



AC 038



KDB ATEX



Central Mining Institute  
Certification Body  
Product Certification Team  
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This certificate and its  
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# [1] EC-TYPE EXAMINATION CERTIFICATE



[2] Equipment, protective systems and components intended for use in  
potentially explosive atmospheres - Directive 94/9/EC

[3] EC - type examination certificate:

**KDB 05ATEX082**

[4] Equipment or protective system:

**Repeater power supply ZS-30EEx, ZS-31EEx.**

[5] Manufacturer:

**APLISENS-Manufacture of Pressure Transmitters  
And Control Instruments**

[6] Address:

**ul. Morelowa 7, 03-192 Warszawa**

[7] This equipment and any acceptable variation thereto is specified in the schedule to this  
certificate and the documents therein referred to.

[8] Central Mining Institute, Notified Body number 1453 in accordance with Article 9 of  
Directive 94/9/EC of 23 March 1994, certifies that this equipment and protective system 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 confidential report number  
KDB No. 05.074 [T-5399]


[9] Compliance with the Essential Health and Safety Requirements has been assured by  
compliance with:

EN 50014:1997+A1:1999+A2:1999, EN 50020:2002.

[10] If the sign „X“ is placed after the certificate number, it indicates that the equipment or  
protective system 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 and protective system in accordance with Directive 94/9/EC.  
Further requirements of the Directive may apply to the manufacturing process and supply of  
this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

 I (M1) [EEx ia] I  
II (1) G [EEx ia] IIC

Date of issue: 1.06.2005

Page 1 of 6

Date of English version: 5.06.2006

K I E R O W N I K  
Zespołu Certyfikacji Wyrobów  
KD „BARBARA” Mikołów

doc. dr.hab.inż. Krzysztof Cybulski



GŁÓWNY INSTYTUT GÓRNICWA  
K I E R O W N I K  
Jednostka Certyfikująca

dr inż. Dariusz Stefaniak



[13]

## SCHEDULE

[14] **EC-Type Examination Certificate KDB 05ATEX082**

[15] **Description:**

Repeaters power supplies ZS-30EEx, ZS-31EEx are used for the intrinsically safe supply of 2-wire, 4...20mA transmitters located in a hazardous area (location), and convert the current into current/voltage in another circuit to drive safe area load. They are installed outside hazardous areas.

The electronic equipment is placed in a plastic (polyamide) casing manufactured by Phoenix (IP20 ingress protection). The ZS-30EEx and ZS-31EEx are produced in rail mounted version.

### Technical data

Supply voltage	ZS-30EEx: rated 24VDC (21÷28VDC), ZS-31EEx: 230VAC±10%
Ambient temperature	-25 °C...60 °C
Input signal	intrinsically safe 4...20mA
Output signal - version	
01	4...20mA,
02	0...20mA,
03	0...5mA,
04	0...10V,
05	0...5V,
06	1...5V,
07	2...10V
Ingress protection	IP20
Accuracy max.	0.1%
nonlinearity	±0,05%
time constant	50 ms typically; 0.1 ... 1s on request
location	outside hazardous zone
Value of DC intrinsically safe output voltage	16V, 18V, 20V, 22V, or 24V
Intrinsic safety parameters	
ZS-30EEx: ZS-31EEx:	<u>Terminals: P+ P-</u> Li=0,66mH, Ci=30nF, Lo=2,2mH, Io=0,015A Uo = 16,8V, Po = 0,43W, Co = 0,36µF Uo = 18,9V, Po = 0,60W, Co = 0,23µF Uo = 21V, Po = 0,60W, Co = 0,155µF Uo = 23,1V, Po = 0,60W, Co = 0,11µF Uo = 25,2V, Po = 0,66W, Co = 0,077µF
ZS-30EEx: ZS-31EEx:	<u>Terminals: V+ V-, LN</u> Terminals: Um=230V





[13]

## SCHEDULE

[14] **EC-Type Examination Certificate KDB 05ATEX082**

[16] **Test report:**

Report No. KDB Nr 05.074

[17] **Special condition for safe use:**

- none

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

Met by compliance with standards listed in section 9. of this Certificate.

