GOVERNMENT OF INDIA
MINISTRY OF COMMERCE & INDUSTRY
PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)
(Formerly Department of Explosives)
CGO COMPLEX SEMINARY HILLS
NAGPUR 440006

Letter No: A/P/HQ/MH/104/4597(P380588)
Email :explosives@explosives.gov.in
Phone/Fax No.2510248/2510577
Dated : 24/5/2016

To
M/s Rosemount Tank Radar AB
Gamiestadsvagen 18B
SE-40251 GOTEBORG
Sweden

Sub:Approval of Model 2410 Tank Hub

Dear Sir(s),

Please refer to letter No RMT-COE-2410:E7:00 dated 18/05/2016 from M/s. EMERSON PROCESS MANAGEMENT (INDIA) PVT LTD,MUMBAI on the above subject.

The following Intrinsically Safe/Flame Proof/Increased Safety equipment(s) manufactured by you according to IEC 60079-0 : 2007, IEC 60079-1 : 2007, IEC 60079-11 : 2006, IEC 60079-27 : 2008, IEC 60079-7 : 2006 & IEC 60079-26 : 2006 standards and covered under FM Approval LLC, USA Test reports mentioned below is/are approved for use in **Zone 1** of Gas Group IIC hazardous areas coming under the purview of the Petroleum Rules, 2002 administered by this Organization.

Sr.No	Description	Safety Protection	**CCEs Identification Number**	**Test House**	Test Report No.	Drawing Numbers
1	Model 2410 Tank Hub	Ex d e [ia IIC Ga] IIB T4 Gb	**P380588/1**	FM Approval LLC, USA	IECEx FMG 10.0005 Issue No. 5 Dt.03/08/2015	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 Approval LLC, USA Test Reports referred to above
2). The equipment shall be used only with approved type of accessories and associated apparatus
3). The equipment shall be used only in conjuction with the approved Intrinsically Safe/Flame Proof/Increased Safety barriers
4). Each equipment shall be marked either by raised lettering cast integrally or by plate attached 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 Approval LLC, USA applicable to the equipment
   (d) CCEs Identification Number of this letter by which use of the apparatus is approved
5). A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the FM Approval LLC, USA test report and is identical with the one tested and

certified at FM Approval LLC, USA shall be furnished with each equipment

6). The customer shall be supplied the copy of this letter, an extract of the conditions and maintenance schedule, if any recommended by FM Approval LLC, USA in their test reports and copy of instructions booklet detailing operation and maintenance of the equipment so as to maintain its Intrinsically Safe/Flame Proof/Increased Safety safety characterestics

7). The After sales service and maintenance of subject equipment shall be looked after by your representative M/s. EMERSON PROCESS MANAGEMENT (INDIA) PVT LTD,PLOT. NO. A-14/4 T.T.C. INDUSTRIAL AREA,M.I.D.C. PAWANE, NAVI MUMBAI,MUMBAI,MUMBAI (Dist.) ,Maharashtra (State)

This Approval also covers the permissible variation as approved under the FM Approval LLC, USA test report referred above .This approval may be deemed to have been revoked with immediate effect at any time, if any of the conditions subject to which approval has been granted 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 at regular intervals.

This approval is otherwise valid a period of five years from the date of issue.

Yours faithfully,

(Dr. Yogesh khare)
Controller of Explosives
for Chief Controller of Explosives
Nagpur

Copy to :

1.The Jt. Chief Controller of Explosives, West Circle, Mumbai; East Circle, KolKata; South Circle, Chennai; North Circle, Faridabad; Central Circle, Agra.
2.M/s. EMERSON PROCESS MANAGEMENT (INDIA) PVT LTD,PLOT. NO. A-14/4 T.T.C. INDUSTRIAL AREA,M.I.D.C. PAWANE, NAVI MUMBAI,MUMBAI,Distt. MUMBAI (Maharashtra),400710

for Chief Controller of Explosives

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.:	IECEx FMG 10.0005	Issue No: 5	Certificate history:
			Issue No. 5 (2015-08-03)
Status:	**Current**	Page 1 of 6	Issue No. 4 (2014-06-06)
			Issue No. 3 (2014-03-25)
Date of Issue:	**2015-08-03**		Issue No. 2 (2012-04-19)
			Issue No. 1 (2011-02-24)
Applicant:	**Rosemount Tank Radar AB** Gamlestadsvägen 18B SE-40251 GÖTEBORG **Sweden**		Issue No. 0 (2010-09-16)
Electrical Apparatus:	**MODEL 2410 TANK HUB**		
Optional accessory:			
Type of Protection:	**Flameproof, Increased Safety, Intrinsic Safety, FISCO & Entity**		
Marking:	Ex d e [ib] IIB T4 Gb Ex d e [ia IIC Ga] IIB T4 Gb Ex d e ib IIB T4 Gb IP66; IP67		

Approved for issue on behalf of the IEGEx Certification Body: J.E.Marquedant

Position: Manager, Electrical Systems

Signature:
(for printed version)

Date: 26 Apr. 2016

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 the Official IECEx Website.

