IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx FMG 19.0025X**

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Certificate history:

Status: **Current**

Issue No: 5

Issue 4 (2022-09-12)
Issue 3 (2022-08-10)
Issue 2 (2021-08-23)
Issue 1 (2020-08-18)
Issue 0 (2020-07-13)

Date of Issue: 2022-11-21

Applicant: **ABB AG**
Anna-Vandenhoeck-Ring 5
Göttingen D-37081
Germany

Equipment: **FMT SensyMaster Thermal Mass Flowmeter with optional Hot Tap Device Accessory**

Optional accessory:

Type of Protection: **Protection by enclosures “t”; Flameproof "d"; Increased safety "e"; Intrinsic safety "i"; encapsulation "m"; non-electrical "h" (constructional "c")**

Marking: See attachment for Marking.

Approved for issue on behalf of the IECEx Certification Body: **Jm Marquedant**

Position: **VP, Manager - Electrical Systems**

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

FM Approvals LLC
1151 Boston-Providence Turnpike
Norwood, MA 02062
United States of America

FM Approvals
Member of the FM Global Group

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Manufacturer: **ABB AG**
Anna-Vandenhoeck-Ring 5
D-37081
Göttingen D-37081
Germany

Manufacturing locations: **ABB AG Division Measurement and Analytics**
Schillerstraße 72
Minden 32425
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1:2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11:2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18:2017 Edition:4.1	Explosive atmospheres - Part 18: Protection by encapsulation "m"
IEC 60079-26:2014-10 Edition:3.0	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
IEC 60079-31:2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7:2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
ISO 80079-36:2016 Edition:1.0	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic methods and requirements
ISO 80079-37:2016 Edition:1.0	Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

US/FMG/ExTR19.0020/00 US/FMG/ExTR19.0020/01 US/FMG/ExTR19.0020/02
US/FMG/ExTR19.0020/03 US/FMG/ExTR19.0020/04 US/FMG/ExTR19.0020/05

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Quality Assessment Reports:

DE/TUN/QAR06.0010/09 DE/TUN/QAR06.0012/07 GB/BAS/QAR08.0001/08
GB/FME/QAR10.0007/12

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The FMT SensyMaster are a series of thermal mass 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 remote sensor and the MinT design use an enclosure identified as a T-Box. The ambient temperature range for the transmitters and sensors is either -20°C to +70°C or –40°C to +70°C depending on the options chosen.

The FMT SensyMaster is available as integral and remote designs.

The FMT SensyMaster is used to convert the measurement signal of a gas flow into an electrical Signal. Depending on the version the Flowmeter provides an analogue output Signal (4-20 mA) with digital communication (HART). Optional digital outputs and/or digital inputs are available. MODBUS and Profibus DP option cards can be fitted. The MinT version of the Flowmeter consists of an aluminum enclosure of which the terminal compartment and the electronics compartment are explosionproof or flameproof. The sensor is intrinsically safe. The terminal compartment contains terminal boards for connection of the supply and Signal Circuits. The electronics compartment contains the electronic circuits and a display. The remote version consists of a transmitter located outside the hazardous location, in a Division 2 or Zone 2 or a Division 1 or Zone 1 hazardous location and a separate sensor with terminal housing located inside the hazardous location. The sensor works with a healing element and temperature sensors that measure the temperature of the flowing gas and the cooling of the heater due to the flowing gas.

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

The FMT SensyMaster includes an optional Hot Tap Device assembly models FMT09*, with type of protection “h” for non-electrical equipment by constructional safety “c”. The assembly is intended for integrated insertion and removal of the equipment probe, and is rated for process pressures up to 16 bar, with temperature ratings as detailed in the instructions.

FMT09a(*) SensyMaster Hot Tap Device Accessory
a = Pipe Connections. 1, 2, or 4.
(*) = additional optional model code characters not affecting safety.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The screws used to connect the Type 3 enclosure to the sensor shall be M5 x 20 A2 DIN7964. These shall a yield stress of at least 210 Nm^2.
2. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
3. When used for a Group III application, the painted surface of the enclosures 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
4. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer’s Instruction Manual.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Update to the Model Code which does not affect IECEx

Annex:

IECEx Attachment FMG19.0025X Issue 5.pdf

Electrical data:
The FMT has the following supply parameters;

FMT2*
24 V DC ± 20% (ripple: ≤ 5%) P_{max} ≤ 10 W

FMT4*
Power Supply (Terminals L and N)

U_{DC} = 24 V ± 20 % 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 3kxf000094G0009 and ABB Instruction Manual for the parameters for the Current Output, Digital Output, and Digital Input connections.

FMT430A1efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
FMT450A1efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
Ex db eb ib mb IIC T6…T1 Gb
Ex ia tb IIIC T80°C…Tmedium Db / Ex ia IIC T6...T1 Gb
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: D1, D2, D3, D4, D5, D6, D7 or D8.
j = Blank
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. The screws used to connect the Type 3 enclosure to the sensor shall be M5 x 20 A2 DIN7964. These shall a yield stress of at least 210 Nm^2.
2. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
3. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
4. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A3efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
FMT450A3efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
Ex db eb ia mb IIC T6…T1 Gb/Ga
Ex ia tb IIIC T80°C…Tmedium Db / Ex ia IIC T6...T1 Ga
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: D1, D2, D3, D4, D5, D6, D7 or D8.
j = Blank
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. The screws used to connect the Type 3 enclosure to the sensor shall be M5 x 20 A2 DIN7964. These shall a yield stress of at least 210 Nm^2.
2. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
3. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
4. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A1efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
FMT450A1efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
Ex eb ib mb IIC T6…T1 Gb
Ex tb IIIC T80°C…Tmedium Db / Ex ia IIC T6...T1 Gb
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
j = Connection design/Sensor housing material: A1, A2, U1 or U2
Additional information
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A3efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
FMT450A3efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
Ex eb ia ib mb IIC T6…T1 Gb/Ga
Ex tb IIIC T80°C…Tmedium Db / Ex ia IIC T6...T1 Ga
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
j = Connection design/Sensor housing material: A1, A2, U1 or U2
Additional information
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT432A1ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
FMT452A1ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
Ex db eb ia mb IIB + H2 T6 Gb
Ex ia tb IIIC T80°C Db
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

