



Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : explosives@explosives.gov.in
 Phone/Fax No : 0712 -2510248, Fax-2510577

Approval No : A/P/HQ/MH/104/7178 (P538024)

Dated : 07/06/2022

To,

M/s. Rosemount Tank Radar AB,
Layoutvägen 1 Sweden,Mölnlycke,
43533
SWEDEN

Sub : Approval of Flame Proof, Increased Safety type equipment under Petroleum Rules 2002- Regarding.

Sir(s),

Please refer to your letter No. **OIN1075484** dated **25/05/2022** on the subject.

The following Ex electrical equipment(s) manufactured by you according to **IEC 60079-0 : 2017, IEC 60079-1 : 2014, IEC 60079-11 : 2011, IEC 60079-7 : 2007**, standards and covered under **FM Approvals LLC** Test reports mentioned below is/are approved for use in **Zone 1, Zone 2** of Gas **IIB/IIC** hazardous areas coming under the the Petroleum Rules, 2002 administered by this Organization.

| Sr. No | Description | Safety Protection | Equipment reference Number | Test Agency | | | Drawing no |
|--------|---------------------|--------------------------------------|----------------------------|------------------|--------------------------------|------------------|--------------------|
| | | | | Name | Certificate No. | Certificate Date | |
| 1 | MODEL 2410 TANK HUB | Ex db eb [ia IIC Ga] IIB T4 Gb | P538024/1 | FM Approvals LLC | IECEX FMG 10.0005X Issue No.15 | 03/02/2022 | As per test report |

This Approval is granted subject to observance of the following conditions:-

- 1)The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the FM Approvals LLC Test Reports referred to above.
- 2)The equipment shall be used only with approved type of accessories and associated apparatus.
- 3)Each equipment shall be marked either by raised lettering cast integrally or by plate attached permanently to the main structure to indicate conspicuously:-
 - (a) Name of the manufacturer
 - (b) Name and number by which the equipment is identified.
 - (c) Number & date of the test report of the FM Approvals LLC applicable to the equipment.
 - (d) Equipment reference number of this letter by which use of apparatus is approved.
 - (e) Protection level.
- 4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the FM Approvals LLC Test report and is identical with the one tested and certified at FM Approvals LLC shall be furnished with each equipment.
- 5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenance schedule, if any, recommended by FM Approvals LLC in their test reports and copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its Flame Proof characteristics.
- 6) The After sales service and maintenance of subject equipment shall be looked after by your representative Emerson Process Management (India) Private Limited, Plot No A145/4, TTC Industrial Area, MIDC, Pawane | New Mumbai | 400710 | Maharashtra | India

Conditions of the Approval:-

The approval for the above equipment is subject to validity of IECEx quality assessment report No.NO/PRE/QAR15.0014

This approval also covers the permissible variations as approved under the FM Approvals LLC test reports referred above. This approval is liable to be cancelled if any of the conditions of the approval is violated or not complied with . The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record on annual basis.

The Approval is Valid upto **31/12/2026**

Yours faithfully,

(A.B. Tamgadge)
Controller of Explosives
For Chief Controller of Explosives
Nagpur

Copy to :

1. Jt. Chief Controller of Explosives, West Circle, MUMBAI
2. Emerson Process Management (India) Private Limited,Plot No A145/4, TTC Industrial Area, MIDC, Pawane | New Mumbai | 400710 | Maharashtra | India

for Chief Controller of Explosives
Nagpur

(For more information regarding status,fees and other details please visit our website <http://peso.gov.in>)

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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 10.0005X | Page 1 of 4 | <u>Certificate history:</u> |
| Status: | Current | Issue No: 15 | Issue 14 (2021-10-19) |
| Date of Issue: | 2022-02-03 | | Issue 13 (2021-07-22) |
| Applicant: | Rosemount Tank Radar AB Layoutvägen 1 Mölnlycke, 43533 Sweden | | Issue 12 (2019-12-10) |
| Equipment: | MODEL 2410 TANK HUB | | Issue 11 (2019-03-27) |
| Optional accessory: | | | Issue 10 (2018-12-21) |
| Type of Protection: | Flameproof, Increased Safety, Intrinsic Safety, FISCO & Entity | | Issue 9 (2018-01-31) |
| Marking: | Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; FISCO; or Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; FISCO; and Ex db eb [ja IIC Ga] IIB T4 Gb; Ta = -50°C to 70°C; Entity; or Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; FISCO; and Ex db eb ib IIB T4 Gb; Ta = -50°C to 70°C; Entity; or Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; Entity; or Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; Entity; and Ex db eb [ja IIC Ga] IIB T4 Gb; Ta = -50°C to 70°C; - Entity; or Ex db eb [ib] IIB T4 Gb; Ta = -50°C to 70°C; Entity; and Ex db eb ib IIB T4 Gb; Ta = -50°C to 70°C; Entity; IP66; IP67 | | Issue 8 (2017-03-31) |
| | | | Issue 7 (2017-03-07) |
| | | | Issue 6 (2016-12-14) |
| | | | Issue 5 (2015-08-03) |

