

CERTIFICATE OF CONFORMITY

1. HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

2. **Certificate No:** FM17CA0033X
3. **Equipment:** FEP63_ ProcessMaster, FEW63_ ProcessMaster and FEH63_ HygienicMaster Electromagnetic Flowmeters, and FET63_ Transmitters
(Type Reference and Name)
4. **Name of Listing Company:** ABB AG
5. **Address of Listing Company:** Anna-Vandenhoeck-Ring 5, Gottingen 37081, Germany

6. The examination and test results are recorded in confidential report number:

3059596 dated 22nd May 2018

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

CSA C22.2 No. 25:2017, CSA C22.2 No. 30:1986 (R2016), CSA C22.2 No. 94.1:R2020, CSA C22.2 No. 94.2:2015, CSA C22.2 No. 213:2017, CSA C22.2 No. 60079-0:2015, CSA C22.2 No. 60079-1:2016, CSA C22.2 No. 60079-7:2016, CSA C22.2 No. 60079-11:2014, CSA C22.2 No. 60079-18:2016, CSA C22.2 No. 60079-31:2015, CSA C22.2 No. 60529:2016, CSA C22.2 No. 61010-1:2004, ANSI/ISA 122701:2011

8. 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.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. **Equipment Ratings:**

See Annex

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

21 March 2024

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA
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11. The marking of the equipment shall include:

See Annex

12. **Description of Equipment:**

General

The FEP6__ ProcessMaster, FEW6__ ProcessMaster and FEH6__ HygienicMaster are series of electromagnetic flowmeters. The electronics enclosure is a cylindrical enclosure identified as a dual compartment Type 3 or a single compartment a rectangular housing identified as a Type 4. The ambient temperature range for the transmitters and sensors is either -20°C to +60°C or -40°C to +60°C depending on the options chosen.

The FEP6__ ProcessMaster, FEW6__ ProcessMaster and FEH6__ HygienicMaster are both available as integral and remote designs. A high process temperature version is available and uses 40mm or 100mm 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 DN3000, 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.

The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

The temperature class is T6 for all remote transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4.

Enclosure rating Type 4X, IP65, IP67, or IP68 depending on the option selected.

Operation Temperature Ranges:

The ambient operating temperature range of the FE*6 is -40°C to 60°C. Process temperature range is -40°C to 180°C. See ABB Instruction manual for details on the relationship between ambient temperature, process temperature and temperature class.

Electrical data:

The FE*6 has the following supply parameters;

Power Supply (Terminals L and N)

$U_{DC} = 16.8 \text{ to } 30 \text{ V}$	Power supply ($= U_{LOW}$); $P_{MAX} = \leq 20 \text{ W}$; C, Ripple $< 5 \%$
$U_{AC} = 100 \text{ V}$	(-15%) to 240 V (+10%) Power supply ($= U_{HIGH}$); $S \leq 20 \text{ W}$

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See ABB Drawing Number 3KXF000061G0009 for the parameters for the Current Output, Digital Output, Digital Input connections, Ethernet and Profibus connections.

See Annex for Model Code options.

13. Specific Conditions of Use:

See Annex for Specific Conditions of Use.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
22 May 2018	Original Issue.
6 July 2018	Supplement 1: Report Reference: RR214851 dated 6 th July 2018. Description of the Change: Editorial corrections to the certificate.
24 August 2018	Supplement 2: Report Reference: RR215360 dated 24 th August 2018. Description of the Change: Corrections to the certificate.
2 January 2019	Supplement 3: Report Reference: RR215454 dated 2 nd January 2019. Description of the Change: Addition of Modbus option card. Modifications to PWBs.
22 March 2019	Supplement 4: Report Reference: RR217984 dated 22 nd March 2019. Description of the Change: Modification to Model codes.
19 May 2019	Supplement 5: Report Reference: RR217690 dated 19 th May 2019 Description of the Change: Addition of larger sensor diameters and alternative lay lengths.
19 January 2021	Supplement 6: Report Reference: PR456626 dated 19 th January 2021. Description of the Change: Addition of optional Ethernet and Ethernet plus Power over

