | Sheets | Issue | Date       | Description                                        |
|-------------|--------|-------|------------|----------------------------------------------------|
| Es90663K    | 28     | No.1  | 18.12.2018 | User manual FLONEX FXx11x                          |
| Es200865    | 1      | -     | 16.11.2018 | Electronic unit Ex C12.1,C13.10 (compact design)   |
| Es200866    | 1      | -     | 16.11.2018 | Electronic unit Ex C12.30,C13.30 (separate design) |
| Es460082    | 2      | -     | 19.12.2018 | Label FX1116_FX2116 (separate design)              |
| Es460081    | 1      | -     | 19.12.2018 | Label FX1114_FX2114 (compact design)               |
| Es701753/01 | 1      | -     | 19.12.2018 | BOM FXZ2.0                                         |
| Es701758/01 | 1      | -     | 19.12.2018 | BOM FXZ2.0 (parts on which safety depend)          |
| Es701736/01 | 1      | -     | 19.12.2018 | BOM FXR1.5                                         |
| Es701774/01 | 1      | -     | 19.12.2018 | BOM FXR1.5 (parts on which safety depend)          |
| Es701712/01 | 1      | -     | 19.12.2018 | BOM FXK1.5                                         |
| Es701778/01 | 1      | -     | 19.12.2018 | BOM FXK1.5 (parts on which safety depend)          |
| Es701711/01 | 2      | a     | 19.12.2018 | BOM FXD1.5                                         |

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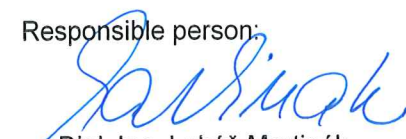
Schedule

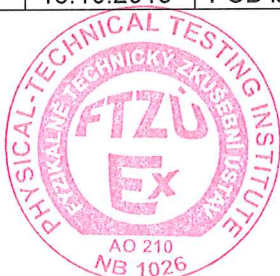
(14) **EU - Type Examination Certificate No. FTZÚ 18 ATEX 0117X**

(19) Drawings and Documents: continuation

| Number      | Sheets | Issue | Date       | Description                               |
|-------------|--------|-------|------------|-------------------------------------------|
| Es701710/01 | 1      | -     | 19.12.2018 | BOM FXB1.5                                |
| Es701709/01 | 3      | a     | 19.12.2018 | BOM FXM1.5                                |
| Es701756/01 | 1      | -     | 19.12.2018 | BOM FXM1.5 (parts on which safety depend) |
| Es701708/01 | 2      | -     | 19.12.2018 | BOM FXP1.5                                |
| Es701776/01 | 1      | -     | 19.12.2018 | BOM FXP1.5 (parts on which safety depend) |
| Es701707/01 | 3      | -     | 19.12.2018 | BOM FXV1.5                                |
| Es701755/01 | 1      | -     | 19.12.2018 | BOM FXV1.5 (parts on which safety depend) |
| Es701706/01 | 2      | -     | 19.12.2018 | BOM FXS1.5                                |
| Es701754/01 | 1      | -     | 19.12.2018 | BOM FXS1.5 (parts on which safety depend) |
| Es701705/01 | 1      | -     | 19.12.2018 | BOM FXN1.5                                |
| Es701757/01 | 1      | -     | 19.12.2018 | BOM FXN1.5 (parts on which safety depend) |
| Es800416    | 1      | -     | 13.09.2018 | Schematic diagram FXZ 2.0                 |
| Es800412    | 1      | -     | 13.09.2018 | Schematic diagram FXR 1.5                 |
| Es800410    | 1      | c     | 10.09.2018 | Schematic diagram FXM 1.5                 |
| Es800409    | 1      | 0     | 11.09.2018 | Schematic diagram FXB 1.5                 |
| Es800408    | 1      | 0     | 13.09.2018 | Schematic diagram FXK 1.5                 |
| Es800407    | 1      | -     | 07.12.2018 | Schematic diagram FXD 1.5                 |
| Es800399    | 1      | 1     | 10.09.2018 | Schematic diagram FXV 1.5                 |
| Es800398    | 1      | 0     | 10.09.2018 | Schematic diagram FXP1.5                  |
| Es800395    | 1      | -     | 13.09.2018 | Schematic diagram FXN 1.5                 |
| Es800267    | 1      | -     | 19.12.2018 | Schematic diagram FXS 1.5                 |
| Es800404    | 1      |       | 19.12.2018 | Block diagram C13.00                      |
| Es800413    | 1      |       | 19.12.2018 | Block diagram C12.00                      |
| Es301734    | 1      | a     | 13.09.2018 | PCB assembly drawing FXZ2.0               |
| Es301733    | 1      | a     | 24.09.2018 | PCB assembly drawing FXR1.5               |
| Es301720    | 1      |       | 21.12.2017 | PCB assembly drawing FXB1.5               |
| Es301719    | 1      | a     | 24.09.2018 | PCB assembly drawing FXS1.5               |
| Es301718    | 1      | a     | 21.12.2017 | PCB assembly drawing FXK1.5               |
| Es301717    | 1      | a     | 13.09.2018 | PCB assembly drawing FXN1.5               |
| Es301716    | 1      | b     | 11.12.2018 | PCB assembly drawing FXD1.5               |
| Es301715    | 1      | a     | 11.12.2018 | PCB assembly drawing FXM1.5               |
| Es301714    | 1      | a     | 20.09.2018 | PCB assembly drawing FXV1.5               |
| Es301713    | 1      | a     | 13.09.2018 | PCB assembly drawing FXP1.5               |
| Es600283    | 2      | -     | 16.10.2018 | PCB layout FXZ20                          |

