

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

H250/M40 a25bcdefghijklAmnopqrstuvw0x, Flowmeter

IS/I/1/ABCD/T6 $-40^{\circ}\text{C} \leq T_a \leq 65^{\circ}\text{C}$ – APPR_GD_821070-01; Entity

I/1/AEx ia/IIC/T6 $-40^{\circ}\text{C} \leq T_a \leq 65^{\circ}\text{C}$ – APPR_GD_821070-01; Entity

Entity Parameters:

Current Loop

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i \leq 0.01\text{mH}$, $C_i = 0$

Binary Output 1 and/or 2

$U_i \leq 16\text{Vdc}$; $I_i \leq 52\text{mA}$; $P_i \leq 169\text{mW}$

Limit Switch	Type Code Option	C_i (nF)	L_i (μH)
SC3,5-NO-Y...	k = 1, 2 or 3	150	150
SJ3,5-SN	k = A, B or C	30	100
SJ3,5-S1N	k = E or F	30	100
I7S23,5-N	k = 5, 6 or 7	150	150

a = Sensor series: V or S

b = Nominal size: 1,2,3,4 or 5

c = Configuration: 4 or 9

d = Process connection: 1,2,3,4,5,6,A,B,C,D,E,G,H,K,L,M,N,P,R,S,T,U,V,W,X or Y

e = Pressure rating: 0,1,2,3,4,A,B,C,D,G,H,K, L,M,N,P,R,S or V

f = Flange facing: 0,1,3,5,6,7,8,A,C,D,E,F,G,H,L,M,N,P,R,S,U or V

g = Cone: 1,2,3,4,5,6,7,8,G,H,K,L,M,N,P or R

h = Float:1,2,3,4,5,6,A,B,C,D,E,F,G,H,K,L,M,N,P,R,S,T,U,V,W,X,Y or Z

i = Heating jacket: 0,1,2,3,4 or 5

j = Indication: E,F,G,H,K or L
 k = Limit switch: 0,1,2,3,5,6,7,A,B,C,E or F
 l = Output: 0,8,or C
 m = Options Indication: 0,2,3,A,B or C
 n = Identification: 0,1,2,A,B or C
 o = Certificate of compliance: 0 or 1
 p = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
 q = Pressure- / leakage test: 0,5,6,A,B,F or G
 r = Material test / -certification: 0,1,2,5,F,H,L or N
 s = Dye penetration test: 0,1 or A
 t = Radiographic examination: 0,1 or A
 u = Hardness test: 0 or 1
 v = Cleaning: 0,1,3,7,A,E or G
 w = Flow direction: 0,1,2 or 3
 x = Manual: 0,1,3 or 4

H250/M40 aG20bcdefg0hijAkImnop00q00r, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-01; Entity
 I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-01; Entity

Entity Parameters:

Current Loop

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i \leq 0.01\text{mH}$, $C_i = 0$

Binary Output 1 or 2

$U_i \leq 16\text{Vdc}$; $I_i \leq 52\text{mA}$; $P_i \leq 169\text{mW}$

Limit Switch	Type Code Option	C_i (nF)	L_i (μH)
SC3,5-NO-Y...	i = 1, 2 or 3	150	150
SJ3,5-SN	i = A, B or C	30	100
SJ3,5-S1N	i = E or F	30	100
I7S23,5-N	i = 5, 6 or 7	150	150

a = Sensor series: V or S
 b = Configuration: 4 or 9
 c = Material of liner and float: 2,4,A or C
 d = Nominal size / process connection: 1,2,4,5,6,7,A,C,E,F,H or K
 e = Pressure rating: 1,2,B or C
 f = Flange facing: 1 or A
 g = Float: 2,3,4,5,6,7,8,A,B,C,D,E,G,H,K,N,P or S
 h = Indication: E,F,G,H,K or L
 i = Limit switch: 0,1,2,3,5,6,7,A,B,C,E or F
 j = Output: 0,8,or C
 k = Options Indication: 0, 2, 3, A, B or C
 l = Identification: 0, 1, 2, A, B or C
 m = Certificate of compliance: 0 or 1

n = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
o = Pressure- / leakage test: 0,5, A or F
p = Material test / -certification: 0,1,2,5, F or H
q = Hardness test: 0 or 1
r = Manual: 0, 1, 3 or 4

H250/M40 a25bcdefghijklAmnopqrstuvw0x, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-02; Entity
I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-02; Entity

Entity Parameters:

