



Member of the FM Global Group

FM Approvals
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CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

OPTIFLUX 1000-DIV2 VN174abcdefghijklmn. Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal Diameter: 5, 6, 8, B, C, E, F or H.

b = Nominal Pressure: A or B.

c = Approval: 5

d = Systems Design: 1, 2, 3, 4, 6, A or C.

e = Converter Model: C or D.

f = Mounting Material: Not Safety Relevant

g = Grounding ring material: Not Safety Relevant

h = Electrodes: 0.

i = Protection Class: 0 or 2.

j = Cable: Not Safety Relevant

k = Cable Length: Not Safety Relevant

l = Calibration: Not Safety Relevant

m = Construction requirements: Not Safety Relevant

n = QA/QC requirements: Not Safety Relevant

Special conditions of use:

- 1. OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(/i)-DIV2 or IFC 090-F DIV2 signal converters.*
- 2. I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(/i)-DIV2 or IFC 090-F DIV2 signal converters.*
- 3. *Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 2000–DIV2 VN144abcdefghijklmno Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: 4, 5, 6, 7, 8, A, B, C or D

b = Nominal pressure: 3, 4, 5, A or B

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 3 or 6

h = Construction of electrodes: 1

i = Housing / flange material: 1, 3 or 4

j = Protection class / dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring / Material: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 2000–DIV2 VN154abcdefghijklmno Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: E, F, G, H, K, L, M or N

b = Nominal pressure: 2, 3, 4, 5, A or B

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 3 or 6

h = Construction of electrodes: 1

i = Housing / flange material: 1, 3 or 4

j = Protection class \ dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring / Material: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 2000-DIV2 VN164abcdefghijklmnp Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: up to a maximum of 120" at 276 psi

b = Nominal pressure: 1, 2 or A

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 3 or 6

h = Construction of electrodes: 1

i = Housing / flange material: 1, 3 or 4

j = Protection class / dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring / Material: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.
2. I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.
3. *Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.

OPTIFLUX 4000-DIV2 VN034abcdefghijklmnp Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: 1, 2, 3, 4, 5, 6, 7, 8, A, B, C or D

b = Nominal pressure: 3, 4, 5, A or B

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 2, 3, 4, 5, 6, 7, G or U

h = Construction of electrodes: 1

i = Housing / flange material: 1, 2, 3, 4, A, B, C, D, K, L, M or N

j = Protection class / dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring / Material: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.
2. I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.
3. *Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.

OPTIFLUX 4000-DIV2 VN044abcdefghijklmnop Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: E, F, G, H, K, L, M or N

b = Nominal pressure: 2, 3, 4, 5, A or B

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 3, 4, 5, 6, 7, G, M, R or U

h = Construction of electrodes: 1

i = Housing / flange material: 1, 3, 4, A, C, D, K, M or N

j = Protection class / dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring / Material: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 4000-DIV2 VN054abcdefghijklmnop Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: up to a maximum of 120" at 276 psi

b = Nominal pressure: 1, 2 or A

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Lining: not safety relevant

g = Electrode: 1, 3, 4, 5, 6, 7, G, M, R or U

h = Construction of electrodes: 1

i = Housing / flange material: 1, 3, 4, A, C, D, K, M or N

j = Protection class / dimension: 0 or 2

k = Cable: not safety relevant

l = Cable length: not safety relevant

m = Calibration: not safety relevant

n = G-P-Ring/mat: not safety relevant

o = Special: 0

p = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 5000–DIV2 VN184abcdefghijklmn Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: 1, 2, 3, 5, 6, 8, B, C, E or F

b = Nominal pressure: 3, 4, 5, A or B

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Mounting material: not safety relevant

g = G-Ring mat./ gasket mat: not safety relevant

h = Electrode: 0

i = Protection class / dimension: 0 or 2

j = Cable: not safety relevant

k = Cable length: not safety relevant

l = Calibration: not safety relevant

m = Special: 0

n = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

OPTIFLUX 6000–DIV2 VN224abcdefghijklmn Primary Head.

NI / I / 2 / ABCD / T6; Type 4X, Type 6, *Type 6P; *IP68

S / II, III / 2 / FG / T6; Type 4X, Type 6, *Type 6P; *IP68

a = Nominal diameter: 1, 2, 3, 5, 6

b = Connection: 5, 6, A, B, H, K, L, M, N, P, S, T or U

c = Approval: 5

d = Cable connection: 1, 2, 4, 6, A or C

e = Converter model: C or D

f = Mounting material: not safety relevant

g = G-Ring mat./ gasket mat: not safety relevant

h = Electrodes: 1, 3, 4, 5, 6, 7 or A

i = Protection class / dimension: 0 or 2

j = Cable: not safety relevant

k = Cable length: not safety relevant

l = Calibration: not safety relevant

m = Special: 0

n = Module / labeled: 1

Special conditions of use:

1. *OPTIFLUX Primary Head must be used with the IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
2. *I.S. Electrodes when used with IFC 300 F-DIV2, IFC 300 F(i)-DIV2 or IFC 090-F DIV2 signal converters.*
3. **Enclosure Type 6P & IP68 rating only applies when configured with Stainless Steel Connection Box.*

IFC300 a VN304bcdefghijklmno Signal Converter.

