

1 EU-TYPE EXAMINATION CERTIFICATE



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

3 **EU-Type Examination Certificate No:** FM17ATEX0016X

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, notified body number 1725 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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 60079-1:2014, EN 60079-7:2015, EN 60079-11:2012,
EN 60079-18:2015, EN 60079-31:2014, 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 EU-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.

Andrew Was
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 13 June 2018

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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SCHEDULE

to EU-Type Examination Certificate No. FM17ATEX0016X

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



FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral Transmitter

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral Transmitter - Design Level A

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FEP632A1fghijklmnop8Y0A-t.u.v – Process Remote Sensor - Design Level A

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FET632A1fopqr - t.u.v – Remote Transmitter – ‘e’ wallbracket

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db



FET632A1fopqr - t.u.v – Remote Transmitter – ‘d’ wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db

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.

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.

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

Electrical parameters

Power Supply (Terminals L and N)

U_{DC} = 16.8V to 30V power supply (=U_{Low}); P_{max} ≤ 20W; C, Ripple: < 5 %.

U_{AC} = 100V(-15%) to 240V (+10%) power supply (=U_{High}); S_{max} ≤ 20VA

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

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FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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 = Process Connection Type: 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: 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

FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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 = Process Connection Type: 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 or 91
p = Power supply: A, D, C, or E
q = Display: 1 or 2
r = Outputs: G0, G1, G2, G3, 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 or SMS

FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68

II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size: 4-digit code – not relevant for safety

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- 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

FEP632A1fghijklmnop8Y0A-t.u.v.w – Process Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68
II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68
* -20°C or -40°C depending on options chosen

- 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

FET632A1fopqr - t.u.v – Remote Transmitter – ‘e’ Wallbracket

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6 Gb Ta = * to +60°C IP65/67
II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67
* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: W1, W2, W3, or W4
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 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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FET632A1fopqr - t.u.v – Remote Transmitter - ‘d’ Wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

f = Housing Type/Housing Material/ Cable entry: W5 or W7

o = Protection class transmitter/protection class sensor: 70 or 91

p = Power supply: A, D, C or E

q = Display: 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

14 Specific Conditions of Use:

1. The painted surface of the FE*6, 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.
2. For installations in flammable dust, the cable entries shall be fitted with an appropriate cable entry device meeting the requirements of IP6x fitted with a gasket or seal between the cable entry device and the wall of the enclosure.
3. For Integral and Remote versions FE*63*A1 Category II 2 D having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.

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 EU-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 the Notified Body.

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to EU-Type Examination Certificate No. FM17ATEX0016X

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
13 June 2018	Original Issue.

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1 EU-TYPE EXAMINATION CERTIFICATE



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

3 EU-Type Examination Certificate No: FM17ATEX0016X

4 Equipment or protective system: FEP63 _ ProcessMaster,
(Type Reference and Name) 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, notified body number 1725 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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 60079-1:2014, EN 60079-7:2015, EN 60079-11:2012,
EN 60079-18:2015, EN 60079-31:2014, 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 EU-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.

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@fmaprovals.c
om, c=GB

Andrew Was
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 16 July 2018

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F ATEX 020 (Apr/16)

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SCHEDULE

to EU-Type Examination Certificate No. FM17ATEX0016X

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



FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral Transmitter

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral Transmitter - Design Level A

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FEP632A1fghijklmnop8Y0A-t.u.v – Process Remote Sensor - Design Level A

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FET632A1fopqr - t.u.v – Remote Transmitter – ‘e’ wallbracket

II 2(1) G Ex db eb mb [ia Ga] IIC T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db



FET632A1fopqr - t.u.v – Remote Transmitter - ‘d’ wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db

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.

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 dual compartment housing Type 3.

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.

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

Electrical parameters

Power Supply (Terminals L and N)

U_{DC} = 16.8V to 30V power supply (=U_{Low}); P_{max} ≤ 20W; C, Ripple: < 5 %.

U_{AC} = 100V(-15%) to 240V (+10%) power supply (=U_{High}); S_{max} ≤ 20VA

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

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FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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: 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 TTK

FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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
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 or 91
p = Power supply: A, D, C, or E
q = Display: 1 or 2
r = Outputs: G0, G1, G2, G3, 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 TTK
w = Sensor housing material: SMA or SMS

FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68

II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size: 4-digit code – not relevant for safety

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- 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

FEP632A1fghijklmnop8Y0A-t.u.v.w – Process Remote Sensor

- II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68
II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68
* -20°C or -40°C depending on options chosen

- 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

FET632A1fopqr - t.u.v – Remote Transmitter – 'e' Wallbracket

- II 2(1) G Ex db eb mb [ia Ga] IIC T6 Gb Ta = * to +60°C IP65/67
II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67
* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: W1, W2, W3, or W4
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 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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to EU-Type Examination Certificate No. FM17ATEX0016X

FET632A1fopqr - t.u.v – Remote Transmitter - 'd' Wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

f = Housing Type/Housing Material/ Cable entry: W5 or W7

o = Protection class transmitter/protection class sensor: 70 or 91

p = Power supply: A, D, C or E

q = Display: 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

14 Specific Conditions of Use:

1. The painted surface of the FE*6, 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.
2. For installations in flammable dust, the cable entries shall be fitted with an appropriate cable entry device meeting the requirements of IP6x fitted with a gasket or seal between the cable entry device and the wall of the enclosure.
3. For Integral and Remote versions FE*63*A1 Category II 2 D having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.

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 EU-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 the Notified Body.