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Date	Description
	Ethernet option cards.
April-5th-2021	Supplement 7: Report Reference: RR227397 dated 5th April 2021. Description of the Change: Update to CSA C22.2 No 60079-0:2019. Change to model code for Option Card 1 and 2.
15 February 2022	Supplement 8: Report Reference: RR230604 dated 15 th February 2022. Description of the Change: 1. Name and address change. 2. Documentation update 3. Addition of alternative fuse assembly for Division 2 and Zone 2 variants.
7 September 2022	Supplement 9: Report Reference: PR462717 dated 7 th September 2022. Description of the Change: Addition of Profibus Option card.
4 June 2023	Supplement 10: Report Reference: RR236655 dated 4 June 2023. Description of the Change(s): Update to Model Code for Profibus PA and label for FISCO.
10 January 2024	Supplement 11: Report Reference: RR238193 dated 10 January 2024. Description of the Change(s): Addition of FEW630 Series.
21 March 2024	Supplement 12: Report Reference: RR240803 dated 21 March 2024. Description of the Change(s): Addition of FEW63 flowmeters.

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ANNEX

FEH631F1fghijklmnopqrA-t.u.v – Hygienic Integral

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated with intrinsically safe outputs for Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb, protection by enclosure with intrinsically safe outputs for Zone 21 Ex tb [ia Da] IIIC T80°C...T165°C Db, hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67
Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67
Ex tb [ia Da] IIIC T80°C...T165°C Db
FISCO (when r = P1 or t = DRP)
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6, or D8
g = Meter Size representing DN3 to DN100: 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, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD or DRP
u = Option card 2: DR0, DS0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK

Specific Conditions of Use:

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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. Sensors option code e = F1 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.
5. 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.

FEH631F2fghijklmnopqrA-t.u.v.y – Hygienic Integral

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

Class I Division 2, Groups A, B, C, D; T*...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex ec IIC T*...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex tb IIIC T80°C...T165°C Db

*T6...T1 for all options except t = DR6 and u = DS8 when this is T4...T1

FISCO (when r = P1 or t = DRP)

Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, D4, D6, or D8

g = Meter Size representing DN3 to DN100: 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

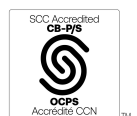
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n = Grounding accessories: A, B or C
o = Protection class transmitter/protection class sensor: 70 or 91
p = Power supply: A, D, C or E
q = Display: 0, 1 or 2
r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, E2, E3, E4, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD, DRP or DR6
u = Option card 2: DR0, DS0, DSA, DSN, DSG or DS8
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
y = Connector type: U0, UE, UF, UG, U5, UB, UC, U6, UD, UH, U7, UJ, UK, U8, UN, UP

Specific Conditions of Use:

1. The ABB Instruction Manual for the ProcessMaster and HygienicMaster details the permitted Temperature Classification and Ambient Temperature ratings as influenced by the Process Medium temperature.
2. The painted surface of the ProcessMaster and HygienicMaster 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.
3. For Integral and Remote versions FE*63*F1 of FE*63*F2 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. 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.

FEH632F1fghijklmnopqY0A-t.u.v – Hygienic remote sensor

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated for Class I, Zone 1, Ex db eb mb IIB+H₂ T6...T1 Gb, protection by enclosure/intrinsic safety for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67 Type 4X, IP65/67/68
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex db eb mb IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

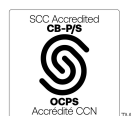
f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2

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g = Meter Size representing DN3 to DN100: 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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK

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*F1 Zone 21 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.
5. 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.

FEH632F2fghijklmnopqY0A-t.u.v – Hygienic remote sensor

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

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Class I Division 2, Groups A, B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Ex ec IIC T6...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN3 to DN100: 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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

Specific Conditions of Use:

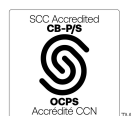
1. Sensors option code e = F1/F2 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
2. The ABB Instruction Manual for the ProcessMaster and HygenicMaster details the permitted Temperature Classification and Ambient Temperature ratings as influenced by the Process 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.
4. 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.