Current Loop

Ui ≤ 30Vdc, li ≤ 130mA, Pi ≤ 1W, Li ≤ 0.01mH, Ci = 0

Binary Output 1 and/or 2

Ui ≤ 30Vdc, li ≤ 100mA, Pi ≤ 1W, Li = 0, Ci = 0

a = Sensor series: V or S
b = Nominal size: 1,2,3,4 or 5
c = Configuration: 4 or 9
d = Process connection: 1,2,3,4,5,6,A,B,C,D,E,G,H,K,L,M,N,P,R,S,T,U,V,W,X or Y
e = Pressure rating: 0,1,2,3,4,A,B,C,D,G,H,K, L,M,N,P,R,S or V
f = Flange facing: 0,1,3,5,6,7,8,A,C,D,E,F,G,H,L,M,N,P,R,S,U or V
g = Cone: 1,2,3,4,5,6,7,8,G,H,K,L,M,N,P or R
h = Float:1,2,3,4,5,6,A,B,C,D,E,F,G,H,K,L,M,N,P,R,S,T,U,V,W,X,Y or Z
i = Heating jacket: 0,1,2,3,4 or 5
j = Indication: E,F,G,H,K or L
k = Limit switch: S,T or U
l = Output: 0,8,or C
m = Options Indication: 0,2,3,A,B or C
n = Identification: 0,1,2,A,B or C
o = Certificate of compliance: 0 or 1
p = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
q = Pressure- / leakage test: 0,5,6,A,B,F or G
r = Material test / -certification: 0,1,2,5,F,H,L or N
s = Dye penetration test: 0,1 or A
t = Radiographic examination: 0,1 or A
u = Hardness test: 0 or 1
v = Cleaning: 0,1,3,7,A,E or G
w = Flow direction: 0,1,2 or 3
x = Manual: 0,1,3 or 4

H250/M40 aG20bcdefg0hijAklnnop00q00r, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-02; Entity
I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-02; Entity

Entity Parameters:

Current Loop

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i \leq 0.01\text{mH}$, $C_i = 0$

Binary Output 1 and/or 2

$U_i \leq 30\text{Vdc}$, $I_i \leq 100\text{mA}$, $P_i \leq 1\text{W}$, $L_i = 0$, $C_i = 0$

a = Sensor series: V or S
b = Configuration: 4 or 9
c = Material of liner and float: 2,4,A or C
d = Nominal size / process connection: 1,2,4,5,6,7,A,C,E,F,H or K
e = Pressure rating: 1,2,B or C
f = Flange facing: 1 or A
g = Float: 2,3,4,5,6,7,8,A,B,C,D,E,G,H,K,N,P or S
h = Indication: E,F,G,H,K or L
i = Limit switch: S,T or U
j = Output: 0,8, or C
k = Options Indication: 0, 2, 3, A, B or C
l = Identification: 0, 1, 2, A, B or C
m = Certificate of compliance: 0 or 1
n = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
o = Pressure- / leakage test: 0,5, A or F
p = Material test / -certification: 0,1,2,5, F or H
q = Hardness test: 0 or 1
r = Manual: 0, 1, 3 or 4

H250/M40 a25bcdefghij0DAklmnopqrstu0v, Flowmeter

IS/I/1/ABCD/T6 $-40^\circ\text{C} \leq T_a \leq 65^\circ\text{C}$ – APPR_GD_821070-03; Entity
I/1/AEx ia/IIC/T6 $-40^\circ\text{C} \leq T_a \leq 65^\circ\text{C}$ – APPR_GD_821070-03; Entity

Entity Parameters:

Current Loop

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i \leq 0.01\text{mH}$, $C_i = 0$

Binary Output 1 and/or 2

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i = 0$, $C_i \leq 10\text{nF}$

Binary Input

$U_i \leq 30\text{Vdc}$, $I_i \leq 130\text{mA}$, $P_i \leq 1\text{W}$, $L_i = 0$, $C_i \leq 10\text{nF}$

a = Sensor series: V or S
b = Nominal size: 1,2,3,4 or 5
c = Configuration: 4 or 9
d = Process connection: 1,2,3,4,5,6,A,B,C,D,E,G,H,K,L,M,N,P,R,S,T,U,V,W,X or Y
e = Pressure rating: 0,1,2,3,4,A,B,C,D,G,H,K, L,M,N,P,R,S or V
f = Flange facing: 0,1,3,5,6,7,8,A,C,D,E,F,G,H,L,M,N,P,R,S,U or V
g = Cone: 1,2,3,4,5,6,7,8,G,H,K,L,M,N,P or R

h = Float: 1,2,3,4,5,6,A,B,C,D,E,F,G,H,K,L,M,N,P,R,S,T,U,V,W,X,Y or Z
i = Heating jacket: 0,1,2,3,4 or 5
j = Indication: E,F,G,H,K or L
k = Options Indication: 0,2,3,A,B or C
l = Identification: 0,1,2,A,B or C
m = Certificate of compliance: 0 or 1
n = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
o = Pressure- / leakage test: 0,5,6,A,B,F or G
p = Material test / -certification: 0,1,2,5,F,H,L or N
q = Dye penetration test: 0,1 or A
r = Radiographic examination: 0,1 or A
s = Hardness test: 0 or 1
t = Cleaning: 0,1,3,7,A,E or G
u = Flow direction: 0,1,2 or 3
v = Manual: 0,1,3 or 4

