



- [1] **4th Addition to
EC-TYPE EXAMINATION CERTIFICATE IBExU10ATEX1124 X**
according to Directive 94/9/EC, Annex III
- Translation -




- [2] Equipment: **Piezoresistive Pressure Transmitter**
Series 23SYEi, 23YEi, 23YMEi, 25YEi, 26YEi and 26YMEi
- [3] Manufacturer: KELLER AG für Druckmesstechnik
- [4] Address: St. Gallerstrasse 119
8404 Winterthur
SWITZERLAND

- [5] **Addition / Alteration**
The special conditions for safe use for the series of Piezoresistive Pressure Transmitters mentioned in [2] are newly specified (see [8]). The technical parameters are unchanged.

- [6] **Test report**
The proof of the explosion protection of the in [5] mentioned addition for the Piezoresistive Pressure transmitters is documented in the Test Report IB-14-3-191/1 of 27 February 2015. The test documents are part of the test report and are listed there.

- [7] **Test result**
IBExU certifies that the equipment mentioned in [2] and changed according to [5] has been found to comply with the Essential Health and Safety Requirements given in Annex II of Directive 94/9/EC by compliance with EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007, and EN 50303:2000.

The piezoresistive pressure transmitter fulfils the requirements of the type of protection intrinsic safety for an explosion-protected apparatus of group I, category M1 as well as group II, category 1G, explosion group IIC and temperature class T6 – T4 or category 1D with a maximum surface temperature of 130 °C. The marking is as follows:

 I M1 Ex ia I Ma
 II 1G Ex ia IIC T6 - T4 Ga
 II 1D Ex ia IIIC T 130 °C Da

- [8] **Special conditions for safe use**
- The ambient and media temperatures are different for the respective conditions of use. They are specified as listed above.
 - The permissible operating pressure can be found in the manufacturer information.
 - The restriction for the series 25YEi regarding the process media is not valid any more.
 - The electric strength against the metallic casing is $\leq 320 V_{SS}$.
 - The safety and installation instructions specified in the operating manual have to be observed.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU10ATEX1124 X of 20 December 2010.

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Freiberg, 27 February 2015

Authorized for certifications
- Explosion protection -

By order

(Dr. Wagner)



- Seal -
(Identification No. 0637)

Certificates without signature and seal are not valid.
Certificates may only be duplicated completely and unchanged.
In case of dispute, the German text shall prevail.

- [1] **3rd Addition to EC-TYPE EXAMINATION CERTIFICATE IBExU10ATEX1124 X**
according to Directive 94/9/EC, Annex III
- Translation -



- [2] Equipment: **Piezoresistive Pressure Transmitter**
Series 23SYEi, 23YEi, 23YMEi, 25YEi, 26YEi and 26YMEi
- [3] Manufacturer: KELLER AG für Druckmesstechnik
- [4] Address: St. Gallerstrasse 119
8404 Winterthur
SWITZERLAND

- [5] **Addition / Alteration**
The equipment mentioned in [2] can be manufactured in accordance with the altered documents and alternative sealing compound. Electrical values and operating conditions as followed:

Ambient temperature range	T_a	-40 °C to +40/ 50/ 65/ 100 °C depending on temperature class T6 - T4 and type												
Degree of protection		IP65/68 acc. to IEC 60529												
Power supply and data circuit (2-wire transmitter)		fixed cable or connecting plug												
maximum input voltage	U_i	30 V												
maximum input current	I_i	200 mA												
maximum input power	P_i	0.64/ 1.1/ 1.33 W all transmitter types T4: <table border="1"> <tr> <th>Ambient temp. T_a</th> <th>Power P_i</th> </tr> <tr> <td>40°C</td> <td>1.33 W</td> </tr> <tr> <td>65°C</td> <td>1.1 W</td> </tr> <tr> <td>100°C</td> <td>0.64 W</td> </tr> </table> 2- wire transmitter T6: <table border="1"> <tr> <th>Ambient temp. T_a</th> <th>Power P_i</th> </tr> <tr> <td>50°C</td> <td>1.33 W</td> </tr> </table>	Ambient temp. T_a	Power P_i	40°C	1.33 W	65°C	1.1 W	100°C	0.64 W	Ambient temp. T_a	Power P_i	50°C	1.33 W
Ambient temp. T_a	Power P_i													
40°C	1.33 W													
65°C	1.1 W													
100°C	0.64 W													
Ambient temp. T_a	Power P_i													
50°C	1.33 W													
maximum internal capacitance	C_i	negligible												
maximum internal inductance	L_i	negligible												
Output (3-wire transmitter)														
maximum output voltage	U_o	14,7 V												
maximum output current	I_o	149 mA												
maximum internal capacitance	C_i	528 nF												
maximum internal inductance	L_i	negligible												
Characteristics of fixed cable:	L' wire	1,2 µH/m												
	C' wire-wire	150 pF/m												
	C' wire-shield	250 pF/m												

- [6] **Test report**
The proof of the explosion protection of the addition to the pressure transmitter mentioned in [5] is documented in the Test Report IB-14-3-191 of 18 December 2014. The test documents are part of the test report.
- [7] **Test result**
IBExU certifies that the equipment mentioned in [2] and changed according to [5] has been found to comply with the Essential Health and Safety Requirements given in Annex II of Directive 94/9/EC by compliance with EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007, and EN 50303:2000.