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Schedule

(14) **EU - Type Examination Certificate No. FTZÚ 18 ATEX 0117X**

(19) Drawings and Documents: continuation

| Number   | Sheets | Issue | Date       | Description                          |
|----------|--------|-------|------------|--------------------------------------|
| Es600277 | 2      | -     | 11.10.2018 | PCB layout FXR15                     |
| Es600268 | 1      | -     | 10.10.2018 | PCB layout FXB15                     |
| Es600267 | 2      | -     | 11.10.2018 | PCB layout FXS15                     |
| Es600266 | 1      | -     | 16.10.2018 | PCB layout FXK15                     |
| Es600265 | 2      | -     | 11.10.2018 | PCB layout FXN15                     |
| Es600264 | 2      | -     | 10.10.2018 | PCB layout FXD15                     |
| Es600263 | 2      | -     | 10.10.2018 | PCB layout FXM15C                    |
| Es600262 | 2      | -     | 11.10.2018 | PCB layout FXV15                     |
| Es600261 | 2      | -     | 11.10.2018 | PCB layout FXP15                     |
| Es200870 | 1      | -     | 26.10.2018 | Placement of Label (separate design) |
| Es200871 | 1      | -     | 26.10.2018 | Placement of Label (compact design)  |

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Annex No.1

to EU - Type Examination Certificate No. FTZÚ 18 ATEX 0117X

Flow meter type marking FLONEX FXx11x

FLONEX FXx11x

- 4 – Compact version including transmitters C12.10 and C13.10
- 6 – Remote version including transmitters C12.30 and C13.30 and terminal box plus two cables
- 1 – Flow sensor including flanges
- 1 – Explosive environment
- 1 – Transmitter ELIS C12.x0 (24V  $\pm$  20%, 19.2 – 28.8 DC)
- 2 – Transmitter ELIS C13.x0 (95 - 250V AC)

Electromagnetic sensor ISx.1xxEx

- 0 – Measuring electrodes
- 1 – Measuring electrodes plus a grounding electrode
- 2 – Soft rubber
- 3 – Hard rubber for drinking water
- 4 – PTFE
- 7 – E – CTFE
- 1 – Connecting column and round flange
- 1 – Flanges EN1092-1
- 2 – Flanges ASME B16.5
- 9 – Other flange types, as required



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**Annex No.1**

**to EU - Type Examination Certificate No. FTZÚ 18 ATEX 0117X**

**Ex marking:**

**- The inductive flow meter FLONEX FXx114 – compact design**



**II 2G Ex db eb ib [ib] IIB T6...T5 Gb**

**II 2D Ex tb IIIC T80 °C...T95 °C Db**

**- Inductive flow meter FLONEX FXx116 – separate design**

a) The evaluation unit:



**II 2G Ex db eb ib [ib] IIB T6...T5 Gb**

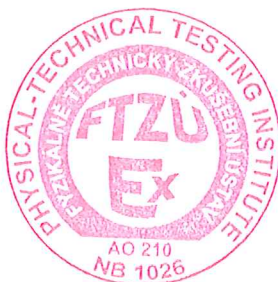
**II 2D Ex tb IIIC T80 °C...T95 °C Db**

b) Sensor:



**II 2G Ex eb ib IIB T6...T3 Gb**

**II 2D Ex tb IIIC T155°C Db**



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The maximum permitted fluid temperature depends on the pipe lining material, temperature class and maximum permitted surface temperature of sensors

For DN 15 - DN 25

| Type of lining | Maximum temperature of measured medium | Temperature class for 2G | Surface temperature for 2D |
|----------------|----------------------------------------|--------------------------|----------------------------|
| MG             | -35°C ÷ +48°C                          | T6                       | 80°C                       |
| NG             | +5°C ÷ +48°C                           | T6                       | 80°C                       |
| PTFE           | -35°C ÷ +48°C                          | T6                       | 80°C                       |
| PTFE           | -35°C ÷ +63°C                          | T5                       | 95°C                       |
| PTFE           | -35°C ÷ +98°C                          | T4                       | 130°C                      |
| PTFE           | -35°C ÷ +123°C                         | T3                       | 155°C                      |

For DN 32- DN 300

| Type of lining | Maximum temperature of measured medium | Temperature class for 2G | Surface temperature for 2D |
|----------------|----------------------------------------|--------------------------|----------------------------|
| MG             | -35°C ÷ +64°C                          | T6                       | 80°C                       |
| NG             | +5°C ÷ +64°C                           | T6                       | 80°C                       |
| E-CTFE a PTFE  | -35°C ÷ +64°C                          | T6                       | 80°C                       |
| E-CTFE a PTFE  | -35°C ÷ +79°C                          | T5                       | 95°C                       |
| E-CTFE a PTFE  | -35°C ÷ +114°C                         | T4                       | 130°C                      |
| PTFE           | -35°C ÷ +139°C                         | T3                       | 155°C                      |

**Note:** MG ... soft rubber  
NG ... hard rubber for drinking water



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