



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 20.0023X** Page 1 of 4 [Certificate history:](#)
Status: **Current** Issue No: 0
Date of Issue: 2020-11-04
Applicant: **Magnetrol International Inc**
705 Enterprise St
Aurora, IL 60504
United States of America
Equipment: **Thermatel TA2 Thermal Mass Flow Transmitter**
Optional accessory:
Type of Protection: **Ex db, qb**
Marking: Ex db qb IIC T4...T3 Gb Ta = -40°C to +70°C
Ex db IIC T6 Gb Ta = -40°C to +70°C
Ex qb IIC T4...T3 Gb Ta = -40°C to +70°C

Approved for issue on behalf of the IECEx
Certification Body:

J. E. Marquedant

Position:

VP, Manager - Electrical Systems

Signature:
(for printed version)

Date:

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





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Manufacturer: **Magnetrol International Inc**
705 Enterprise St
Aurora, IL 60504
United States of America

Additional manufacturing locations: **Magnetrol International N.V**
Heikensstraat 6
9240 Zele
Belgium

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 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-5:2015 Explosive atmospheres –Part 5: Equipment protection by powder filling "q"
Edition:4.0

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 Report:

[US/FMG/ExTR20.0019/00](#)

Quality Assessment Reports:

[CA/CSA/QAR06.0004/12](#)

[NL/DEK/QAR11.0031/06](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Refer to Annex under Equipment

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Annex under Specific Conditions of Use.



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Equipment (continued):

Refer to Annex under Equipment

Annex:

[Annex-to-IECEx FMG 20.0023X Issue 0.pdf](#)

Marking:

TA2-Aab0-c3e. Integral Enhanced Thermal Transmitters with Tfg-hiA-j Thermal Probe (Insertion).
TA2-Aab0-c3e. Integral Enhanced Thermal Transmitters with TFT-fghi-000 Thermal Probe (Inline).
TA2-Aab0-c4e Remote Housing with Tfg-hiA-j Thermal Probe (Insertion).
TA2-Aab0-c4e Remote Housing with TFT-fghi-000 Thermal Probe (Inline).
Ex db qb IIC T4...T3 Gb $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$, IP66

TA2-Aab0-cde. Enhanced Thermal Transmitter
Ex db IIC T6 Gb $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$, IP66

Tfg-hiA-j Thermal Probe (Insertion).
TFT-fghi-000 Thermal Probe (Inline).
Ex qb IIC T4...T3 Gb $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$, IP66

Equipment:

General - The Model TA2 Enhanced Thermal Transmitters provide measurement of the mass flow of air and other gases. The TA2 consists of a probe attached to an electronics enclosure (integral version) or with the probe attached to a smaller enclosure connected by conduit back to the electronics enclosure (remote version). An optional display module with keypad is available for the electronics enclosure which allows for user configuration and provides a visual display of mass flow, temperature and total flow. The flow element of the TA2 utilizes a heater and two resistance temperature detectors (RTDs). One RTD, used as a reference, measures the temperature of the process where the flow element is installed. The other (active) RTD measures the temperature of the heated sensor. The TA2 electronics varies the power to the heater to maintain a constant temperature difference between the reference and active RTDs. As the flow rate of the process increases, the heated sensor and active RTD are subjected to a cooling effect. The amount of power required to maintain a constant temperature difference between the reference and active RTDs is then translated into a mass flow measurement.

Construction - The integral version of the Model TA2 Enhanced Thermal Transmitters consists of a dual-compartment electronics enclosure with thread-on blank covers (a window cover is available for models with optional display) and a probe threaded into the enclosure base. The remote version consists of the same dual-compartment electronics enclosure modified with a wall-mount bracket and NPT adapter (for connection to conduit), a single-compartment remote enclosure with thread-on blank cover and a probe threaded into the remote enclosure base. The integral housing has a total free internal volume of 817 cm³ empty (free internal volume is less than 500 cm³ with components installed) while the remote housing has a free internal volume of 428 cm³ empty. The manufacturer specifies that the electronics enclosure and remote enclosure be located no more than 500 feet apart.

Ratings - The Model TA2 Enhance Thermal Transmitters operate at 24 Vdc or 100-264 Vac. The transmitters can provide any combination of outputs consisting of 4-20 mA, HART, Foundation Fieldbus, Pulse or temperature. The transmitters are rated for use in an ambient temperature range of -40°C ≤ Ta ≤ +80°C. The transmitter probes are rated for use in a process temperature range of -40°C to +200°C.

The Model TA2 Enhance Thermal Transmitter enclosure provides a degree of protection IP66.

