Certificate

kiwa
Partner for progress

1 EC-Type Examination Certificate

2 Equipment and protective systems intended for use in potentially explosive atmospheres – Directive 94/9/EC

3 EC-Type Examination Certificate Number: **KIWA 15ATEX0022 X** **Issue: 1**

4 Equipment: **Radar Level Transmitter Model OPTIWAVE 1010**

5 Manufacturer: **Krohne S.A.S**

6 Address: **2, allée des Ors, 26100 Romans sur Isère**
France

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Kiwa Nederland B.V., notified body number 0620 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential ATEX Assessment Report No. 150202218.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0 : 2012 + A11 **EN 60079-1 : 2014** **EN 60079-11 : 2012**
EN 60079-26 : 2007 **EN 60079-31 : 2014**

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use, specified in the schedule to this certificate.

11 This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

12 The marking of the equipment shall include the following:

II 1/2 G	Ex db IIC T6 ... T4 Ga/Gb
II 1/2 G	Ex ia IIC T6 ... T3 Ga/Gb
II 2 D	Ex tb IIIC T120 °C Db
II 2 D	Ex ia IIIC T120 °C Db

Kiwa Nederland B.V.	Issue date:	First issue:
	27 October 2015	---

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13 # SCHEDULE

14 **to EC-Type Examination Certificate KIWA 15ATEX0022 X Issue No. 1**

15.1 **Description**

Radar Level Transmitter OPTIWAVE 1010 Model *F01*abcd... is used to convert the level measurement signal of a radar sensor into an electrical signal. The two-wire converter is a loop powered device that provides a 4 - 20 mA output signal with HART communication.

The Transmitter is available in versions in type of protection flameproof enclosures "d" for explosive gas atmospheres, in versions in type of protection intrinsic safety "i" for explosive gas and explosive dust atmospheres and in versions in type of dust protection by enclosure "t" for explosive dust atmospheres.

The transmitters are provided with
- an aluminum enclosure, for transmitters in type of protection Ex i for explosive gas atmospheres (models *F01*11*1, *F01*11*2, *F01*11*3);
- a stainless steel enclosure, in types of protection Ex d and Ex t for explosive gas and explosive dust atmospheres (models *F01*22*A, *F01*22*B, *F01*22*C);
- a stainless steel enclosure, in type of protection Ex i for explosive gas and explosive dust atmospheres (models *F01*21*A, *F01*21*B, *F01*21*C).
- an aluminum enclosure with an extension for application at high process temperatures, in type of protection Ex i for explosive gas atmospheres (models *F01*11*5, *F01*11*6, *F01*11*7).

Type designation *F01* abcd.....

F01 = VF010 (standard options, short lead time) or VF014 (standard options) or SF019 (special)

a Converter/Version (Enclosure material)
  1: OPTIWAVE 1010/Compact (Aluminium)
  2: OPTIWAVE 1010/Compact (Stainless steel)
b Approval
  1: ATEX II 1/2 G Ex ia IIC Tx Ga/Gb + II 2 D Ex ia IIIC T120°C Db
  (dust approval only with stainless steel enclosure)
  2: ATEX II 1/2 G Ex db IIC T6...T4 Ga/Gb + II 2 D Ex tb IIIC T120°C Db
  (stainless steel enclosure only)
c Other approval (one digit, not safety related)
d Process seal (Temperature, Pressure, Sealing)
  0: Without
  1: -40 °C...+100 °C, -1...16 barg, FKM/FPM
  2: -40 °C...+100 °C, -1...16 barg, EPDM
  3: -20 °C...+100 °C, -1...16 barg, Kalrez 6375
  5: -40 °C...+150 °C, -1...40 barg, FKM/FPM+Metaglas
  6: -40 °C...+150 °C, -1...40 barg, EPDM+Metaglas
  7: -20 °C...+150 °C, -1...40 barg, Kalrez 6375+Metaglas
  A: -40 °C...+120 °C, -1...40 barg, FKM/FPM+Metaglas
  B: -40 °C...+120 °C, -1...40 barg, EPDM+Metaglas
  C: -20 °C...+120 °C, -1...40 barg, Kalrez 6375+Metaglas

The degree of protection of the enclosures is IP66/67 in accordance with EN 60529.

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15.2 **Electrical data**

Transmitters in type of protection Ex i, Model OPTIWAVE 1010 *F01*a1*d...

Supply/output circuit:
in type of protection intrinsic safety Ex ia IIC and Ex ia IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:
U_i = 30 V, I_i = 130 mA, P_i = 1,0 W, C_i = 10 nF, L_i is negligibly small.

Transmitters in type of protection Ex d and Ex t, Model OPTIWAVE 1010 *F01*22*d...

Supply/output circuit:
U_N = 14,5 ... 32 Vdc,
I_N = 4 ... 20 mA.

15.3 **Thermal data**

For Group II, the intended temperature class depends on the combination of maximum ambient temperature and maximum process and/or flange temperature as listed in the following table:

Temperature class	T6	T5	T4			T3
Max ambient temperature [°C]	55	70	45	60	70	70
Version/model	Maximum process temperature [°C]					
Ex i, aluminium: *F01*11*1, *F01*11*2, *F01*11*3	85	85	100	95	85	-
Ex i, aluminium HT: *F01*11*5, *F01*11*6, *F01*11*7	85	100	135	135	135	150
Ex d, stainless steel: *F01*22*A, *F01*22*B, *F01*22*C	85	90 *)	120	100 *)	90 *)	-
Ex i, stainless steel: *F01*21*1, *F01*21*2, *F01*21*3	85	90	120	100	90	-

Note *): A heat resistant cable and cable gland with an operating temperature of at least 90 °C has to be prescribed.

For Group III, the maximum surface temperature, determined without dust layer, is T120 °C for a maximum ambient temperature of 70 °C and a maximum process temperature of 120 °C.
A heat resistant cable and cable gland with an operating temperature of at least 90 °C has to be prescribed when the ambient temperature exceeds 60°C.

15.4 **Instructions**

The instructions provided with the equipment shall be followed in detail to assure safe operation.

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14 **to EC-Type Examination Certificate KIWA 15ATEX0022 X Issue No. 1**

16 **ATEX Assessment Report**

No. 150202218.

17 **Specific conditions of use**

- The intended maximum ambient and process temperatures are specified in section 15.3.
- The minimum ambient and process temperature is -40 °C.
- The property class of the M6 screws of the glass process seal is at least A2-70.
- The flameproof joints are not intended to be repaired.
- Build-up of electrostatic charge on the painted enclosure shall be avoided by suitable measures.

18 **Essential Health and Safety Requirements**

All relevant Essential Health and Safety Requirements are covered by the standards listed at section 9.

19 **Test documentation**

As listed in ATEX Assessment Report No. 150202218.