



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 00 ATEX 0032**

(4) Equipment: **pH Transmitter Type pH 2100 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 0110019039.

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

**EN 50 014: 1997**

**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:

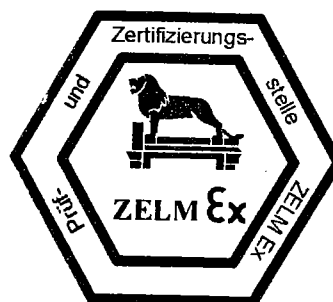


**II 2 (1) G EEx ia IIC T4**

Zertifizierungsstelle ZELM Ex

Braunschweig, June 26, 2000

  
Dipl.-Ing. Harald Zelm



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EC-type-examination Certificates without signature and stamp are not valid. The certificates may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM Ex. In the case of dispute, the German text shall prevail.



## SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 00 ATEX 0032**

(15) Description of equipment

The pH Transmitter Type pH 2100 PA is preferably used for the recognition and processing of electrochemical quantities and is equipped with an input for ph-measurements and a temperature measuring input.

The maximum permissible ambient temperature is 55 °C.

### Electrical data

BUS- / Supply loop  
(terminals 11/14 and 10/15)

type of protection Intrinsic Safety  
resp.

EEx ia IIC/IIB  
EEx ib IIC/IIB

only for the connection to a certified intrinsically safe circuit  
(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:

$C_i \leq 1$  nF

effective internal inductance:

$L_i \leq 10$   $\mu$ H

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

type of protection Intrinsic Safety  
resp.

EEx ia IIC/IIB  
EEx ib IIC/IIB

maximum values:

$U_o = 11,8$  V

$I_o = 12$  mA

$P_o = 18$  mW

(linear characteristic)

	IIC	bzw.	IIB
max. permissible external inductance	240 mH		850 mH
max. permissible external capacitance	1,47 $\mu$ F		9,9 $\mu$ F

(only valid if external inductance and external capacitance  
do not exist in concentrated form at the same time)



Schedule to EC-TYPE-EXAMINATION CERTIFICATE ZELM 00 ATEX 0032

	IIC	bzw.	IIB
max. permissible external inductance	3 mH		10 mH
max. permissible external capacitance	452 nF		1,47 µF

(also valid if external inductance and external capacitance exist in concentrated form at the same time)

effective internal capacitance:  $C_i \leq 30$  nF  
The effective internal inductance is negligibly small.

Temperature measuring loop  
(terminals 7 and 8)

type of protection Intrinsic Safety  
resp.

EEx ia IIC/IIB  
EEx ib IIC/IIB

maximum values:

$U_o = 5,9$  V  
 $I_o = 3,1$  mA  
 $P_o = 4,6$  mW  
(linear characteristic)

	IIC	bzw.	IIB
max. permissible external inductance	1000 mH		1000 mH
max. permissible external capacitance	43 µF		1000 µF

(only valid if external inductance and external capacitance do not exist in concentrated form at the same time)

	IIC	bzw.	IIB
max. permissible external inductance	5 mH		10 mH
max. permissible external capacitance	550 nF		1,75 µF

(also valid if external inductance and external capacitance exist in concentrated form at the same time)

effective internal capacitance:  $C_i \leq 250$  nF  
The effective internal inductance is negligibly small.

DF-output  
(terminals 17, 18 and 19)

type of protection Intrinsic Safety  
resp.

EEx ia IIC/IIB  
EEx ib IIC/IIB

maximum values:

$U_o = 11,8$  V  
 $I_o = 32,8$  mA  
 $P_o = 48,4$  mW  
(linear characteristic)



Prüf- und Zertifizierungsstelle

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**Schedule to EC-TYPE-EXAMINATION CERTIFICATE ZELM 00 ATEX 0032**

	IIC	bzw.	IIB
max. permissible external inductance	34 mH		130 mH
max. permissible external capacitance	1,47 µF		9,9 µF

(only valid if external inductance and external capacitance do not exist in concentrated form at the same time)

	IIC	bzw.	IIB
max. permissible external inductance	2,8 mH		9 mH
max. permissible external capacitance	424 nF		1,47 µF

(also valid if external inductance and external capacitance exist in concentrated form at the same time)

effective internal capacitance:  $C_i \leq 30$  nF  
The effective internal inductance is negligibly small.

EP  
(terminal 9 or terminal 16)

for the connection to the equipotential bonding system

References:

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

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

The operation manual has to be considered.

(16) Report No.

ZELM Ex 0110019039

(17) Special conditions for safe use

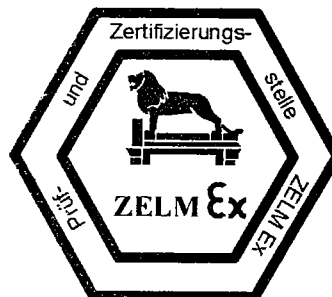
not applicable

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle ZELM Ex

Dipl.-Ing. Harald Zelm



Braunschweig, June 26, 2000

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## 1. Supplement

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

### to EC-type-examination Certificate

**ZELM 00 ATEX 0032**

Equipment: **pH Transmitter Type pH 2100e FF**  
Manufacturer: **Mettler-Toledo GmbH**  
Address: **Im Hackacker 15, CH – 8902 Urdorf**

#### Description of supplement

The pH Transmitter Type pH 2100 PA was extended by the pH Transmitter Type pH 2100e 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 1010417314

#### 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

  
Dipl.-Ing. Harald Zelm

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