



Member of the FM Global Group

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – 9240040-901; FISCO;

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/Ex d e [ib] IIB T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

Type 4X; IP66/67

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, A 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: E6, K2, K4 or K6.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.

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

Equipment Ratings:

Associated Fieldbus Intrinsically Safe Concept (FISCO) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing 9240040-901; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 Ta = -50°C to +70°C with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Division 1, Group C and D; in accordance with control drawing 9240040-901. Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 Ta = -50°C to +70°C; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4 Ta = -50°C to +70°C with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Zone 1, Group IIB; in accordance with control drawing 9240040-901; Hazardous Locations/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

To assure that this Approval is still valid, please refer to www.approvalguide.com

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – 9240040-901; FISCO;

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – 9240040-901; Entity;

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/Ex d e [ib] IIB T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

I/1 [0]/Ex d e [ia IIC] IIB T4 Ta = -50°C to +70°C – 9240040-901; Entity;

Type 4X; IP66/67

FISCO Parameters;

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

Entity Parameters:

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): 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, A 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: E6, K2, K4 or K6.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.

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

Equipment Ratings:

Associated Fieldbus Intrinsically Safe Concept (FISCO) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing 9240040-901; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 Ta = -50°C to +70°C with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Division 1, Group C and D; in accordance with control drawing 9240040-901; Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 Ta = -50°C to +70°C; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4 Ta = -50°C to +70°C with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Zone 1, Group IIB and Intrinsically Safe (Entity) connections to Class I, Zone 0, Group IIC in accordance with control drawing 9240040-901; Hazardous Locations/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – 9240040-901; FISCO;

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/Ex d e [ib] IIB T4 Ta = -50°C to +70°C – 9240040-901; FISCO;

I/1/Ex d e ib IIB T4 Ta = -50°C to +70°C – 9240040-901; Entity;

Type 4X; IP66/67

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FISCO Parameters;

$U_o = 15V$, $I_o = 354mA$, $P_o = 5.32W$

Entity Parameters:

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

a = Number of Tanks: Any single character.

b = Tank Bus (Fieldbus - Power and Communication): 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, A 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: E6, K2, K4 or K6.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.

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

Equipment Ratings:

Associated Fieldbus Intrinsically Safe Concept (FISCO) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing 9240040-901; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$ with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Division 1, Group C and D; in accordance with control drawing 9240040-901; Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$ with Associated Fieldbus Intrinsically Safe Concept (FISCO) connections to Class I, Zone 1, Group IIB; and Intrinsically Safe (Entity) for use in Class I, Zone 1, Group IIB in accordance with control drawing 9240040-901; Hazardous Location/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – D7000002-611; Entity

XP-AIS/I/1/CD/T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$ – D7000002-611; Entity;

DIP/II,III/1/EF/T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$;

I/1/AEx d e [ib] IIB T4 $T_a = -50^{\circ}C$ to $+70^{\circ}C$ – D7000002-611; Entity;

Type 4X; IP66/67

Entity Parameters (Fieldbus):

$U_o = 15V$, $I_o = 200mA$, $P_o = 3W$, $C_o = 1.99\mu F$, $L_o = 143\mu H$

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: E5, K1, K4 or K5.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

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m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.
 n = Mechanical Mounting: P, W, X or O.

Equipment Ratings:

Associated Intrinsically Safe (Entity) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing D7000002-611; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 Ta = -50°C to +70°C with Associated Intrinsically Safe (Entity) connections to Class I, Division 1, Group C and D; in accordance with control drawing D7000002-611; Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 Ta = -50°C to +70°C; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4 Ta = -50°C to +70°C with Associated Intrinsically Safe (Entity) connections to Class I, Zone 1, Group IIB; in accordance with control drawing D7000002-611; Hazardous Locations/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – D7000002-611; Entity

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – D7000002-611; Entity

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – D7000002-611; Entity

DIP/II,III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/AEx d e [ib] IIB T4 Ta = -50°C to +70°C – D7000002-611; Entity

I/1/AEx d e [ia IIC] IIB T4 Ta = -50°C to +70°C – D7000002-611; Entity

Type 4X; IP66/67

Entity Parameters (Fieldbus):

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

Entity Parameters (Active HART):

U_o = 23.1V, I_o = 95.3mA, P_o = 550mW

Group IIC: C_o = 0.14µF, L_o = 3.9mH

Group IIB: C_o = 1.0µF, L_o = 15mH

Group IIA: C_o = 3.67µF, L_o = 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: E5, K1, K4 or K5.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.

