



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 01 ATEX 0051

(4) Equipment: **Isolation amplifier SINEAX TV 809 types 809-33... , 809-93... , 809-34... and 809-94...**

(5) Manufacturer: **Camille Bauer AG**

(6) Address: **Aargauerstrasse 7, CH-5610 Wohlen**

(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 035001972.

(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 (1) G D [EEx ia] IIC

Zertifizierungsstelle **ZELM Ex**

Braunschweig, March 01, 2001

Adolf Gruber

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



SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE ZELM 01 ATEX 0051**

(15) Description of equipment

The isolation amplifier is used for the electrical isolation and transducing of the input quantity into a normalized output signal. Direct current – and direct voltage signals are detected as measured quantities.

The adaptation to different measurement variables occurs by software via the serial interface by an IBM AT or compatible computer. The electric connection of the computer at the programming socket on the front panel of the device occurs via a specific programming adaptor PRKAB 600 with a separate EC-type-examination certificate.

The points in the type designation characterize variants which have no influence on the explosion protection of the devices.

The maximum ambient temperature range conducts: -40 °C to +55 °C

Electrical data

Power supply
(screw terminals
10 and 11)

Type 809-33... and type 809-93...

direct voltage 24 V – 60 V -15 % / +33 % ($U_m = 125$ V)
or
alternating voltage 24 V – 60 V ±15 % ($U_m = 253$ V)
resp.

Type 809-34... and type 809-94...

direct voltage 85 V – 110 V -15 % / +10 % ($U_m = 125$ V)
or
alternating voltage 85 V – 230 V ±10 % ($U_m = 253$ V)

measuring input
(screw terminals
1, 2, 3, 4)

type of protection Intrinsic Safety EEx ia IIC/IIB
maximum values:

$$U_o = 7,1 \text{ V}$$
$$I_o = 0,5 \text{ mA}$$
$$P_o = 0,9 \text{ mW}$$

(linear output characteristic)

	IIC	IIB
max. permissible external capacitance C_o	14,6 μ F	268 μ F
max. permissible external inductance L_o	1 H	1 H

The following maximum values are also valid if capacitance and inductance are effective at the same time:

	IIC	IIB
max. permissible external capacitance C_o	1,1 μ F	4,4 μ F
max. permissible external inductance L_o	7,6 mH	25 mH



SCHEDULE TO EC-TYPE-EXAMINATION CERTIFIKATE ZELM 01 ATEX 0051

resp.

only for connection to certified intrinsically safe circuits with the following maximum value:

$$U_i = 30 \text{ V}$$

effective internal capacitance and effective internal inductance are negligibly small.

The following table shows the assignment of the maximum permissible external inductance (L_o) and capacitance (C_o) to the maximum voltage (U_i) and maximum current (I_i) for connection to a certified intrinsically safe active circuit with **linear (resistive) current limiting**:

U_i [V]	I_i [mA]	explosion group			
		IIC		IIB	
		L_o [mH]	C_o [nF]	L_o [mH]	C_o [nF]
10	110	3	367	12	2150
13	110	3	217	12	1390
19	110	3	98	12	760
24	110	3	60	12	510
30	110	3	38	12	350

The following maximum values are also valid if capacitance and inductance are effective at the same time:

U_i [V]	I_i [mA]	explosion group			
		IIC		IIB	
		L_o [mH]	C_o [nF]	L_o [mH]	C_o [nF]
10	110	2	280	5	1300
13	110	2	190	5	900
19	110	1	87	5	440
24	110	0,5	60	2	290
30	110	0,5	38	2	225

The following table shows the assignment of the maximum permissible external inductance (L_o) and capacitance (C_o) to the maximum voltage (U_i) and maximum current (I_i) for the connection to a certified intrinsically safe active circuit with **electronic current limiting**:

U_i [V]	I_i [mA]	type of protection	
		EEx ib IIC	
		L_o [mH]	C_o [nF]
10	90	2	280
13	77	1	170
19	40	0,5	95
24	27	0,5	74
30	18	0,5	50



Anlage zur EG-Baumusterprüfbescheinigung ZELM 01 ATEX 0051

resp.

U _i [V]	I _i [mA]	type of protection	
		EEx ib IIB	
		L _o [mH]	C _o [nF]
10	130	5	1000
13	100	5	900
19	77	2	450
24	52	2	290
30	39	1	225

Output circuit
(screw terminals
7 and 8)

Nominal voltage $\leq 120V$
Only for the connection to devices with operating voltages less than
253 V

Programming circuit

only for a short-time connection of a standard personal computer via
the programming adaptor PRKAB 600 with the EC-type-examination
Certificate PTB 97 ATEX 2082 U to the programming connector.

Contact circuit
(screw terminals
9 and 12)

switching contacts
alternating voltage up to 250 V, up to 5 A
direct voltage up to 30 V, up to 5 A
maximum voltage $U_M = 253 V$

The measuring input and the programming circuit are safely electrically isolated from the output circuit, from the power supply and from the contact circuit up to a peak value of the nominal voltage of 375 V.

(16) Report No.

ZELM Ex 035001972

(17) Special conditions for safe use

not applicable

(18) Essential Health and Safety Requirements

met by standards

Zertifizierungsstelle ZELM Ex

Braunschweig, March 01, 2001

Adolf Gruber

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1. Supplement

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

ZELM ex

to EC-type-examination Certificate

ZELM 01 ATEX 0051

Equipment: **Isolation amplifier SINEAX TV 809**
Type: **33**, 93**, 34**, 94****

Manufacturer: **Camille Bauer AG**

Address: **Aargauerstrasse 7, CH-5610 Wohlen**

Description of supplement

The 1st supplement concerns the examination of the equipment on compliance with the actual standards EN 60079-0, EN 60079-11, EN 60079-26, usage of an alternative marking material and substitution of the optical separative element. Other changes were not made.

The type of explosion protection, all electrical and other technical values of EC-type-examination Certificate ZELM 01 ATEX 0051 remain unchanged and are valid for this 1st Supplement.

Accordance of this apparatus with actual standards has been confirmed and the marking has been updated accordingly.

The marking of the device changes as follows:



II (1) G [Ex ia Ga] IIC

II (1) D [Ex ia Da] IIIC

Report No.

ZELM Ex 0091128852

Essential Health and Safety Requirements

The essential health and safety requirements are still fulfilled by compliance with the following Standards:

EN 60079-0:2009

EN 60079-11:2012

EN 60079-26:2007

Braunschweig, 2012-07-13

ZELM ex

**Zertifizierungs-
stelle**

Zertifizierungsstelle ZELM EX
Dipl.-Ing. Harald Zelm

ZELM ex

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ZELM ex
Prüf- und Zertifizierungsstelle
Siekgraben 56 · D-38124 Braunschweig