1 # TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3 **Type Examination Certificate No:** **FM17ATEX0017X**

4 **Equipment or protective system: (Type Reference and Name)** **FEP63 _ ProcessMaster, FEH63_ HygienicMaster Electromagnetic Flowmeters and FET63_Transmitters**

5 **Name of Applicant:** **ABB Automation Products GmbH**

6 **Address of Applicant:** **Dransfelder Straße 2, D-37079 Göttingen, Germany**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd. certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment 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:

3059596 dated 22nd May 2018

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0:2012 + A11:2013, EN 60079-7:2015, EN 60079-31:2014 and
EN 60529:1991 + A1:2000 + A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:

II 3 G Ex ec IIC T6…T1 Gc
II 3 D Ex tc IIIC T80°C…Tmedium Dc

Ambient temperature range: Ta = -20°C to +60°C or -40°C to +60°C depending on the options chosen. See ABB Instruction Manual for ambient temperature and process temperature range.

Digitally signed by Andrew J. Was
DN: cn=Andrew J. Was, o=FM Approvals Ltd, 1 Windsor Dials, Windsor, Berkshire, SL4 1RS, UK, ou=Assistant Vice President - Auditing & Quality Manager - EMEA, email=andrew.was@fmapprovals.com, c=GB

Andrew Was
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 13 June 2018

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13 **Description of Equipment or Protective System:**

The FEP6_ _ ProcessMaster, and FEH6_ _ HygienicMaster are series of electromagnetic flowmeters. The electronics enclosure is a cylindrical enclosure identified as a Type 3 or a single compartment rectangular housing identified as a Type 4.

The FEP6_ _ ProcessMaster, and FEH6_ _ HygienicMaster are both available as integral and remote designs. A high process temperature version is available and uses 40 mm or 100 mm stand-offs between the Primary and the electronics or remote connection facilities.

The sensor is available in two different versions: Process Sensor and Hygienic Sensor. The Process Sensor is available in meter size DN3 to DN2000, the Hygienic Sensor is available in meter size DN3 to DN100. The medium temperature range for the Hygienic Sensor and the medium temperature range for the Process Sensor identified as Design Level A are -40°C to +130°C for the normal temperature version and -40°C to +180 °C for the high temperature version. The medium temperature range for sensors identified as Design Level B is -40°C to 100°C.

Enclosure rating IP65, IP67 or IP68 depending on the option selected.

Electrical parameters

Power Supply (Terminals L and N)

U_{DC} = 16.8 V to 30 V power supply (=U_{Low}); $P_{max} \leq$ 20W; C, Ripple: < 5 %.
U_{AC} = 100 V(-15%) to 240V (+10%) power supply (=U_{High}); $S_{max} \leq$ 20VA

See ABB Instruction Manual for the parameters for the Current Output, Digital Output, and Digital Input connections.

FEH631A2fghijklmnopqrA-t.u.v – Hygienic Integral

f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, D4, D6, or D8
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: T1 or P1
j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0 or 2
n = Grounding accessories: A, B or C
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 0, 1 or 2
r = Outputs: G0, G1, G2, G3 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

FEP631A2fghijklmnopqrA-t.u.v.w – Process Integral – Design Level A

f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, D4, D6, or D8
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: R2, R3, R4, E1, T1, T3, T2, P1, C1, E2, or P2

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j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0, 1, 2, or 3
n = Grounding accessories: A, B, C, D, E
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 0, 1 or 2
r = Outputs: G0, G1, G2, G3 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
w = Sensor housing material: SMA, SMS

FEP631A2fghT1jklmnopqrB-t.u.v.SMA – Process Integral – Design Level B

f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, D4, D6, or D8
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0, 1, 2, or 3
n = Grounding accessories: A, B, C, D, E
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 0, 1 or 2
r = Outputs: G0, G1, G2, G3 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1 or TK4

FEH632A2fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: T1 or P1
j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0 or 2
n = Grounding accessories: A, B or C
o = Protection class transmitter/protection class sensor: 70, 76, 77 or 91
p = Power supply: Y or W
Additional Codes
t = Option card 1: DR0
u = Option card 2: DR0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

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FEP632A2fghijklmnop8Y0A-t.u.v.w – Process Remote Sensor – Design Level A

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: R2, R3, R4, E1, T1, T3, T2, P1, C1, E2 or P2
j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0, 1, 2 or 3
n = Grounding accessories: A, B, C, D or E
o = Protection class transmitter/protection class sensor: 70, 76, 77 or 91
p = Power supply: Y or W
Additional Codes
t = Option card 1: DR0
u = Option card 2: DR0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
w = Sensor housing material: SMA or SMS

FEP632A1fghT1jklmnop8Y0B-t.u.v.SMA – Process Remote Sensor – Design Level B

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
j = Process connection material: Single digit – not relevant for safety
k = Electrode design: 1, or 5
l = Measuring electrode material: Single digit code – not relevant for safety
m = Grounding electrode/Full pipe detection: 0, 1, 2 or 3
n = Grounding accessories: A, B, C, D or E
o = Protection class transmitter/protection class sensor: 70, 76, 77 or 91
p = Power supply: Y or W
Additional Codes
t = Option card 1: DR0
u = Option card 2: DR0
v = Temperature range of installation/Ambient temperature range: TK1 or TK4

FET632A2fopqr - t.u.v – Remote Transmitter

f = Housing Type/Housing Material/ Cable entry: F1 or F2
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 0, 1 or 2
r = Outputs: G0, G1, G2, G3 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

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14 **Specific Conditions of Use:**

1. Sensors having exposed electrodes in the process shall be used in a non-flammable liquid process only.
2. The ABB Instruction Manual for the ProcessMaster and HygenicMaster details the permitted Temperature Classification and Ambient Temperature ratings as influenced by the Process Medium temperature.
3. The painted surface of the ProcessMaster and HygenicMaster may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in IEC TR60079-32-2 Cleaning of the painted surface should only be done with a damp cloth.

15 **Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 **Test and Assessment Procedure and Conditions:**

This Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by FM Approvals Ltd.

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
13 June 2018	Original Issue.

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