H250/M40 aG20bcdefg0h0DAijklmn00o00p, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-03; Entity
I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-03; Entity

Entity Parameters:

Current Loop

Ui ≤ 30Vdc, li ≤ 130mA, Pi ≤ 1W, Li ≤ 0.01mH, Ci = 0

Binary Output 1 and/or 2

Ui ≤ 30Vdc, li ≤ 130mA, Pi ≤ 1W, Li = 0, Ci ≤ 10nF

Binary Input

Ui ≤ 30Vdc, li ≤ 130mA, Pi ≤ 1W, Li = 0, Ci ≤ 10nF

a = Sensor series: V or S
b = Configuration: 4 or 9
c = Material of liner and float: 2,4,A or C
d = Nominal size / process connection: 1,2,4,5,6,7,A,C,E,F,H or K
e = Pressure rating: 1,2,B or C
f = Flange facing: 1 or A
g = Float: 2,3,4,5,6,7,8,A,B,C,D,E,G,H,K,N,P or S
h = Indication: E,F,G,H,K or L
i = Options Indication: 0, 2, 3, A, B or C
j = Identification: 0, 1, 2, A, B or C
k = Certificate of compliance: 0 or 1
l = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
m = Pressure- / leakage test: 0,5, A or F
n = Material test / -certification: 0,1,2,5, F or H
o = Hardness test: 0 or 1
p = Manual: 0, 1, 3 or 4

H250/M40 a25bcdefghij0kAlmnopqrstuv0w, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-04; Entity

I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-04; Entity

Entity Parameters:

Ui ≤ 24Vdc, Ii ≤ 380mA, Pi ≤ 5.32W, Li = 0, Ci = 0

a = Sensor series: V or S

b = Nominal size: 1,2,3,4 or 5

c = Configuration: 4 or 9

d = Process connection: 1,2,3,4,5,6,A,B,C,D,E,G,H,K,L,M,N,P,R,S,T,U,V,W,X or Y

e = Pressure rating: 0,1,2,3,4,A,B,C,D,G,H,K, L,M,N,P,R,S or V

f = Flange facing: 0,1,3,5,6,7,8,A,C,D,E,F,G,H,L,M,N,P,R,S,U or V

g = Cone: 1,2,3,4,5,6,7,8,G,H,K,L,M,N,P or R

h = Float:1,2,3,4,5,6,A,B,C,D,E,F,G,H,K,L,M,N,P,R,S,T,U,V,W,X,Y or Z

i = Heating jacket: 0,1,2,3,4 or 5

j = Indication: E,F,G,H,K or L

k = Output: E or F

l = Options Indication: 0,2,3,A,B or C

m = Identification: 0,1,2,A,B or C

n = Certificate of compliance: 0 or 1

o = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7

p = Pressure- / leakage test: 0,5,6,A,B,F or G

q= Material test / -certification: 0,1,2,5,F,H,L or N

r = Dye penetration test: 0,1 or A

s = Radiographic examination: 0,1 or A

t = Hardness test: 0 or 1

u = Cleaning: 0,1,3,7,A,E or G

v = Flow direction: 0,1,2 or 3

w = Manual: 0,1,3 or 4

H250/M40 aG20bcdefg0hiAijklmno00p00q, Flowmeter

IS/I/1/ABCD/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-04; Entity

I/1/AEx ia/IIC/T6 -40°C ≤ Ta ≤ 65°C – APPR_GD_821070-04; Entity

Entity Parameters:

Ui ≤ 24Vdc, Ii ≤ 380mA, Pi ≤ 5.32W, Li = 0, Ci = 0

a = Sensor series: V or S

b = Configuration: 4 or 9

c = Material of liner and float: 2,4,A or C

d = Nominal size / process connection: 1,2,4,5,6,7,A,C,E,F,H or K

e = Pressure rating: 1,2,B or C

f = Flange facing: 1 or A

g = Float: 2,3,4,5,6,7,8,A,B,C,D,E,G,H,K,N,P or S

h = Indication: E,F,G,H,K or L

i = Output: E or F

j = Options Indication: 0, 2, 3, A, B or C
k = Identification: 0, 1, 2, A, B or C
l = Certificate of compliance: 0 or 1
m = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
n = Pressure- / leakage test: 0,5, A or F
o = Material test / -certification: 0,1,2,5, F or H
p = Hardness test: 0 or 1
q = Manual: 0, 1, 3 or 4