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to EU-Type Examination Certificate No. FM17ATEX0016X

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
13 June 2018	Original Issue.
16 July 2018	<u>Supplement 1:</u> Report Reference: RR214851 dated 6 th July 2018. Description of the Change: Editorial corrections to the certificate.

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EU-TYPE EXAMINATION CERTIFICATE



- Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU
- EU-Type Examination Certificate No: FM17ATEX0016X
- Equipment or protective system:
(Type Reference and Name) FEP63 _ ProcessMaster,
FEH63 _ HygienicMaster Electromagnetic Flowmeters
and FET63 _ Transmitters
- Name of Applicant: ABB Automation Products GmbH
- Address of Applicant: Dransfelder Straße 2,
D-37079 Göttingen,
Germany
- This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.
- FM Approvals Ltd, notified body number 1725 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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
- 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 60079-1:2014, EN IEC 60079-7:2015 + A1:2018,
EN 60079-11:2012, EN 60079-18:2015, EN 60079-31:2014, EN 60529:1991 + A1:2000 + A2:2013
- 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.
- This EU-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.

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@fmaprovals.co
m, c=GB

Andrew Was
Deputy Certification Manager, FM Approvals Ltd.

Issue date: 12 January 2019

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F ATEX 020 (Apr/16)

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SCHEDULE

to EU-Type Examination Certificate No. FM17ATEX0016X

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



FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral Transmitter

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral Transmitter - Design Level A

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db



FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FEP632A1fghijklmnop8Y0A-t.u.v – Process Remote Sensor - Design Level A

II 2 G Ex eb ib mb IIC T6...T1 Gb
II 2 D Ex tb IIIC T80°C...Tmedium Db



FET632A1fopqr - t.u.v – Remote Transmitter – ‘e’ wallbracket

II 2(1) G Ex db eb mb [ia Ga] IIC T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db



FET632A1fopqr - t.u.v – Remote Transmitter - ‘d’ wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb
II 2(1) D Ex tb [ia Da] IIIC T80°C Db

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.

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 dual compartment housing Type 3.

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.

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

Electrical parameters

Power Supply (Terminals L and N)

U_{DC} = 16.8V to 30V power supply (=U_{Low}); P_{max} ≤ 20W; C, Ripple: < 5 %.

U_{AC} = 100V(-15%) to 240V (+10%) power supply (=U_{High}); S_{max} ≤ 20VA

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

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to EU-Type Examination Certificate No. FM17ATEX0016X

FEH631A1fghijklmnopqrA-t.u.v – Hygienic Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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: 1 or 2
r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M5, D1 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN, DRM, DRD or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

FEP631A1fghijklmnopqrA-t.u.v.w – Process Integral

II 2(1) G Ex db eb ib mb [ia Ga] IIC T6...T1 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: 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
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 or 91
p = Power supply: A, D, C, or E
q = Display: 1 or 2
r = Outputs: G0, G1, G2, G3, G3, G4, G5, G6, G7, G8, G9, M5, D1 OR Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN, DRM, DRD or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
w = Sensor housing material: SMA or SMS

FEH632A1fghijklmnop8Y0A-t.u.v – Hygienic Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68

II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68

* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2

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- 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

FEP632A1fghijklmnop8Y0A-t.u.v.w – Process Remote Sensor

II 2 G Ex eb ib mb IIC T6...T1 Gb Ta = * to +60°C IP65/67/68
II 2 D Ex tb IIIC T80°C...Tmedium Db Ta = * to +60°C IP65/67/68
* -20°C or -40°C depending on options chosen

- 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

FET632A1fopqr - t.u.v – Remote Transmitter – 'e' Wallbracket

II 2(1) G Ex db eb mb [ia Ga] IIC T6 Gb Ta = * to +60°C IP65/67
II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67
* -20°C or -40°C depending on options chosen

- f = Housing Type/Housing Material/ Cable entry: W1, W2, W3, or W4
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 1 or 2
r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M5, D1 or Y0
Additional Codes
t = Option card 1: DR0, DRN, DRG, DRT or DRA
u = Option card 2: DR0, DSA, DSN, DRM, DRD or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

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FET632A1fopqr - t.u.v – Remote Transmitter - ‘d’ Wallbracket

II 2(1) G Ex db [ia Ga] IIB + H₂ T6 Gb Ta = * to +60°C IP65/67

II 2(1) D Ex tb [ia Da] IIIC T80°C Db Ta = * to +60°C IP65/67

* -20°C or -40°C depending on options chosen

f = Housing Type/Housing Material/ Cable entry: W5 or W7

o = Protection class transmitter/protection class sensor: 70 or 91

p = Power supply: A, D, C or E

q = Display: 1 or 2

r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M5, D1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT or DRA

u = Option card 2: DR0, DSA, DSN, DRM, DRD or DSG

v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK

14 **Specific Conditions of Use:**

1. The painted surface of the FE*6, 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.
2. For installations in flammable dust, the cable entries shall be fitted with an appropriate cable entry device meeting the requirements of IP6x fitted with a gasket or seal between the cable entry device and the wall of the enclosure.
3. For Integral and Remote versions FE*63*A1 Category II 2 D having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.

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 EU-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 the Notified Body.

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18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
13 th June 2018	Original Issue.
16 th July 2018	<u>Supplement 1:</u> Report Reference: RR214851 dated 6 th July 2018. Description of the Change: Editorial corrections to the certificate.
12 January 2019	<u>Supplement 2:</u> Report Reference: RR215454 dated 2 nd January 2019. Description of the Change: Addition of Modbus option card. Modification to PWBs

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