[19] **Descriptive documents:**

**Technical Documentation of ZS-30EEx and ZS-31EEx marked DT, ZS-30.31EEx01/ March 2005.**

Technical description	1, 2	ZS30EEx-A000-01
Rating plate	1	ZS30EEx-C001-TA
Front plate	1	ZS30EEx-C002-00
Terminal plates	1	ZS30EEx-C003-TA
ZS-30EEx repeater power supply. Scheme. Input circuit diagram. No ZS30EEx-B001-TA	1	ZS30EEx-S001-TA
ZS-30EEx repeater power supply. Scheme. Output circuit diagram. No. ZS30EEx-B002-TA for 4...20mA, 0...20mA, 0...5mA current outputs	2	
ZS-30EEx repeater power supply. Scheme. Output circuit diagram. No ZS30EEx-B002-TA for 0...10V, 0...5V, 1...5V, 2...10V voltage outputs	2A	
ZS-30EEx repeater power supply. Scheme. BA barrier diagram No ZS30EEx-B003-00”	3	
ZS-30EEx, ZS-31EEx repeater power supply. Scheme. BEx barrier diagram	4	
ZS-30EEx repeater power supply. Electronics boards lay-out. ZS-30EEx Plate lay-out	1	ZS30EEx-A001-TA



[13]

## SCHEDULE

[14] EC-Type Examination Certificate KDB 05ATEX082

[19] Descriptive documents: continued

Input circuit board unit. Reeved elements side view.	1	ZS30EEx-B001-TA
Input circuit board unit. ZS30EEx-WE print and SMD elements view.	2	
Input circuit board unit. Specification.	3	
Output circuit board unit. Reeved elements side view.	1	ZS30EEx-B002-TA
Output circuit board unit. ZS30EEx-WY print and SMD elements view.	2	
Output circuit board unit. Version sheet.	3	
Output circuit board unit. Specification. version 01 (output 4...20mA), version 02 (output 0...20mA), version 03 (output 0...5mA)	4, 5	
Output circuit board unit. Specification. version 04 (output 0...10V), version 05 (output 0...5 V) version 06 (output 1...5V), version 07 (output 2...10 V)	6, 7	
Replacements	1	ZS30EEx-C020-00
BEx complete barrier.	1	ZS30EEx-B005-00
BEx barrier.	1	ZS30EEx-B006-00
Printed circuit. BEx barrier	1	ZS30EEx-C012-00
BA complete barrier	1	ZS30EEx-B003-00
BA barrier	1,2	ZS30EEx-B004-00
BA barrier- printed circuit	1	ZS30EEx-C004-00
Complete transformer	1	ZS30EEx-B010-00
Transformer – unit	1	ZS30EEx-B011-00
Transformer- printed circuit	1	ZS30EEx-C011-00
Winding + core unit	1	ZS30EEx-B012-00
Winding	1	ZS30EEx-B013-00
Winding casing	1	ZS30EEx-C005-00
Intrinsic safety standards compliance analysis of repeater power supply ZS-30EEx + Enclosure 1,2 and 3.	1...6 1+1+1	AN.ZS-30EEx.02
Technical description	1, 2	ZS31EEx-A000-01
Rating plate	1	ZS31EEx-C001-TA





[13]

