Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 06 ATEX 2037 X

(4) Equipment: Flow meters, type series OPTIMASS 1300C, 3300C, 7300C, 8300C and OPTIGAS 5300C

(5) Manufacturer: KROHNE Ltd.

(6) Address: Rutherford Drive, Park Farm South Ind. Est.
Wellingborough, Northants NN8 6AE, Great Britain

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 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 the confidential report PTB Ex 06-26152 .

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

IEC 60079-0:2004 Ed.4	**IEC 60079-1:2003 Ed.5**	**EN 60079-7:2003**
EN 50020:2002	**IEC 61241-1:2005 Ed.1**	**IEC 61241-11:2005 Ed.1**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment 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 shall include the following:

II 2 (1) G Ex de [ia/ib] IIC T6	**or**	**II 2 (1) G Ex d [ia/ib] IIC T6**
II 2 G Ex de [ib] IIC T6	**or**	**II 2 G Ex d [ib] IIC T6**
II 2 D Ex tD [ibD] A21 IP6x T... °C	**or**	**II 2 (1) D Ex tD [iaD/ibD] A21 IP6x T...°C**

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, September 21, 2006

(13) # S C H E D U L E

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

(15) Description of equipment

The flow meters of type series OPTIMASS 1300C, 3300C, 7300C, 8300C and OPTIGAS 5300C are used for the direct determination and display of the mass flow rate of flammable and non-flammable liquids and gases. They consist of the separately certified components sensor unit and measuring transducer which are mounted to each other to form a compact device. All connections between the sensor unit and the measuring transducer are internal connections and comply with type of protection Intrinsic Safety. The enclosure for the measuring transducer complies with type of protection Flameproof Enclosure. The flow meters are designed as associated apparatus and may be installed in the hazardous area.

For relationship between maximum permissible ambient temperature, maximum medium temperature, maximum surface temperature and temperature class for the individual type series and enclosure materials, reference is made to the following tables.

OPTIMASS 1300C with transducer enclosure made of aluminium

Non-insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
50 °C	T4	70 °C	T130°C
	T3 – T1	130 °C	T185°C
60 °C	T4 – T1	60 °C	T125°C

Insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	65 °C	T130°C
	T3 – T1	130 °C	T195°C
50 °C	T4	65 °C	T130°C
	T3 – T1	100 °C	T165°C
60 °C	T4 – T1	60 °C	T125°C

OPTIMASS 1300C with transducer enclosure made of stainless steel

Non-insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
50 °C	T4	70 °C	T130°C
	T3 – T1	130 °C	T185°C
55 °C	T4 – T1	55 °C	T120°C

Insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	65 °C	T130°C
	T3 – T1	120 °C	T185°C
50 °C	T4	65 °C	T130°C
	T3 – T1	75 °C	T140°C
55 °C	T4 – T1	55 °C	T120°C

OPTIMASS 3300C and 7300C with transducer enclosure made of aluminium

Non-insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	55 °C	T80°C
	T5	75 °C	T95°C
	T4	120 °C	T130°C
	T3 – T1	150 °C	T160°C
50 °C	T5	75 °C	T95°C
	T4	115 °C	T130°C
	T3 – T1	150 °C	T160°C
60 °C	T4 – T1	60 °C	T85°C

Insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	55 °C	T80°C
	T5	70 °C	T95°C
	T4	100 °C	T125°C
	T3 – T1	145 °C	T170°C
50 °C	T5	70 °C	T95°C
	T4 – T1	100 °C	T125°C
60 °C	T4 – T1	60 °C	T85°C

OPTIMASS 3300C and 7300C with transducer enclosure made of stainless steel

Non-insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	55 °C	T80°C
	T5	75 °C	T95°C
	T4	120 °C	T130°C
	T3 – T1	150 °C	T160°C
50 °C	T5	75 °C	T95°C
	T4	115 °C	T130°C
	T3 – T1	135 °C	T145°C
55 °C	T4 – T1	55 °C	T80°C

Insulated / heated variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	55 °C	T80°C
	T5	70 °C	T95°C
	T4	100 °C	T125°C
	T3 – T1	145 °C	T170°C
50 °C	T5	70 °C	T95°C
	T4 – T1	75 °C	T100°C
55 °C	T4 – T1	55 °C	T80°C