TA2-Aab0-c3e. Integral Enhanced Thermal Transmitters with Tfg-hiA-j Thermal Probe (Insertion).

a = Signal output 0, 1, 2, or 4.

b = Display 0 or B.

c = Calibration 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9.

d = Housing location/agency approval 3, 4, E or F.

e = Enclosure type 0, 1, 2 or 3.

f = Measurement E or M.

g = Sensor type R, S or U.

h = Materials A or B.

i = Process connection 00, 01, 02, 03, 04, 05, 06, 11, 21, 22, 23, 24, 33, 34, 43, 44, BA, BB, CA, CB, DA or DB.

j = Insertion length in tenth of inch increments if f = E or in cm increments if f = M (max 3 digits).

TA2-Aab0-c3e. Integral Enhanced Thermal Transmitters with TFT-fghi-000 Thermal Probe (Inline).

a = Signal output 0, 1, 2, or 4.

b = Display 0 or B.

c = Calibration A, B, C, D, E, F, G, H, J or K.

e = Enclosure type 0, 1, 2 or 3.

f = Materials 1, A or B.

g = Size 0, 1, 2, 3, 4, 5, 6, A, B, C, D, E, F or Z.

h = Process connection 1, 2, 3, 4, A or B.

i = Flow conditioner A or B.

TA2-Aab0-c4e Enhanced Thermal Transmitter.

a = Signal output 0, 1, 2, or 4.
b = Display 0 or B.
c = Calibration 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9.
e = Enclosure type 0, 1, 2 or 3.

TA2-Aab0-c4e Remote Housing with Tfg-hiA-j Thermatel Probe (Insertion).

a = Signal output 0, 1, 2, or 4.
b = Display 0 or B.
c = Calibration A, B, C, D, E, F, G, H, J or K.
e = Enclosure type 0, 1, 2 or 3.
f = Measurement E or M.
g = Sensor type R, S or U.
h = Materials A or B.
i = Process connection 00, 01, 02, 03, 04, 05, 06, 11, 21, 22, 23, 24, 33, 34, 43, 44, BA, BB, CA, CB, DA or DB.
j = Insertion length in tenth of inch increments if f = E or in cm increments if f = M (max 3 digits).

TA2-Aab0-c4e Remote Housing with TFT-fghi-000 Thermal Probe (Inline).

a = Signal output 0, 1, 2, or 4.
b = Display 0 or B.
c = Calibration A, B, C, D, E, F, G, H, J or K.
e = Enclosure type 0, 1, 2 or 3.
f = Materials 1, A or B.
g = Size 0, 1, 2, 3, 4, 5, 6, A, B, C, D, E, F or Z.
h = Process connection 1, 2, 3, 4, A or B.
i = Flow conditioner A or B.

Tfg-hiA-j Thermatel Probe (Insertion).

f = Measurement E or M.
g = Sensor type R, S or U.
h = Materials A or B.
i = Process connection 00, 01, 02, 03, 04, 05, 06, 11, 21, 22, 23, 24, 33, 34, 43, 44, BA, BB, CA, CB, DA or DB.
j = Insertion length in tenth of inch increments if f = E or in cm increments if f = M (max 3 digits).

TFT-fghi-000 Thermal Probe (Inline).

f = Materials 1, A or B.
g = Size 0, 1, 2, 3, 4, 5, 6, A, B, C, D, E, F or Z.
h = Process connection 1, 2, 3, 4, A or B.
i = Flow conditioner A or B.

Specific Conditions of Use:

Integral Enhanced Transmitter/Remote Housing with Thermal Probe:

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction.
2. To maintain the applicable temperature code care shall be taken to ensure the “Enclosure Temperature” does not exceed 70°C.
3. The risk of electrostatic discharge shall be minimized at installation, following the direction given in the instructions.
4. Contact the original manufacturer for information in the dimensions of flameproof joints.
5. For Installation with ambient temperature of 70°C, refer to the manufacturer’s instructions for guidance on proper selection of conductors.
6. The T4...T3 temperature code is based on the max process temp listed below:

T-Code	Maximum process temperature
T4	+135°C
T3	+200°C

Enhanced Thermal Transmitter

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction.
2. To maintain the applicable temperature code care shall be taken to ensure the “Enclosure Temperature” does not exceed 70°C.
3. The risk of electrostatic discharge shall be minimized at installation, following the direction given in the instructions.
4. Contact the original manufacturer for information in the dimensions of flameproof joints.
5. For Installation with ambient temperature of 70°C, refer to the manufacturer’s instructions for guidance on proper selection of conductors.

Probe:

1. The Thermal Probe is only for use with the TA2 Thermal Transmitter.
2. The T4...T3 temperature code is based on the max process temp listed below:

T-Code	Maximum process temperature
T4	+135°C
T3	+200°C