i = Connection design, transmitter housing type, transmitter housing material, entry: R1, R2, R3 or R4
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. The screws used to connect the Type 3 enclosure to the wallbracket shall be M5 x 20 A2 DIN7964. These shall a yield stress of at least 210 Nm^2.
2. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
3. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
4. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT432A1ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
FMT452A1ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
Ex db ia IIB + H2 T6 Gb
Ex ia tb IIIC T80°C Db
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

i = Connection design, transmitter housing type, transmitter housing material, entry: R5, R6, R7 or R8
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. The screws used to connect the Type 3 enclosure to the wallbracket shall be M5 x 20 A2 DIN7964. These shall a yield stress of at least 210 Nm^2.
2. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
3. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
4. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT230A1efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
FMT250A1efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
Ex eb ia mb IIC T6…T2 Gb
Ex ia tb IIIC T85°C…Tmedium Db / Ex ia IIC T6...T1 Gb
Ta = -20°C to +70°C (l = TA3) or Ta = -40°C to +70°C (l = TA9)

IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: B1, B2, T1 or T2
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
Additional information
l = Ambient temperature range: A or B

Specific Conditions of Use
1. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
2. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
3. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT230A3efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
FMT250A3efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
Ex eb ia mb IIC T6…T2 Ga / Gb
Ex ia tb IIIC T85°C…Tmedium Db / Ex ia IIC T6...T1 Ga
Ta = -20°C to +70°C (l = TA3) or Ta = -40°C to +70°C (l = TA9)
IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: B1, B2, T1 or T2
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
Additional information
l = Ambient temperature range: A or B

Specific Conditions of Use
1. Contact the manufacturer for specific flamepath joint details during repair of flameproof Ex d apparatus.
2. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.

3. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A2efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
FMT450A2efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
Ex ec IIC T6…T1 Gc
Ex tc IIIC T80°C…Tmedium Dc
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: D1, D2, D3, D4, D5, D6, D7 or D8.
j = Blank
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A2efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
FMT450A2efghY0jY0Y.p SensyMaster Thermal Mass Flowmeter – Remote sensor
Ex ec IIC T6…T1 Gc
Ex tc IIIC T80°C…Tmedium Dc
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
j = Connection design/Sensor housing material: A1, A2, U1 or U2
Additional information
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use

1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT430A2efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
FMT450A2efghijkl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Integral
Ex ec IIC T6…T1 Gc
Ex tc IIIC T80°C…Tmedium Dc
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1
i = Connection design, transmitter housing type, transmitter housing material, entry: S1 or S2.
j = Blank
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT432A2ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
FMT452A2ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
Ex ec IIC T6 Gc
Ex tc IIIC T80°C Dc
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

i = Connection design, transmitter housing type, transmitter housing material, entry: W1 or W2
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD

n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT432A2ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
FMT452A2ikl.m.n.L2.p SensyMaster Thermal Mass Flowmeter - Transmitter
Ex ec IIC T6 Gc
Ex tc IIIC T80°C Dc
Ta = -20°C to +70°C (p = TA3) or Ta = -40°C to +70°C (p = TA9)
IP65, IP67

i = Connection design, transmitter housing type, transmitter housing material, entry: R1, R2, R3, R4, R5, R6, R7 or R8
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
l = Power supply: A or B
Additional information
m = Additional output 1: DRN, DRG, DRA, DRT, DRM or DRD
n = Additional output 2: DSN, DSG, or DSA
p = Ambient temperature range: TA3 or TA9

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.

FMT230A2efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
FMT250A2efghiM2B.l SensyMaster Thermal Mass Flowmeter - MinT
Ex ec mc IIC T6…T2 Gc
Ex tc IIIC T85°C…Tmedium Dc
Ta = -20°C to +70°C (l = TA3) or Ta = -40°C to +70°C (l = TA9)
IP65, IP67, IP68

e = Measuring medium. Any two digits.
f = Sensor element type/Temperature range of measuring medium: A or B
g = Mounting length/Flowmeter sensor material: Any single digit
h = Sensor connection: D3, G2 or F1

i = Connection design, transmitter housing type, transmitter housing material, entry: B1, B2, T1 or T2
k = Outputs: G0, G1, G2, G3, G4, G5, G6, G7, G8, G9, M1 or D1
Additional information
l = Ambient temperature range: A or B

Specific Conditions of Use
1. When used for a Group III application, the painted surface of the Type 3 enclosure 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 60079-32-1. Cleaning of the painted surface should only be done with a damp cloth.
2. The ambient temperature range, process temperature and applicable temperature class of the FMT SensyMaster is detailed in the manufacturer's Instruction Manual.