OPTIMASS 8300C with transducer enclosure made of aluminium

All variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	45 °C	T130°C
	T3	110 °C	T195°C
	T2 – T1	190 °C	T275°C
50 °C	T3	110 °C	T195°C
	T2 – T1	190 °C	T275°C
60 °C	T3 – T1	60 °C	T145°C

OPTIMASS 8300C with transducer enclosure made of stainless steel

All variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	45 °C	T130°C
	T3	110 °C	T195°C
	T2 – T1	190 °C	T275°C
50 °C	T3	110 °C	T195°C
	T2 – T1	190 °C	T275°C
55 °C	T3 – T1	55 °C	T140°C

OPTIGAS 5300C with transducer enclosure made of aluminium

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	40 °C	T130°C
	T3 – T1	93 °C	T175°C
50 °C	T3 – T1	93 °C	T175°C
60 °C	T3 – T1	60 °C	T155°C

OPTIGAS 5300C with transducer enclosure made of stainless steel

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T4	40 °C	T130°C
	T3 – T1	93 °C	T175°C
50 °C	T3 – T1	70 °C	T160°C
55 °C	T3 – T1	55 °C	T150°C

Electrical data

Auxiliary power (non-intrinsically safe)

depending on variant
(terminals L (L+), N (L-))

U_N = 12...24 V DC, +30 % / -10 % (short-time -25 %),
approx. 12 W
internal fusing $I_N \leq 2$ A
U_m = 253 V
for connection to protective extra low voltage
with safe isolation (PELV)

or

U_N = 24 V AC/DC, +10 % / -15 %, 50/60 Hz,
approx. 22 VA/12 W
24 V DC, +30 % / -25 %
internal fusing $I_N \leq 2$ A
U_m = 253 V
for connection to protective extra low voltage
with safe isolation (PELV)

or

U_N = 100...230 V AC, +10 % / -15 %, 50/60 Hz,
approx. 22 VA
internal fusing $I_N \leq 1{,}6$ A

In/Output circuits (non-intrinsically safe)

		Nominal voltage:	U_N ≤ 32 V DC
			U_m = 253 V

Printed circuit board:

Basic IO			
(terminals	C, C-	status output, passive	I_{max} = 100 mA
	B, B-	status output, passive	I_{max} = 100 mA
		or control input	U_{max} = 32 V
	D, D-	pulse output, passive	I_{max} = 100 mA
	A, A-, A+)	current output, active/passive	HART
Modular IO			
(terminals	C, C-	current output, active/passive	HART
	D, D-)	status/pulse output, active	I_{max} = 20 mA
		status/pulse output, passive	I_{max} = 100 mA
Modular Carrier + IO Module		depending on module	
(terminals	B, B-, A, A-)	current output, active/passive	HART
		status/pulse output, active/passive	I_{max} = 20 mA
		control input, active/passive	U_{max} = 32 V
Fieldbus IO			
(terminals	D, D-, C, C-)	depending on function	
		Profibus-PA, passive	
		Foundation Fieldbus, passive	
Profibus DP IO			
(terminals	D, D-, C, C-, B, B-)	Profibus-DP, active, 12 Mbit/s	
		Termination	
Modbus IO			
(terminals D, D-, C, C-)		RS 485 Modbus, active	

In/Output circuits (intrinsically safe)
(depending on p.c.b. and I/O-function)

Printed circuit board:

Exi-IO

Current output, passive
HART communication
(terminals C, C-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

or

Current output, active
HART communication
(terminals C, C-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC

Maximum values:

U_o = 21 V
I_o = 90 mA
P_o = 0.5 W
linear characteristic

C_o	90 nF	110 nF
L_o	2.0 mH	0.5 mH

and

Puls/Status output, passive
(terminals D, D-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

Exi-Option

Current output, passive
(terminals A, A-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

or

Current output, active
(terminals A, A-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC

Maximum values:

U_o = 21 V
I_o = 90 mA
P_o = 0.5 W
linear characteristic

C_o	90 nF	110 nF
L_o	2.0 mH	0.5 mH

and

Puls/Status output
Control input, passive
(terminals B, B-)

type of protection Intrinsic Safety EEx ia IIC
or EEx ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