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An-Institut der TU Bergakademie Freiberg

The piezoresistive pressure transmitter fulfils the requirements of the type of protection intrinsic safety for an explosion-protected apparatus of group I, category M1 as well as group II, category 1G, explosion group IIC and temperature class T6 – T4 and for category 1D with a maximum surface temperature of 130 °C. The marking as followed:

⊕ I M1 Ex ia I Ma
⊕ II 1G Ex ia IIC T6 - T4 Ga
⊕ II 1D Ex ia IIIC T 130 °C Da

[8] **Special conditions for safe use**

The special conditions specified in the EC-Type Examination Certificate IBExU10ATEX1124 X keep their validity according the operating instructions..

This addition is only valid in combination with the EC-Type Examination Certificate IBExU10ATEX1124 X of 20 December 2010.

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Freiberg, 22 December 2014

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- Explosion protection -

By order



(Dr. Wagner)



- Seal -
(Identification No. 0637)

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[1] **2nd Addition to EC-TYPE EXAMINATION CERTIFICATE IBExU10ATEX1124 X**
according to Directive 94/9/EC, Annex III
- Translation -

[2] **Equipment:** **Piezoresistive Pressure Transmitter**
Series 23SYEi, 23YEi, 23YMEi, 25YEi, 26YEi and 26YMEi

[3] **Manufacturer:** KELLER AG für Druckmesstechnik

[4] **Address:** St. Gallerstrasse 119
8404 Winterthur
SWITZERLAND

[5] **Addition / Alteration**
The equipment mentioned in [2] can be manufactured in accordance with the altered documents.
Alternative conditions of use:

Type of transmitter	Temperature Class	Ambient temperature range	Max. input power P _i
3 wires 0 ... 10V	T4	-40 °C up to 40 °C	1.33 W
		-40 °C up to 65 °C	1.1 W
		-40 °C up to 100 °C	0.64 W
2 wires 4 ... 20mA	T6	-40 °C up to 65 °C	1.33 W

Characteristics of the tightly fixed cable:

L' Wire = 1.2 µH/m
C' Wire-Wire = 150 pF/m
C' Wire-Screen = 250 pF/m

Maximum values (OUT) of the
3 wires transmitter

U_o = 14.7 V; I_o = 149 mA
C_i = 528 nF; L_i = negligible

[6] **Test report**
The proof of the explosion protection of the addition to the pressure transmitter mentioned in [5] is documented in the Test Report IB-12-3-302 of 17 May 2013. The test documents are part of the test report.

[7] **Test result**
IBExU certifies that the equipment mentioned in [2] and changed according to [5] has been found to comply with the Essential Health and Safety Requirements given in Annex II of Directive 94/9/EC by compliance with EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007, and EN 50303:2000.

The piezoresistive pressure transmitter fulfils the requirements of the type of protection intrinsic safety for an explosion-protected apparatus of group I, category M1 as well as group II, category 1G, explosion group IIC and temperature class T6 – T4 and for category 1D with a maximum surface temperature of 130 °C. The marking of the equipment is unchanged.

[8] **Special conditions for safe use**
The special conditions specified in the EC-Type Examination Certificate IBExU10ATEX1124 X keep their validity.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU10ATEX1124 X of 20 December 2010 and its 1st Addition.

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Freiberg, 17 May 2013

Authorized for certifications
- Explosion protection -

By order

Wagner
(Dr. Wagner)



(Identification No. 0637)

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[1] **1st Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU10ATEX1124 X
according to Directive 94/9/EC, Annex III



- Translation -

[2] Equipment: **Piezoresistive Pressure Transmitters**
Series 23SYEi, 23YEi, 23YMEi, 25YEi, 26YEi and 26YMEi

[3] Manufacturer: KELLER AG für Druckmesstechnik

[4] Address: St. Gallerstrasse 119
8404 Winterthur
SWITZERLAND

[5] **Addition / Alteration**
The equipment mentioned under [2] can also be manufactured according to the altered documents.
The maximum input power P_i for T4 is enhanced in dependency of the ambient temperature

Temperature class	max. ambient temp. T_a	input power P_i
T4	40°C	1.33 W
	65°C	1.1 W
	100°C	0.64 W

The minimal ambient temperature is expanded to -40 °C.

[6] **Test report**
The proof of explosion protection of changed equipment mentioned under [5] is documented in the Test Report IB-11-3-246 dated 17 July 2012. The documentation is part of the Test Report.