H250/M40 a25bcdefghijklEmnopqrstuvw0x, Flowmeter

NI/I/2/ABCD/ T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66
DIP/II,III/1/EFG/ T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66
I/2/AEx nA/IIC/T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66

a = Sensor series: V or S
b = Nominal size: 1,2,3,4 or 5
c = Configuration: 4 or 9
d = Process connection: 1,2,3,4,5,6,A,B,C,D,E,G,H,K,L,M,N,P,R,S,T,U,V,W,X or Y
e = Pressure rating: 0,1,2,3,4,A,B,C,D,G,H,K, L,M,N,P,R,S or V
f = Flange facing: 0,1,3,5,6,7,8,A,C,D,E,F,G,H,L,M,N,P,R,S,U or V
g = Cone: 1,2,3,4,5,6,7,8,G,H,K,L,M,N,P or R
h = Float:1,2,3,4,5,6,A,B,C,D,E,F,G,H,K,L,M,N,P,R,S,T,U,V,W,X,Y or Z
i = Heating jacket: 0,1,2,3,4 or 5
j = Indication: E,F,G,H,K or L
k = Limit switch: 0,1,2,3,5,6,7,A,B,C,E,F,S,T or U
l = Output: 0,8,C,D,E or F
m = Options Indication: 0,2,3,A,B or C
n = Identification: 0,1,2,A,B or C
o = Certificate of compliance: 0 or 1
p = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
q = Pressure- / leakage test: 0,5,6,A,B,F or G
r = Material test / -certification: 0,1,2,5,F,H,L or N
s = Dye penetration test: 0,1 or A
t = Radiographic examination: 0,1 or A
u = Hardness test: 0 or 1
v = Cleaning: 0,1,3,7,A,E or G
w = Flow direction: 0,1,2 or 3
x = Manual: 0,1,3 or 4

H250/M40 aG20bcdefg0hijEklnop00q00r, Flowmeter

NI/I/2/ABCD/ T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66
DIP/II,III/1/EFG/ T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66
I/2/AEx nA/IIC/T6 -40°C ≤ Ta ≤ 65°C; Type 4X, 6, IP66

a = Sensor series: V or S
b = Configuration: 4 or 9
c = Material of liner and float: 2,4,A or C

d = Nominal size / process connection: 1,2,4,5,6,7,A,C,E,F,H or K
e = Pressure rating: 1,2,B or C
f = Flange facing: 1 or A
g = Float: 2,3,4,5,6,7,8,A,B,C,D,E,G,H,K,N,P or S
h = Indication: E,F,G,H,K or L
i = Limit switch: 0,1,2,3,5,6,7,A,B,C,E,F,S,T or U
j = Output: 0,8,C,D,E or F
k = Options Indication: 0, 2, 3, A, B or C
l = Identification: 0, 1, 2, A, B or C
m = Certificate of compliance: 0 or 1
n = Confirmation of accuracy: 0,1,2,3,4,5,6 or 7
o = Pressure- / leakage test: 0,5, A or F
p = Material test / -certification: 0,1,2,5, F or H
q = Hardness test: 0 or 1
r = Manual: 0, 1, 3 or 4

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups A, B, C and D hazardous (classified) locations in accordance with drawing APPR_GD_8210770-01, APPR_GD_8210770-02, APPR_GD_8210770-03, APPR_GD_8210770-04; Intrinsically Safe for Class I, Zone 1, Group IIC hazardous (classified) locations in accordance with drawing APPR_GD_8210770-01, APPR_GD_8210770-02, APPR_GD_8210770-03, APPR_GD_8210770-04; Nonincendive for Class I, Division 2, Groups A, B, C, and D hazardous (classified) locations; Dust-Ignitionproof for Class II and III, Division 2, Groups E, F and G hazardous (classified) locations; Non-sparking for Class I, Zone 2, Group IIC hazardous (classified) locations

FM Approved for:

Krohne Messtechnik GmbH
Duisburg 1, Germany

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

Class 3600	2011
Class 3610	2010
Class 3611	2004
Class 3616	2011
Class 3810	2005
ANSI/ISA 61010-1 (82.02.01)	2004
ANSI/ISA 60079-0	2009
ANSI/ISA 60079-11	2009
ANSI/ISA 60079-15	2009
ANSI/IEC 60529	2004


Original Project ID: 0003047703

Approval Granted: September 23, 2013

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
131120	December 19, 2013		
RR200551	April 6, 2015		

FM Approvals LLC



J.E. Marquedant
Manager, Electrical Systems

6 April 2015

Date