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FEP631F1fghijklmnopqrA-t.u.v.w – Process Integral

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated with intrinsically safe outputs for Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb, protection by enclosure with intrinsically safe outputs for Zone 21 Ex tb [ia Da] IIIC T80°C...T165°C Db, hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67

Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67

Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67

Ex tb [ia Da] IIIC T80°C...T165°C Db

FISCO (when r = P1 or t = DRP)

Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6 or D8

g = Meter Size representing DN3 to DN300: 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: 0, 1 or 2

r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

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

u = Option card 2: DR0, DS0, DSA, DSN, or DSG

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

w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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

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- 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°F1 Zone 21 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.
 5. 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.

FEP631F1fghijklmnopqrA-t.u.v.w – Process Integral

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety with intrinsically safe outputs for Class I, Zone 1, Ex db eb [ia Ga] IIB+H₂ T6...T1 Gb, protection by enclosure with intrinsically safe outputs for Zone 21 Ex tb [ia Da] IIIC T80°C...T165°C Db, hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67
Class I, Zone 1, Ex db eb [ia Ga] IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67
Ex tb [ia Da] IIIC T80°C...T165°C Db
FISCO (when r = P1 or t = DRP)
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6 or D8
g = Meter Size representing DN350 to DN3000: 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: 0, 1 or 2
r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

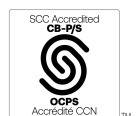
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Additional Codes

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

u = Option card 2: DR0, DS0, DSA, DSN, or DSG

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

w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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*F1 Zone 21 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.
5. 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.

FEP631F2fghijklmnopqrA-t.u.v.w.y – Process Integral – Design Level A

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

Class I Division 2, Groups A, B, C, D; T*...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex ec IIC T*...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex tb IIIC T80°C...T165°C Db

*T6...T1 for all options except t = DR6 and u = DS8 when this is T4...T1

FISCO (when r = P1 or t = DRP)

Single Seal

Description of Equipment:

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f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, D4, D6, or D8
g = Meter Size representing DN3 to DN3000: 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, 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, G4, G5, G6, G7, G8, G9, M1, D1, E2, E3, E4, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD, DRP or DR6
u = Option card 2: DR0, DS0, DSA, DSN, DSG or DS8
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
w = Sensor housing material: SMA, SMS
y = Connector type: U0, UE, UF, UG, U5, UB, UC, U6, UD, UH, U7, UJ, UK, U8, UN, or UP

Specific Conditions of Use:

1. Sensors option code e = F1/F2 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.

FEP631F2fghT1jklmnopqrB-t.u.v.ySMA – Process Integral – Design Level B

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

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Class I Division 2, Groups A, B, C, D; T*...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex ec IIC T*...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex tb IIIC T80°C...T165°C Db

*T6...T1 for all options except t = DR6 and u = DS8 when this is T4...T1

FISCO (when r = P1 or t = DRP)

Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: S1, S2, D1, D2, D3, or D4

g = Meter Size representing DN25 to DN600: 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, G4, G5, G6, G7, G8, G9, M1, D1, E2, E3, E4, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD, DRP or DR6

u = Option card 2: DR0, DS0, DSA, DSN, DSG or DS8

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

y = Connector type: U0, UE, UF, UG, U5, UB, UC, U6, UD, UH, U7, UJ, UK, U8, UN, or UP

Specific Conditions of Use:

1. Sensors option code e = F1/F2 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.
4. 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.

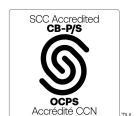
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FEP632F1fghijklmnopqY0A-t.u.v.w – Process remote sensor

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated for Class I, Zone 1, Ex db eb mb IIB+H₂ T6...T1 Gb, protection by enclosure/intrinsic safety for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67 Type 4X, IP65/67/68
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex db eb mb IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN350 to DN3000: 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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK
w = Sensor housing material: SMA or SMS
x = Sensor length: J6 or JH

Specific Conditions of Use:

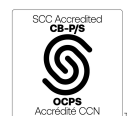
1. The painted surface of the FE*6, ProcessMaster and HygenicMaster may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Guidance 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.

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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*F1 Zone 21 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.
5. 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.

