



Prüf- und Zertifizierungsstelle

ZELM Ex



(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:

ZELM 02 ATEX 0073

(4) Equipment: **O₂ - Transmitter Typ 4100 PA**

(5) Manufacturer: **Mettler Toledo GmbH**

(6) Address: **CH - 8902 Urdorf**

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

(8) The Prüf- und Zertifizierungsstelle ZELM Ex, notified body No. 0820 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 ZELM Ex 0370112102.

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

EN 50 014: 1997+A1+A2

EN 50 020: 1994

(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 and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:



II 2 (1) G EEx ia IIC T4

Zertifizierungsstelle ZELM Ex

Dipl.-Ing. Harald Zelm



Braunschweig, Januar, 08. 2002

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SCHEDULE

(13)

(14)

EC-TYPE-EXAMINATION CERTIFICATE ZELM 02 ATEX 0073

(15) Description of equipment

The O₂ - Transmitter Typ 4100 PA with Profibus – PA – communication interface is preferably used for the recognition and processing of electrochemical quantities and is equipped with an input for measurements of the oxygen partial pressure and a temperature measuring input.

The maximum permissible ambient temperature is 55 °C.

Electrical data

BUS- / Supply loop
(terminals 11 and 10)

type of protection Intrinsic Safety
resp.

EEx ia IIC/IIB
EEx ib IIC/IIB

for the connection to a certified intrinsically safe circuit only
(for example FISCO – supply unit) with the following maximum values:

	FISCO- supply unit	linear barrier
U _{omax}	17,5 V	24 V
I _{omax}	280 mA	200 mA
P _{omax}	4,9 W	1,2 W

effective internal capacitance:

$$C_i \leq 1 \text{ nF}$$

effective internal inductance:

$$L_i \leq 10 \text{ } \mu\text{H}$$

Oxygen measuring loop
(terminals 1/2, 4 and 5)

type of protection Intrinsic Safety
resp.

EEx ia IIC/IIB
EEx ib IIC/IIB

maximum values:

$$U_o = 10 \text{ V}$$

$$I_o = 11 \text{ mA}$$

$$P_o = 14 \text{ mW}$$

$$R = 475 \text{ } \Omega$$

(linear characteristics)

	IIC	resp.	IIB
max. permissible external inductance	1 mH		5 mH
max. permissible external capacitance	925 nF		4 μF

effective internal capacitance:

$$C_i \leq 25 \text{ nF}$$

The effective internal inductance is negligibly small.



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Temperature measuring loop
(terminals 7 and 8)

type of protection Intrinsic Safety
resp.

EEx ia IIC/IIB
EEx ib IIC/IIB

maximum values:

$U_o = 5$ V
 $I_o = 1$ mA
 $P_o = 2$ mW
 $R = 7,88$ k Ω
(linear characteristics)

	IIC	resp.	IIB
max. permissible external inductance	1	mH	5
max. permissible external capacitance	4	μ F	10

effective internal capacitance: $C_i \leq 120$ nF
The effective internal inductance is negligibly small.

EP
(terminal 9)

for the connection to the equipotential bonding system

References:

Connecting the equipotential bonding is absolutely required to guarantee electrostatical leakage.

The BUS- / Supply loop is safely electrically isolated from the other loops up to a peak value of the nominal voltage of 60 Volts.

The operation manual has to be considered.

(16) Report No. ZELM Ex 0370112102

(17) Special conditions for safe use

not applicable


(18) Essential Health and Safety Requirements

met by standards

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Braunschweig, Januar, 08.2002


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ZELM Ex



1. Supplement

(Supplement according to EC-Directive 94/9 Annex III letter 6)

to EC-type-examination Certificate

ZELM 02 ATEX 0073

Equipment: **O₂ Transmitter Type O₂ 4100e FF**
Manufacturer: **Mettler-Toledo GmbH**
Address: **Im Hackacker 15, CH – 8902 Urdorf**

Description of supplement

The O₂ Transmitter Type O₂ 4100 PA was extended by the O₂ Transmitter Type O₂ 4100e FF with Foundation Fieldbus communication interface.

The type of protection, the electrical and all further data of the device remain unchanged.

The Foundation Fieldbus version of the Transmitter may be manufactured in future in consideration of this supplement.

References:

The Operating Instructions has to be considered.

Report No.: ZELM Ex 1040417317

Special conditions for safe use

not applicable

Essential Health and Safety Requirements


met by adherence to the standards

EN 50 014: 1997+A1+A2

EN 50 020: 1994

Zertifizierungsstelle ZELM Ex

Braunschweig, October 04, 2004


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