Fieldbus IO

Profibus-PA Foundation Fieldbus passive (terminals D, D-, C, C-)	type of protection Intrinsic Safety EEx ia IIC or EEx ib IIC/IIB only for connection to a certified intrinsically safe circuit Maximum values: U_i = 24 V I_i = 380 mA P_i = 5.32 W C_i = 5 nF L_i = 10 µH FISCO field device according to IEC 60079-27

Internal circuits of type of protection Intrinsic Safety EEx ib IIC:

Supply circuit

Data circuit

Driver circuit

Sensor circuit

RTD / DMS circuit

The intrinsically safe circuits are safely electrically isolated from all non-intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

(16) Test report PTB Ex 06-26152

(17) Special conditions for safe use

1. The measuring transducer, type MFC300F shall be included in the equipotential bonding system of the hazardous area.
2. Opening the enclosure inside the hazardous area is only permissible in a de-energized state and with keeping a subsequent waiting time (warning label !)

   This waiting time is: 35 minutes for temperature class T6
   and 10 minutes for temperature class T5
   The waiting time may be omitted for temperature classes T4 ... T1.
3. Only certified cable glands may be applied as cable entries. Non-used openings shall be sealed by means of certified blind plugs.
4. The connecting cables shall be installed as fixed wiring and in such a way that they are sufficiently protected against damage.
5. For relationship between maximum permissible ambient temperature, maximum medium temperature, maximum surface temperature and temperature class for the individual type series and enclosure materials, reference is made to the tables given in the operating instructions or the tables given above respectively.

(18) Essential health and safety requirements

met by compliance with the standards mentioned above

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, September 21, 2006

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

(Translation)

Equipment: Flow meters, type series OPTIMASS 1300C, 3300C, 7300C, 8300C and OPTIGAS 5300C

Marking:

⟨Ex⟩ **II 2 (1) G Ex de [ia/ib] IIC T6...T1**	**or**	⟨Ex⟩ **II 2 (1) G Ex d [ia/ib] IIC T6...T1**
⟨Ex⟩ **II 2 G Ex de [ib] IIC T6...T1**	**or**	⟨Ex⟩ **II 2 G Ex d [ib] IIC T6...T1**
⟨Ex⟩ **II 2 D Ex tD A21 IP6x T... °C**	**or**	
⟨Ex⟩ **II 2 (1) D Ex tD [iaD] A21 IP6x T... °C**		

Manufacturer: KROHNE Ltd.

Address: Rutherford Drive, Park Farm South Ind. Est.
Wellingborough, Northants NN8 6AE, Great Britain

Description of supplements and modifications

In the future the flow meters of type series OPTIMASS 1300C, 3300C, 7300C, 8300C and OPTIGAS 5300C may also be manufactured and operated according to the test documents listed in the test report. The modifications comprise the extension of the permissible ambient temperature to 65 °C for specific variants with aluminium enclosure, the extension of the p.c.b´s "Modular Carrier + IO Module" and "Exi-Option 2" by an additional current input, the introduction of a T6-variant for type series OPTIMASS 1300C and the introduction of the new type series OPTIMASS 2300C. Furthermore two additional variants of configuring and wiring of strain gauges for the measuring sensors OPTIMASS 2000 are provided.

Thus the temperature specifications and the electrical data change as follows:

The permissible range of the ambient temperature depends on the material of the enclosure as follows.

Aluminium enclosure:	-40 °C ... +65 °C	for all variants listed in the table given in the operating instructions
	-40 °C ... +60 °C	for non-listed variants
Stainless steel enclosure:	-40 °C ... +55 °C	

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

For relationship between the maximum permissible ambient temperature increased to 65 °C, maximum medium temperature, maximum surface temperature and temperature class for the variants in an aluminium enclosure listed in the operating instructions, reference is made to the following table.

OPTIMASS 1300C with transducer enclosure made of aluminium
Insulated / heated or non-insulated / heated variants

Type series	ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
OPTIMASS 1300C	65 °C	T4 – T1	65 °C	T130 °C
OPTIMASS 3300C	65 °C	T4 – T1	65 °C	T90 °C
OPTIMASS 7300C	65 °C	T4 – T1	65 °C	T90 °C
OPTIMASS 8300C	65 °C	T4 – T1	65 °C	T150 °C
OPTIGAS 5300C	65 °C	T4 – T1	65 °C	T160 °C

For relationship between maximum permissible ambient temperature, maximum medium temperature, maximum surface temperature and temperature class for type series OPTIMASS 2300C, reference is made to the following tables.