FEP632F1fghijklmnopqY0A-t.u.v.w – Process remote sensor

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety for Class I, Zone 1, Ex db eb IIB+H₂ T6...T1 Gb, protection by enclosure/intrinsic safety for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67 Type 4X, IP65/67/68
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex db eb IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

Process remote sensor

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN3 to DN300: 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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK

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w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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*F1 Zone 21 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. Contact the manufacturer for specific flame path joint details during repair of flameproof Ex d apparatus.
5. 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.

FEP632F2fghijklmnopqY0A-t.u.v.w – Process remote sensor – Design Level A

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

Class I Division 2, Groups A, B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex ec IIC T6...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Ex tb IIIC T80°C...T165°C Db

Single Seal

Description of Equipment:

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

g = Meter Size representing DN3 to DN3000: 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

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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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
w = Sensor housing material: SMA or SMS
x = Sensor length: J6 or JH

Specific Conditions of Use:

1. Sensors option code e = F1/F2 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.
4. 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.

FEP632F2fghT1jklmnopqY0B-t.u.v.SMA – Process remote sensor – Design Level B

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T*...T1; Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67/68 – Sensor only) with an ambient temperature rating of -40°C to +60°C.

*The temperature class is T6...T1 for all integral transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4...T1.

Markings:

Class I Division 2, Groups A, B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

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Ex ec IIC T6...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN25 to DN600: 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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1 or TK4

Specific Conditions of Use:

1. Sensors option code e = F1/F2 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.
4. 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.

FET632F1fopqrA - t.u.v – Remote transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6; Class III, Division 1, T6; Flameproof/increased safety/encapsulated with intrinsically safe outputs for Class I, Zone 1, Ex db [ia Ga] IIB + H₂ T6 Gb, protection by enclosure for Zone 21 Ex tb [ia Da] IIIC T80°C Db hazardous

To verify the availability of the Approved product, please refer to www.approvalguide.com

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locations, indoors and outdoors (Type 4X, IP65/67 – IP68 Sensor only) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6 Ta = -40°C to +60°C; Type 4X, IP65/67
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +60°C; Type 4X, IP65/67
Ex db [ia Ga] IIB + H₂ T6 Gb Ta = -40°C to +60°C; Type 4X, IP65/67
Ex tb [ia Da] IIIC T80°C Db
FISCO (when r = P1 or t = DRP)

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: W1, W2, W3, W4, W5 or W7
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, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRP or DRD
u = Option card 2: DR0, DS0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK

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. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.

FET632F2fopqrA - t.u.v – Remote transmitter

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T6, Nonincendive for Class II, Division 2, Groups E, F and G, T6, Class III, Division 1, T6; Increased safety for Class I, Zone 2 Ex ec IIC T6 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C Db hazardous (classified) locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

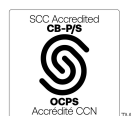
Class I Division 2, Groups A, B, C, D; T* Ta = -40°C to +60°C; Type 4X, IP65/67

To verify the availability of the Approved product, please refer to www.approvalguide.com

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Class II, Division 2, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +60°C; Type 4X, IP65/67
Class I, Zone 2, Ex ec IIC T* Gc Ta = -40°C to +60°C; Type 4X, IP65/67
Zone 21, Ex tb IIIC T80°C Db Ta = -40°C to +60°C; Type 4X, IP65/67
*T6 for all options except t = DR6 and u = DS8 when this is T4
FISCO (when r = P1 or t = DRP)

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: W1, W2, W3, W4, W5, or W7
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, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD OR DRP
u = Option card 2: DR0, DS0, DSA, DSN or DSG
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TTK

Specific Conditions of Use:

1. 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.

FET632F2fopqrA - t.u.v.y – Remote transmitter

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D, T6; Nonincendive for Class II, Division 2, Groups E, F and G, Class III, Division 1, Increased safety for Class I, Zone 2 Ex ec IIC T6 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

The temperature class is T6 for all remote transmitter options except when the Ethernet Option card is fitted, options t = DR6 and u = DS8 when this is T4.

