

Translation

(1) **EC-Type Examination Certificate**

**TÜV NORD**

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**



- (3) **Certificate Number** TÜV 06 ATEX 553048 X
- (4) for the equipment: Flow meter type OPTISONIC 7060
- (5) of the manufacturer: **KROHNE Altometer**
- (6) Address: Kerkeplaat 18  
3313 LC Dordrecht, Nederland
- Order number: 8000553048
- Date of issue: 2006-06-07

- (7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system 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 the confidential report No. 06 YEX 553048.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 50 014:1997+A1+A2      EN 50 018:2000+A1      EN 50 019:2000**  
**EN 50020:2002**
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe 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 in accordance to the Directive 94/9/EC. 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 or protective system must include the following:

**II 2 G EEx de ib [ia] IIC**

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body

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(13) **SCHEDULE**

(14) **EC-Type Examination Certificate No. TÜV 06 ATEX 553048 X**

(15) **Description of equipment**

The flow meter type OPTISONIC 7060 is intended for the contactless measurement of the volumetric flow of gas.

The maximum permissible ambient temperature is 60 °C.

The maximum permissible media temperature in dependence on the temperature class has to be taken from the following table:

Temperature class	Media temperature
T4	103 °C
T3	168 °C
T2	200 °C

Technical data

All non intrinsically circuits are realised in the type of protection „Increased Safety“.

Supply circuit  
(terminals 1+, 2-)

$U = 12 \dots 42 \text{ V d.c. resp. } 85 \dots 230 \text{ V a.c.}$   
 $U_m = 253 \text{ V}$

**Field connections**

$U_m = 253 \text{ V}$

Current-/switched output  
(terminals 31, 32)

active  $U_B = 18 \text{ V}, I_B = 35 \text{ mA}$       passive  $U_B = 30 \text{ V}, I_B = 35 \text{ mA}$

Switched outputs  
(terminals 41, 42; 51, 52; 81, 82)

$U_B = 30 \text{ V}, I_B = 100 \text{ mA}$

Data interface  
(terminals 33, 34; 81, 82)

$U_B = 5 \text{ V}, I_B = 175 \text{ mA}$

**Intrinsically safe version**

Supply circuit  
(terminals 1+, 2-)

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA  
only for the connection to certified intrinsically safe circuits

Maximum values:  $U_i = 16 \text{ V}$   
 $I_i = 200 \text{ mA}$   
 $P_i = 2,6 \text{ W}$

Effective internal capacitance  $4 \text{ nF}$   
The effective internal inductance is negligibly small.

**Field connections**

Current-/switched output  
(terminals 31, 32)

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA.  
The maximum values in dependence on the type of protection  
have to be taken from the following table:

	EEx ib IIA	EEx ia IIC
$U_o$	22,1 V	22,1 V
$I_o$	155 mA	155 mA
$P_o$	857 mW	857 mW
$C_o$	4100 nF	163 nF
$L_o$	7 mH	1 mH

Characteristic line: linear

or

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA  
only for the connection to certified intrinsically safe circuits

Maximum values:  $U_i = 30\text{ V}$   
 $I_i = 100\text{ mA}$   
 $P_i = 750\text{ mW}$

Effective internal capacitance: 4 nF  
The effective internal inductance is negligibly small.

Switched outputs  
(terminals 41, 42; 51, 52; 81, 82)

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA  
only for the connection to certified intrinsically safe circuits

Maximum values:  $U_i = 30\text{ V}$   
 $I_i = 100\text{ mA}$   
 $P_i = 750\text{ mW}$

Effective internal capacitance: 4 nF  
The effective internal inductance is negligibly small.

Data interface RS485  
(terminals 33, 34; 81, 82)

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA.  
The maximum values in dependence on the type of protection  
have to be taken from the following table:

	EEx ib IIA	EEx ia IIC
$U_o$	5,88 V	5,88 V
$I_o$	313 mA	313 mA
$P_o$	460 mW	460 mW
$C_o$	1000 $\mu$ F	43 $\mu$ F
$L_o$	1,5 mH	0,2 mH

Characteristic line: linear

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or

in type of protection „Intrinsic Safety“ EEx ia IIC / EEx ib IIA  
only for the connection to certified intrinsically safe circuits

Maximum values:  $U_i = 10 \text{ V}$   
 $I_i = 275 \text{ mA}$   
 $P_i = 1420 \text{ mW}$

The effective internal inductance and capacitance are negligibly small.

Data interface Profibus PA  
(terminals 33, 34)

in type of protection „Intrinsic safety“ EEx ia IIC / EEx ib IIA  
only for the connection to certified intrinsically safe circuits

Maximum values:  $U_i = 30 \text{ V}$   
 $I_i = 100 \text{ mA}$   
 $P_i = 750 \text{ mW}$

The effective internal inductance and capacitance are negligibly small.

Probe circuits  
(probe connector 1...8)

in type of protection „Intrinsic Safety“ EEx ia IIC/IIB/IIA.  
The maximum values in dependence on the type of protection have to be taken from the following table:

	EEx ia IIA	EEx ia IIB	EEx ia IIC
$U_o$	60,8 V	51,2 V	38,9 V
$I_o$	95 mA	80 mA	60 mA
$P_o$	1444 mW	1024 mW	584 mW
$C_o$	300 nF	187 nF	34 nF
$L_o$	-	-	-

Characteristic line: linear

### Routine test

In the case of the use in extended ambient temperature range of  $-40 \text{ °C}$  to  $+60 \text{ °C}$  the overpressure test has to be carried out at every enclosure with 18.5 bar according to EN 50018, paragraph 15.1.3.1, as routine test.

This examination is not necessary by devices from high-grade steel.

(16) Test documents are listed in the test report No. 06 YEX 553048.

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(17) Special conditions for safe use

The combination of intrinsically safe and non-intrinsically safe circuits at the field connections is not permitted.

(18) Essential Health and Safety Requirements

no additional ones