OPTIMASS 1300C with transducer enclosure made of aluminium
all variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	50 °C	T80 °C
	T5	65 °C	T95 °C
	T4	100 °C	T130 °C
	T3 – T1	130 °C	T160 °C
50 °C	T5	65 °C	T95 °C
	T4 – T1	100 °C	T130 °C
60 °C	T4 – T1	60 °C	T90 °C
65 °C (*)	T4 – T1	65 °C	T95 °C

(*) for the variants listed in the operating instructions

OPTIMASS 2300C with transducer enclosure made of stainless steel
all variants

ambient temperature up to T_{amb}	temperature class	max. medium temperature up to T_M	max. surface temperature
40 °C	T6	50 °C	T80°C
	T5	65 °C	T95°C
	T4	100 °C	T130°C
	T3 – T1	120 °C	T150°C
50 °C	T5	65 °C	T95°C
	T4 – T1	75 °C	T105°C
55 °C	T5 – T1	55 °C	T85°C

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

Electrical data

Printed circuit board:

Modular Carrier + IO Module
(terminals B, B-, A, A-)

depending on module
current output, active/passive 0(4) – 20 mA
status/puls output, active I_{max} = 20 mA
status/puls output, passive I_{max} = 100 mA
control input, active/passive U_{max} = 32 V
current input, active/passive 0(4) – 20 mA, U_{max} = 32 V

Profibus DP IO
(terminals D, D-, C, C-, B, B-)

depending on function
Profibus RS 485, active, up to 12 Mbit/s

Exi-Option 2

Current output, passive
(terminals A, A-)

type of protection Intrinsic Safety Ex ia IIC or Ex ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

or

Current input, active
(terminals A, A-)

type of protection Intrinsic Safety Ex ia IIC or Ex ib IIC
Maximum values:

U_o = 24.1 V
I_o = 99 mA
P_o = 0.6 W
linear characteristic
C_o = 75 nF
L_o = 0.5 mH

and

Puls/Status output, passive
(terminals B, B-)

type of protection Intrinsic Safety Ex ia IIC or Ex ib IIC
only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 30 V
I_i = 100 mA
P_i = 1.0 W
C_i = 10 nF
L_i negligibly low

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1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

The intrinsically safe circuits are safely electrically isolated from all non-intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

The "Special Condition" No. 1 of the EC-type examination certificate is extended as follows:

1. The flow meters of type series OPTIMASS 1300C, 2300C, 3300C, 7300C, 8300C and OPTIGAS 5300C shall be included in the equipotential bonding system of the hazardous area.

All further specifications and electrical data of the EC-type examination certificate as well as the "Special Conditions" apply without changes also to this 1st supplement.

Applied standards

EN 60079-0:2006	**EN 60079-1:2004**	**EN 60079-7:2007**	**EN 60079-11:2007**
EN 61241-0:2006	**EN 61241-1:2004**	**EN 61241-11:2006**	

Test report: PTB Ex 08-28029

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor

Braunschweig, June 9, 2008

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

(Translation)

Equipment: Flow meters, type series OPTIMASS 1300C, 3300C, 7300C, 8300C and OPTIGAS 5300C

Marking:

⟨Ex⟩ II 2 (1) G Ex de [ia/ib] IIC T6...T1	or	⟨Ex⟩ II 2 (1) G Ex d [ia/ib] IIC T6...T1
⟨Ex⟩ II 2 G Ex de [ib] IIC T6...T1	or	⟨Ex⟩ II 2 G Ex d [ib] IIC T6...T1
⟨Ex⟩ II 2 D Ex tD A21 IP6x T... °C	or	⟨Ex⟩ II 2 (1) D Ex tD [iaD] A21 IP6x T... °C

Manufacturer: KROHNE Ltd.