Approved for issue on behalf of the IECEx
Certification Body:

J.E.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





IECEX Certificate of Conformity

Certificate No.: **IECEX FMG 10.0005X**

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Date of issue: 2022-02-03

Issue No: 15

Manufacturer: **Rosemount Tank Radar AB**
Layoutvägen 1
Mölnlycke, 43533
Sweden

Additional
manufacturing
locations:

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 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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/ExTR10.0009/00](#)
[US/FMG/ExTR10.0009/03](#)
[US/FMG/ExTR10.0009/06](#)
[US/FMG/ExTR10.0009/09](#)
[US/FMG/ExTR10.0009/12](#)
[US/FMG/ExTR10.0009/15](#)

[US/FMG/ExTR10.0009/01](#)
[US/FMG/ExTR10.0009/04](#)
[US/FMG/ExTR10.0009/07](#)
[US/FMG/ExTR10.0009/10](#)
[US/FMG/ExTR10.0009/13](#)

[US/FMG/ExTR10.0009/02](#)
[US/FMG/ExTR10.0009/05](#)
[US/FMG/ExTR10.0009/08](#)
[US/FMG/ExTR10.0009/11](#)
[US/FMG/ExTR10.0009/14](#)

Quality Assessment Report:

[NO/PRE/QAR15.0014/04](#)



IECEX Certificate of Conformity

Certificate No.: **IECEX FMG 10.0005X**

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Date of issue: 2022-02-03

Issue No: 15

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Model 2410 Tank Hub is powered with 24-48Vdc or 48-240Vac / 50Hz to 60Hz and handles data transmissions between the control room and a number of Fieldbus devices. It has a Flameproof enclosure, Increased Safety terminals, and also contains Intrinsically Safe circuitry for supplying energy to the Intrinsically Safe location. The Fieldbus terminals will either have a FISCO output or an Entity output depending on which fieldbus communications board is installed. The FISCO output electronics are distinguished by option b= Tank Bus (Fieldbus - Power and Communication): F and the Entity output electronics are distinguished by b = Tank Bus (Fieldbus Power and Communication): E. As an option, the Model 2410 Tank Hub can also contain a Modem HART communication board. The Active HART communications option has Intrinsically Safe entity output. The Passive HART Communications board is isolated and receives power from an Intrinsically Safe barrier.

See link in Annex for model code variations.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.



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Certificate No.: **IECEX FMG 10.0005X**

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Date of issue: 2022-02-03

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Minor documentation updates.

Annex:

[RR230718_IECEX_FMG_10.0005X_015 Annex.pdf](#)

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Rosemount Tank Radar AB
Model 2410 Tank Hub
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The model code variations for the 2410 Tank Hub are as follows:

Model 2410-abcdefghijklmn. Tank Hub.

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; FISCO; IP66 / IP67

FISCO Parameters:

Uo = 15V, Io = 354mA, Po = 5.32W

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): F.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

d = Secondary Communication Bus (Non-IS): R, E, 5, K, L, V, H, G, A, U, T, B, 6, 7, 0, or F.

e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals).

f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals).

g = Integral Display: 1 or 0.

h = Power Supply: P.

i = Firmware: Any single character.

j = Hazardous Location Certification: E7, K1, K2 or K3.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1, 2, G, E or M.

n = Mechanical Mounting: P, W or 0.

Model 2410-abcdefghijklmn. Tank Hub.