Markings:

Class I Division 2, Groups A, B, C, D; T* Ta = -40°C to +60°C; Type 4X, IP65/67
Class II, Division 2, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +60°C; Type 4X, IP65/67
Ex ec IIC T* Gc Ta = -40°C to +60°C; Type 4X, IP65/67
Ex tb IIIC T80°C Db
*T6 for all options except t = DR6 and u = DS8 when this is T4
FISCO (when r = P1 or t = DRP)

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Description of Equipment:

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, G4, G5, G6, G7, G8, G9, M1, D1, E2, E3, E4, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD, DRP or DR6
u = Option card 2: DR0, DS0, DSA, DSN, DSG or DS8
v = Temperature range of installation/Ambient temperature range: TK1, TK4, TKH or TKK
y = Connector type: U0, UE, UF, UG, U5, UB, UC, U6, UD, UH, U7, UJ, UK, U8, UN, UP

Specific Conditions of Use:

1. Sensors option code e = F1/F2 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
2. 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.
3. 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.

FEW631F1fghijklmnopqrA-t.u.v.w – Process Integral

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated with intrinsically safe outputs for Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb, protection by enclosure with intrinsically safe outputs for Zone 21 Ex tb [ia Da] IIIC T80°C...T165°C Db, hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67
Class I, Zone 1, Ex db eb mb [ia Ga] IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67
Ex tb [ia Da] IIIC T80°C...T165°C Db
FISCO (when r = P1 or t = DRP)
Single Seal

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Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6 or D8
g = Meter Size representing DN3 to DN300: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner Material: R2, R3, R4 or E2
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: 0, 1, 2 or 8
r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

t = Option card 1: DR0, DRN, DRG, DRT, DRA, DRM, DRD, DRP or DR6
u = Option card 2: DR0, DS0, DSA, DSN, or DSG
v = Temperature range of installation/Ambient temperature range: TK1 or TK4
w = Sensor housing material: SMA or SMS
x = Sensor length: J6 or JH

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*F1 Zone 21 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.
5. 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.

FEW631F1fghijklmnopqrA-t.u.v.w – Process Integral

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G T6...T3B; Class III, Division 1 T6...T3B, Flameproof/increased safety with intrinsically safe outputs for Class I,

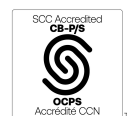
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Zone 1, Ex db eb [ia Ga] IIB+H₂ T6...T1 Gb, protection by enclosure with intrinsically safe outputs for Zone 21 Ex tb [ja Da] IIIC T80°C...T165°C Db, hazardous (classified) locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Single Seal

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67

Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67

Class I, Zone 1, Ex db eb [ia Ga] IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67

Zone 21, Ex tb [ja Da] IIIC T80°C...T165°C Db

FISCO (when r = P1 or t = DRP)

Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6 or D8

g = Meter Size representing DN350 to DN3000: 4-digit code – not relevant for safety

h = Process Connection Type: 2-digit code – not relevant for safety

i = Liner Material: R2, R3, R4 or E2

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: 0, 1 or 2

r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

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

u = Option card 2: DR0, DS0, DSA, DSN, or DSG

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

w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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.

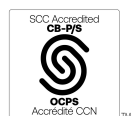
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3. For Integral and Remote versions FE*63*F1 Zone 21 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
5. 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.

FEW631F2fghijklmnopqrA-t.u.v.w – Process Integral

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T6, Nonincendive for Class II, Division 2, Groups E, F and G, T6, Class III, Division 1, T6; Increased safety for Class I, Zone 2 Ex ec IIC T6 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C Db hazardous (classified) locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C

Markings:

Class I Division 2, Groups A, B, C, D; T* Ta = -40°C to +60°C; Type 4X, IP65/67

Class II, Division 2, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +60°C; Type 4X, IP65/67

Class I, Zone 2, Ex ec IIC T* Gc Ta = -40°C to +60°C; Type 4X, IP65/67

Zone 21, Ex tb IIIC T80°C Db Ta = -40°C to +60°C; Type 4X, IP65/67

*T6 for all options except t = DR6 and u = DS8 when this is T4 FISCO (when r = P1 or t = DRP)

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: D1, D2, D3, D4, D6 or D8

g = Meter Size representing DN350 to DN3000: 4-digit code – not relevant for safety

h = Process Connection Type: 2-digit code – not relevant for safety

i = Liner Material: R2, R3, R4 or E2

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: 0, 1 or 2

r = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1, D1, P1 or Y0

Additional Codes

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

u = Option card 2: DR0, DS0, DSA, DSN, or DSG

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

w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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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*F1 Zone 21 having exposed electrodes in the process shall be used in a non-flammable liquid process only.
4. 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.