Address: Rutherford Drive, Park Farm South Ind. Est.
Wellingborough, Northants NN8 6AE, Great Britain

Description of supplements and modifications

In the future the flow meters of type series OPTIMASS OPTIMASS 1300C, 1300C T6, 2300C, 3300C, 7300C, 8300C and OPTIGAS 5300C may also be manufactured and operated according to the test documents listed in the test report. The modifications concern the introduction of the new type series OPTIMASS 8300kC, the adaption to the current state of the standards, the introduction of a design with lacquered enclosure surfaces for specific type series and the specifications of the maximum permissible ambient and medium temperatures. Furthermore, specific type series can in future be applied as separating unit to isolate areas from each other where equipment of category 1 or category 2 is required respectively. For this application purpose the marking has been adapted correspondingly.

For relationship between maximum permissible ambient temperature, maximum medium temperature, maximum surface temperature and temperature class for the newly introduced type series, reference is made to the following tables.

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

OPTIMASS 8300kC with converter housing made of Aluminium with or without heating jacket / insulation			
permissible range of the ambient temperature T_{amb}	temperature class	permissible range of the medium temperature T_M	max. surface temperature
-40 °C ... +40 °C	T4	60 °C	T125 °C
	T3	120 °C	T190 °C
	T2 – T1	190 °C	T265 °C
-40 °C ... +50 °C	T3	120 °C	T190 °C
	T2 – T1	190 °C	T260 °C
-40 °C ... +55 °C	T4 – T1	55 °C	T125 °C
-40 °C ... +60 °C (*)	T4 – T1	60 °C	T130 °C

(*) for the variants listed in the operating instructions

OPTIMASS 8300kC with converter housing made of stainless steel with or without heating jacket / insulation			
permissible range of the ambient temperature T_{amb}	temperature class	permissible range of the medium temperature T_M	max. surface temperature
-40 °C ... +40 °C	T4	60 °C	T125 °C
	T3	120 °C	T190 °C
	T2 – T1	190 °C	T265 °C
-40 °C ... +45 °C	T4	55 °C	T125 °C
	T2 – T1	190 °C	T260 °C
-40 °C ... +50 °C (*)	T4 – T1	50 °C	T120 °C

(*)for the variants listed in the operating instructions

OPTIMASS 8300kC with converter housing made of Aluminium or stainless steel with or without heating jacket / insulation Cyrogenic applications			
permissible range of the ambient temperature T_{amb}	temperature class	permissible range of the medium temperature T_M	max. surface temperature
-25 °C ... +40 °C	T4 – T1	-195 °C ... +60 °C	T125 °C

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2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

Electrical data

OPTIMASS 8300kC

The electrical data are identical to those given in the EC-type examination certificate incuding the 1st supplement.

The maximum permissible ambient and medium temperatures for type series OPTIMASS 1300C, 1300C T6, 2300C, 3300C, 7300C, 8300kC of lacquered designs are:

T_{amb} = 40 °C T_{medium} = 110 °C

The marking of type series OPTIMASS 1300C, 1300C T6, 2300C, 7300C, 8300kC for the application as separating unit reads:

II 1/2 (1) G Ex de [ia/ib] IIC T6...T1 Ga/Gb **or**
II 1/2 (1) G Ex d [ia/ib] IIC T6...T1 Ga/Gb **or**
II 1/2 G Ex de [ib] IIC T6...T1 Ga/Gb **or**
II 1/2 G Ex d [ib] IIC T6...T1 Ga/Gb

The marking of all type series for the application in hazardous areas due to combustible dusts changes to:

II 2 D Ex t IIIC T... °C Db **or** **II 2 (1) D Ex t [iaDa] IIIC T... °C Db**

The "Special Condition" No. 1 of the EC-type examination certificate is extended as follows:

1. The measuring sensors of type series OPTIMASS 1300C, 1300C T6, 2300C, 3300C, 7300C, 8300C, 8300kC and OPTIGAS 5300C shall be included in the equipotential bonding system of the hazardous area.

All further "Special Conditions" and specifications of the EC-type examination certificate and the 1st supplement apply without changes also to this 2nd supplement.

Applied standards

EN 60079-0:2009	**EN 60079-1:2007**	**EN 60079-7:2007**	**EN 60079-11:2007**
EN 60079-26:2007	**EN 61241-1:2004**	**EN 61241-11:2006**	

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 06 ATEX 2037 X

Assessment and test report: PTB Ex 10-20137

Zertifizierungssektor Explosionsschutz
On behalf of PTB:

Braunschweig, October 21, 2010

Dr.-Ing. U. Gerlach
Oberregierungsrat