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; FISCO; IP66 / IP67

Ex db eb [ia IIC Ga] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66 / IP67

FISCO Parameters:

Uo = 15V, Io = 354mA, Po = 5.32W

Entity Parameters:

Uo = 23.1V; Io = 95.3mA; Po = 550mW

IIC: Co = 0.14µF, Lo = 3.9mH

IIB: Co = 1.0µF, Lo = 15mH

IIA: Co = 3.67µF, Lo = 33mH

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): F.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

d = Secondary Communication Bus (HART@/4-20mA Active IS Input/Output): W, C or 8.

e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals).

f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals).

g = Integral Display: 1 or 0.

h = Power Supply: P.

i = Firmware: Any single character.

j = Hazardous Location Certification: E7, K1, K2 or K3.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1, 2, G, E or M.

n = Mechanical Mounting: P, W or 0.

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Model 2410 Tank Hub
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Model 2410-abcdefghijklmn. Tank Hub.

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; FISCO; IP66 / IP67

Ex db eb ib IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66 / IP67

FISCO Parameters:

Uo = 15V, Io = 354mA, Po = 5.32W

Entity Parameters:

Ui = 30V; Ii = 300mA; Pi = 1W, Ci = 0; Li = 0

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): F.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

d = Secondary Communication Bus (HART@/4-20mA Passive IS Input/Output): D or 9.

e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals).

f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals).

g = Integral Display: 1 or 0.

h = Power Supply: P.

i = Firmware: Any single character.

j = Hazardous Location Certification: E7, K1, K2 or K3.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1, 2, G, E or M.

n = Mechanical Mounting: P, W or 0.

Model 2410-abcdefghijklmn. Tank Hub

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67

Entity Parameters (Fieldbus):

Uo = 15V, Io = 200mA, Po = 3W, Co = 1.99µF, Lo = 143µH

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus Power and Communication): E.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

d = Secondary Communication Bus (Non-IS): R, E, 5, K, L, V, H, G, A, U, T, B, 6, 7, 0, or F.

e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals)

f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals)

g = Integral Display: 1 or 0.

h = Power Supply: P.

i = Firmware: Any single character.

j = Hazardous Location Certification: E7, K1, K2 or K3.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1, 2, G, E or M.

n = Mechanical Mounting: P, W, X or 0.

Model 2410-abcdefghijklmn. Tank Hub.

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67

Ex db eb [ia IIC Ga] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67

Entity Parameters (Fieldbus):

Uo = 15V, Io = 200mA, Po = 3W, Co = 1.99µF, Lo = 143µH

Entity Parameters (Active HART):

Uo = 23.1V, Io = 95.3mA, Po = 550mW

Group IIC: Co = 0.14µF, Lo = 3.9mH

Group C, IIB: Co = 1.0µF, Lo = 15mH

Group D, IIA: Co = 3.67µF, Lo = 33mH

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): E.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

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d = Secondary Communication Bus (HART®/4-20mA Active IS Input/Output): W, C or 8.
e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals)
f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals).
g = Integral Display: 1 or 0.
h = Power Supply: P.
i = Firmware: Any single character.
j = Hazardous Location Certification: E7, K1, K2 or K3.
k = Custody Transfer Type Approval: Any single character.
l = Housing: A or S.
m = Cable/Conduit Connections: 1, 2, G, E or M.
n = Mechanical Mounting: P, W or 0.

Model 2410-abcdefghijklmn. Tank Hub.

Ex db eb [ib] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67

Ex db eb ib IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67

Entity Parameters (Fieldbus):

U_o = 15V, I_o = 200mA, P_o = 3W, C_o = 1.99µF, L_o = 143µH

Entity Parameters (Passive HART):

U_i = 30V, I_i = 300mA, P_i = 1W, C_i = 0, L_i = 0

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): E.

c = Primary Communication Bus (Non-IS): R, 4, E, L, V, H, G, U, T, A, B, 6 or 7.

d = Secondary Communication Bus (HART®/4-20mA Passive IS Input/Output): D or 9.

e = Relay Output (SIS/SIL): 3, 2, S, F or 0. (Option 3, 2 and S are not verified by FM Approvals).

f = Relay Outputs (Non-SIS/SIL): 1, 2, F, A or 0. (Option A was not verified by FM Approvals).

g = Integral Display: 1 or 0.

h = Power Supply: P.

i = Firmware: Any single character.

j = Hazardous Location Certification: E7, K1, K2 or K3.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1, 2, G, E or M.