[7] **Test result**
IBExU certifies that the equipment mentioned in [2] and changed according to [5] has been found to comply with the Essential Health and Safety Requirements given in Annex II of Directive 94/9/EC by compliance with EN 60079-0:2009, EN 60079-11:2012, EN 60079-26:2007 and EN 50303:2000.

The piezoresistive pressure transmitter fulfils the requirements of the type of protection intrinsic safety for explosion-protected apparatus of group I, category M1 as well as group II, category 1G, explosion group IIC and temperature class T6 – T4 respectively category 1D with a maximum surface temperature of 130 °C. The marking is unchanged.

[17] **Special conditions for safe use**
The special conditions included in the EC-Type Examination Certificate IBExU10ATEX1124 X remain valid and are extended:
- The minimal ambient temperature is -40 °C.
- For all types of cable sensors is additional safety and mounting information to take into account.

This addition is only valid in combination with the EC-Type Examination Certificate IBExU10ATEX1124 X of 20 December 2010.

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- Seal -
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Freiberg, 19 July 2012

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In case of dispute, the German text shall prevail.

[1] **EC-TYPE EXAMINATION CERTIFICATE**

according to Directive 94/9/EC, Annex III

(Translation)



[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, **Directive 94/9/EC**

[3] EC-Type Examination Certificate Number: **IBExU10ATEX1124 X**

[4] Equipment: **Piezoresistive Pressure Transmitters**
Series 23SYEi, 23YEi, 23YMEi, 25YEi, 26YEi and 26YMEi

[5] Manufacturer: KELLER AG für Druckmesstechnik

[6] Address: St. Gallerstrasse 119
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[7] The design of the equipment mentioned in [4] and any acceptable variations thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that the equipment mentioned in [4] has been found to comply with the essential health and safety requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The test results are recorded in the test report IB-10-3-286 of 17 December 2010.

[9] Compliance with the essential health and safety requirements has been assured by compliance with EN 60079-0:2009, EN 60079-11:2007, EN 60079-26:2007, EN 61241-11:2006 and EN 50303:2000.

[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 [17] in the schedule to this certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned in [4] shall include the following:

I M1 Ex ia I

II 1G Ex ia IIC T6 – T4

II 1D Ex ia IIC T 130 °C

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Authorised for certifications
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(Dr. Wagner)



- Seal -
(ID no. 0637)

Freiberg, 20 December 2010

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Schedule

[13] **Schedule**

[14] **to the EC-Type Examination Certificate IBExU10ATEX1124 X**

[15] **Description of equipment**

The piezoresistive pressure transmitter is used for the measuring of absolute, relative and differential pressures in explosive atmospheres. The process pressure is converted into a proportional voltage signal resp. electrical signal. The pressure transmitter consists of a metallic enclosure with the process connections or without thread in the design level probe. The electrical connection is carried out by means of a plug respectively with an integrated connecting cable.

Ambient and media temperature range:

for temperature class T6	from -20 °C to +65 °C
for temperature class T5	from -20 °C to +80 °C
for T4, group I and dusts	from -20 °C to +100 °C

Degree of protection of the enclosure: IP 68 (design with cable)
IP 65 (design with plug)

<u>Supply and signal circuit</u> (2- resp. 3-conductor)	in type of protection intrinsic safety
	U_i 30 V
	I_i 200 mA
	P_i 640 mW
Effective internal capacitance	C_i 2 nF
Effective internal inductance	L_i negligible

In addition to the above-mentioned values L' and C' of the tightly installed connecting cable have to be taken into account.

L'	= 0,64 μ H/m
C' wire-wire	= 125 pF/m
C' wire-shield	= 215 pF/m

[16] **Test report**

The proof of the explosion protection is explained in detail in the test report IB-10-3-286. The test documents are part of the test report and are listed there.

Summary of the test results:

The piezoresistive pressure transmitter fulfils the requirements of the type of protection intrinsic safety on an explosion-protected apparatus of group I, category M1 as well as group II, category 1G, explosion group IIC and temperature class T6 – T4 respectively category 1D with a maximum surface temperature of 130 °C.

[17] **Special conditions for safe use**

- The ambient and medium temperature range varies according to the operating conditions and is specified in the above list.
- The permissible operating pressures are specified in the manufacturer's documents.
- Piezoresistive pressure transmitters of the series 25YEi may only be exposed to the pressure measuring of a process medium which does not contain any explosive gas/air-mixture unless the metal separating membrane is effectively protected against a mechanical damage.
- The electric strength of the metallic enclosure is $\leq 320 V_{SS}$.
- The safety and installation instructions in the operating manual have to be taken into account.

[18] **Essential health and safety requirements**

Confirmed by compliance with standards (see [9]).

By order

Freiberg, 20 December 2010



(Dr. Wagner)