Certificate issued by:

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

FM APPROVED

IECEx Certificate of Conformity

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Manufacturer: **Rosemount Tank Radar AB**
Gamlestadsvägen 18B
SE-40251 GÖTEBORG
Sweden

Additional Manufacturing location(s):

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 electrical apparatus 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 : 2007-10 Edition:5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2006 Edition:5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2006 Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-27 : 2008 Edition:2.0	Explosive atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO)
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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/ExTR10.0009/00 US/FMG/ExTR10.0009/01 US/FMG/ExTR10.0009/02
US/FMG/ExTR10.0009/03 US/FMG/ExTR10.0009/04 US/FMG/ExTR10.0009/05

Quality Assessment Report:

NO/DNV/QAR07.0007/00 NO/DNV/QAR07.0007/01 NO/DNV/QAR07.0007/02
NO/DNV/QAR07.0007/03

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Schedule

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.

The model code variations are as follows:

Model 2410-abcdefghijklmn. Tank Hub.
Ex d e [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: R, 4, E, A, B, 6 or 7.
d = Secondary Communication Bus (Non-IS): A, B , E, F , G , H, R, L, V, 0, 6, or 7 .
e = Relay Output (SIS/SIL): 3, 2, F or 0. (Option 3 and 2 were 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: E1, 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 d e [ib] IIB T4 Gb Ta = -50°C to +70°C; FISCO; IP66 / IP67
Ex d e [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 = 0.14 µ F, Lo = 3.9mH
IIB: Co = 1.0 µ F, Lo = 15mH
IIA: Co = 3.67 µ F, Lo = 33mH
a= Number of Tanks: Any single character.
b= Tank Bus (Fieldbus - Power and Communication): F.
c = Primary Communication Bus: R, 4, E, 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, F or 0. (Option 3 and 2 were 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: E1, 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-abcdefghijklmn. Tank Hub.
Ex d e [ib] IIB T4 Gb Ta = -50°C to +70°C; FISCO; IP66 / IP67
Ex d e 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: R, 4, E, 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, F or 0. (Option 3 and 2 were 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: E1, 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 d e [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: R, 4, E, A, B, 6 or 7.
d = Secondary Communication Bus (Non-IS): A, B , E, F , G , H, R, L, V, 0, 6, or 7 .
e = Relay Output (SIS/SIL): 3, 2, F or 0. (Option 3 and 2 were 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: E1, 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 d e [ib] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67
Ex d e [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 = 0.14 µ F, Lo = 3.9mH
Group C, IIB: Co = 1.0 µ F, Lo = 15mH
Group D, IIA: Co = 3.67 µ F, Lo = 33mH
a= Number of Tanks: Any single character.
b= Tank Bus (Fieldbus - Power and Communication): E.
c = Primary Communication Bus: R, 4 E, 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, F or 0. (Option 3 and 2 were 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: E1, 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-abcdefghijklmn. Tank Hub.
Ex d e [ib] IIB T4 Gb Ta = -50°C to +70°C; Entity; IP66/IP67
Ex d e 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
Entity Parameters (Passive HART):
Ui = 30V, Ii = 300mA, Pi = 1W, Ci = 0, Li = 0
a= Number of Tanks: Any single character.
b= Tank Bus (Fieldbus - Power and Communication): E.
c = Primary Communication Bus: R, 4, E, 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, F or 0. (Option 3 and 2 were 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: E1, 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.

CONDITIONS OF CERTIFICATION: NO

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

1. The Model 2410 Tank Hub was certified with FISCO outputs at terminals 1 & 2 (+FB & -FB). This revision adds three new variations that allow for an Entity output at terminals 1 & 2 (+FB, -FB).

2. The listing code for the FISCO output version with Entity connection for the passive HART communications option was incorrect on the existing certificate. The correction was made as follows: Wrong marking code Ex de [ib IIC] IIB T4 was corrected to Ex d e ib IIB T4 Gb.

3. Annex E transient testing was completed on both the FISCO power supply option and the new Entity output option.