XP-ANI / I / 2 / ABCD / T6 Ta = 60°C — 8.30702.61 or 8.30702.62; NIFW*; Type 4X, Type 6

DIP-ANI / II, III / 2 / EFG / Ta = 60°C— 8.30702.61 or 8.30702.62; NIFW*; Type 4X, Type 6;

AIS / I / 1 / ABCDEFG — 8.30702.61 or 8.30702.62; Entity; Type 4X, Type 6;

For Entity Parameters and Nonincendive Field Wiring Parameters reference control drawings and drawing 8.30702.65

* The signal converter is configured with Entity Parameters and Nonincendive Field Wiring Parameters only when option a = F (/i)-DIV2.

a = Input / Outputs: F (/i)-DIV2 or F-DIV2

b = Type: 4 or H

c = Power Supply: 1, 4 or A

d = Approval 5.

e = Cable connection: 4, or 6

f = Instruction / Program Language: not safety relevant

g = Custody Transfer: 0

h = Process diagnostics: not safety relevant

i = Converter housing: 1 or 2

j = Labeled: 1

k = Communication Slot IO1 Selection: 1, 2, 3, 4, 6, 7, 8, B, C, D, E, F, G or H.

l = 1st IO Module (IO2 / A): 0, 1, 2, 8, A, B, C, E, F, G, H, or K.

m = 2nd IO Module (IO2 / B): 0, 8, A, B, C, E, F, G, H, or K

n = Reference method: 0 or 1.

o = Tagplate: Not safety relevant

Special Conditions for Use:

1) OPTIFLUX IFC 300 F signal converter electronics must be installed in explosionproof MH300C housing and used with OPTIFLUX Primary Head.

OPTIFLUX a300 C –DIV2.Flowmeter.

XP / I / 2 / ABCD / T6 Ta = 60°C; Type 4X, Type 6

DIP / II, III / 2 / FG / Ta = 60°C; Type 4X, Type 6

a = Type 1, 2, 4, 5, or 6

The OPTIFLUX a300 series flowmeter is the integration of the OPTIFLUX a000–DIV2 Primary Head and the model IFC300 F-DIV2 VN304bcdefghijklmno Signal Converter.

OPTIFLUX a300 C/i –DIV2.Flowmeter.

XP-ANI / I / 2 / ABCD / T6 Ta = 60°C — 8.30702.61 or 8.30702.62; NIFW; Type 4X, Type 6

DIP-ANI / II, III / 2 / FG / Ta = 60°C — 8.30702.61 or 8.30702.62; NIFW; Type 4X, Type 6

For Entity Parameters and Nonincendive Field Wiring Parameters reference control drawings and drawing 8.30702.65

a = Type 1, 2, 4, 5, or 6

The OPTIFLUX a300 series flowmeter is the integration of the OPTIFLUX a000–DIV2 Primary Head and the model IFC 300 F(/i)-DIV2 VN304bcdefghijklmno Signal Converter.



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Equipment Ratings:

Explosionproof for use in Class I, Division 2, Groups A, B, C and D; Dust-Ignitionproof for use in Class II, III, Division 2, Groups F and G indoor/ outdoor hazardous (classified) locations, utilizing Type 4X, 6, or 6P enclosure with intrinsically safe connections to Class I, II, III, Division 1, Group A, B, C, D, E, F and G hazardous (classified) locations. Temperature Class T6 Ta = 60°C

Explosionproof for use in Class I, Division 2, Groups A, B, C and D; Dust-Ignitionproof for use in Class II, III, Division 2, Groups F and G indoor/ outdoor hazardous (classified) locations, utilizing Type 4X, 6, or 6P enclosure with nonincendive field wiring connections to Class I, II, III, Division 2, Group A, B, C, D, F and G hazardous (classified) locations. The examination was based on the installation of the apparatus being installed in accordance with control drawings 8.30702.61 or 8.30702.62. Temperature Class T6 Ta = 60°C

FM Approved for:

KROHNE Altometer
Kerkeplaat 12,
3313 LC Dordrecht,
the Netherlands



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

Class 3600	1998
Class 3610	1999
Class 3611	2004
Class 3615	1989
Class 3810	1989

Original Project ID: 3022275

Approval Granted: January 3, 2005

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
050228	March 11, 2005		
050323	March 28, 2005		
050715	July 21, 2005		
060724	August 25, 2006		
060914	November 2, 2006		
3026758	February 2, 2007		
070209	April 11, 2007		
071001	<i>NOVEMBER 13, 2007</i>		

FM Approvals LLC

Robert L. Martell
Assistant Vice President

NOVEMBER 13, 2007
Date