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

Equipment Ratings:

Associated Intrinsically Safe (Entity) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing D7000002-611; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 Ta = -50°C to +70°C with Associated Intrinsically Safe (Entity) connections to Class I, Division 1, Group C and D; in accordance with control drawing D7000002-611; Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 Ta = -50°C to +70°C; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4

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Ta = -50°C to +70°C with Associated Intrinsically Safe (Entity) connections to Class I, Zone 1, Group IIB and Intrinsically Safe (Entity) connections to Class I, Zone 0, Group IIC in accordance with control drawing D7000002-611; Hazardous Locations/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

2410-abcdefghijklmn. Tank Hub.

AIS/I/1/CD – D7000002-611; Entity;

XP-AIS/I/1/CD/T4 Ta = -50°C to +70°C – D7000002-611; Entity

DIP/II, III/1/EFG/T4 Ta = -50°C to +70°C;

I/1/AEx d e [ib] IIB T4 Ta = -50°C to +70°C – D7000002-611; Entity

I/1/AEx d e ib IIB T4 ta = -50°C to +70°C – D7000002-611; Entity

Type 4X; IP66/67

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: E5, K1, K4 or K5.

k = Custody Transfer Type Approval: Any single character.

l = Housing: A or S.

m = Cable/Conduit Connections: 1 (required for Explosionproof installation), 2, G, E or M.

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

Equipment Ratings:

Associated Intrinsically Safe (Entity) for connections to Class I, Division 1, Groups C and D; in accordance with control drawing D7000002-611; Explosionproof for use in Class I, Division 1, Group C and D; Temperature Class T4 Ta = -50°C to +70°C with Associated Intrinsically (Entity) connections to Class I, Division 1, Group C and D; in accordance with control drawing D7000002-611; Dust-Ignitionproof for use in Class II and III, Division 1, Groups E, F and G; Temperature Class T4 Ta = -50°C to +70°C; Flameproof and Increased Safety for use in Class I, Zone 1 Group IIB; Temperature Class T4 Ta = -50°C to +70°C with Associated Intrinsically Safe (Entity) connections to Class I, Zone 1, Group IIB and Intrinsically Safe (Entity) for use in Class I, Zone 1, Group IIB in accordance with control drawing D7000002-611; Hazardous Locations/Explosive Atmospheres; indoor and outdoor; Type 4X; IP66/67.

FM Approved for:

Rosemount Tank Radar AB
Goteborg, Sweden



Member of the FM Global Group

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

CSA C22.2 No. 0.4	2004 (Reaffirmed 2009)
CSA C22.2 No 0.5	1982 (Reaffirmed 2008)
CSA C22.2 No. 30-M1986	1986 (Reaffirmed 2008)
CSA C22.2 No. 94-M91	1991 (Reaffirmed 2011)
CSA C22.2 No. 157-92	1992 (Reaffirmed 2012)
CSA C22.2 No. 1010.1	2004 (Reaffirmed 2009)
E60079-0	2007
E60079-11	2002 (Reaffirmed 2011)
CSA C22.2 No. 60529	2005 (Reaffirmed 2010)

Original Project ID: 3035492C

Approval Granted: September 16, 2010

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3043551	April 19, 2012		
Re-issued	May 08, 2012		
3055665	August 3, 2015		

FM Approvals LLC

J.E. Marquedant
Group Manager, Electrical

3 August 2015

Date