FEW632F1fghijklmnopqY0A-t.u.v.w – Process remote sensor

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety for Class I, Zone 1, Ex db eb IIB+H₂ T6...T1 Gb, protection by enclosure/intrinsic safety for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67 Type 4X, IP65/67/68
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex db eb IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN350 to DN3000: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: R2, R3, R4 or E2
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
q = Display: 0 or 8

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Additional Codes

t = Option card 1: DR0

u = Option card 2: DR0, DS0

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

w = Sensor housing material: SMA or SMS

x = Sensor length: J6 or JH

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*F1 Zone 21 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.
5. 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.

FEW632F1fghijklmnopqY0A-t.u.v.w – Process remote sensor

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups B, C and D T6...T1; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6...T3B; Class III, Division 1, T6...T3B, Flameproof/increased safety/encapsulated for Class I, Zone 1, Ex db eb mb IIB+H₂ T6...T1 Gb, protection by enclosure/intrinsic safety for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous locations, indoors and outdoors (Type 4X, IP65/67) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 1, Groups B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67 Type 4X, IP65/67/68
Class II, Division 1, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex db eb mb IIB+H₂ T6...T1 Gb Ta = -40°C to +60°C; Type 4X, IP65/67/68
Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN3 to DN300: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: R2, R3, R4 or E2

To verify the availability of the Approved product, please refer to www.approvalguide.com

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

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA

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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 or E
o = Protection class transmitter/protection class sensor: 70, 76, 77 or 91
p = Power supply: Y or W
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1 or TK4
w = Sensor housing material: SMA or SMS
x = Sensor length: J6 or JH

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*F1 Zone 21 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.
5. 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.

FEW632F2fghijklmnopqY0A-t.u.v.w – Process remote sensor – Design Level A

Equipment Ratings:

Nonincendive for Class I Division 2, Groups A, B, C and D T6...T1, Nonincendive for Class II, Division 2, Groups E, F and G, T6...T3B, Class III, Division 1, T6...T3B, Increased safety for Class I, Zone 2 Ex ec IIC T6...T1 Gc, protection by enclosure for Zone 21 Ex tb IIIC T80°C...T165°C Db hazardous (classified) locations, indoors and outdoors (Type 4X, IP65/67/68 – sensor only) with an ambient temperature rating of -40°C to +60°C.

Markings:

Class I Division 2, Groups A, B, C, D; T6...T1 Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)
Class II, Division 2, Groups E, F, G, Class III, Division 1; T6...T3B Ta = -40°C to +60°C; Type 4X, IP65/67/68 (sensor only)

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Member of the FM Global Group

Class I, Zone 2, Ex ec IIC T6...T1 Gc Ta = -40°C to +60°C; Type 4X, IP65/6768 (sensor only)
Zone 21, Ex tb IIIC T80°C...T165°C Db
Single Seal

Description of Equipment:

f = Housing Type/Housing Material/ Cable entry: A1, A2, U1, or U2
g = Meter Size representing DN3 to DN3000: 4-digit code – not relevant for safety
h = Process Connection Type: 2-digit code – not relevant for safety
i = Liner material: R2, R3, R4 or E2
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
q = Display: 0 or 8

Additional Codes

t = Option card 1: DR0
u = Option card 2: DR0, DS0
v = Temperature range of installation/Ambient temperature range: TK1 or TK4
w = Sensor housing material: SMA or SMS
x = Sensor length: J6 or JH

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.
4. Refer to manufacturer's instructions for ambient temperature, process temperature and temperature classification details.

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