## SCHEDULE

[14] EC-Type Examination Certificate KDB 05ATEX082

[19] Descriptive documents: continued

Front plate	1	ZS31EEEx-C002-00
Terminal plate	1	ZS31EEEx-C003-TA
ZS-31EEEx repeater power supply. Scheme. Input circuit diagram No ZS31EEEx-B001-TA	1	ZS31EEEx-S001-TA
ZS-31EEEx repeater power supply. Scheme. Output circuit diagram No. ZS31EEEx-B002-TA for 4...20mA, 0...20mA, 0...5mA current outputs.	2	
ZS-31EEEx repeater power supply. Scheme. Output circuit diagram No ZS31EEEx-B002-TA for 0...10V, 0...5V, 1...5V, 2...10V voltage outputs.	2A	
ZS-30EEEx, ZS-31EEEx repeater power supply. Scheme. BEx barrier diagram	4	
ZS-31EEEx. repeater power supply. Electronics boards lay-out.	1	ZS31EEEx-A001-TA
ZS-31EEEx. Plate lay-out	2	
Input circuit board unit Reeved elements side plate view	1	ZS31EEEx-B001-TA
Input circuit board unit ZS31EEEx-WY print and SMD elements view.	2	
Input circuit board unit. Specification.	3	
Output circuit board unit Reeved elements side plate view.	1	ZS31EEEx-B002-TA
Output circuit board unit ZS31EEEx-WY print and SMD elements view.	2	
Output circuit board unit. Version sheet.	3	
Output circuit board unit. Specification Version 01 (output 4...20mA)	4	
Output circuit board unit. Specification. Version 02 (output 0...20mA), version 03 (output 0...5mA)	5	
Output circuit board unit. Specification Version 04 (output 0...10V), version 05 (output 0...5 V)	6	
Output circuit board unit. Specification Version 06 (output 1...5V), version 07 (output 2...10 V)	7	



[13]

## SCHEDULE

[14] **EC-Type Examination Certificate KDB 05ATEX082**

[19] **Descriptive documents: continued**

TS1 complete transformer	1	ZS31EEx-B110-00
Transformer unit	1	ZS31EEx-B111-00
Winding unit	1	ZS31EEx-B012-00
Winding casing	1	ZS31EEx-C005-00
TS1 transformer - printed circuit	1	ZS31EEx-C004-00
TS2 complete transformer	1	ZS31EEx-B120-00
TS2 transformer unit	1	ZS31EEx-B121-00
TS2 winding unit	1	ZS31EEx-B013-00
TS2 winding casing	1	ZS31EEx-C006-00
TS2 transformer - printed circuit	1	ZS31EEx-C007-00
Intrinsic safety standards compliance analysis of repeater power supply ZS-31EEx + Enclosure 1.	1...6 1	AN.ZS-31EEx.01





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



[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Supplementary EC-Type Examination Certificate:

**KDB 05ATEX082/1**

[4] Equipment and protective system:

Repeater power supply ZS-30EEx, ZS-31EEx

[5] Manufacturer:

APLISENS-Manufacture of Pressure Transmitters  
And Control Instruments

[6] Address:

ul. Morelowa 7, 03-192 Warszawa

[7] This supplementary certificate extends EC-Type Examination Certificate No. KDB 05ATEX082 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

The examination and test results are recorded in confidential report number KDB No. 05.074/1 [T-5399]

[8] Marking:



I (M1) [EExia] I  
II(1)G [EExia] IIC

Date of issue: 25.05.2006

Page 1 of 3

Date of English version: 7.08.2006

KIEROWNIK  
Zespołu Certyfikacji Wytrobów  
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GŁÓWNY INSTYTUT GÓRNICICTWA  
KIEROWNIK  
Jednostki Certyfikującej  
dr inż. Dariusz Stefaniak

[9]

## SCHEDULE

[10] **Supplementary EC-Type Examination Certificate KDB 05ATEX082/1**

[11] **Description of the variation to the equipment or protective system:**

The following changes have been made in the device:

- electrical connections;
- circuit board unit;
- value of elements: D2, R109, R106, R105, D101, R7, R8, R25, R26;
- the following elements have been added : D103, C28.

**Technical parameters and marking of the device have not been changed.**

[12] **Test report:**

Report no. KDB No. 05.074/1

[13] **Special condition for safe use:**

– none

[14] **Essential health and safety requirements:**

See original certificate KDB 05ATEX082.



[15] **Descriptive documents:**

N°	Drawing name	Sheet	Drawing number
1.	Technical documentation of repeater power supply type ZS-30EEx. List of documentation.	1A 2A	ZS30EEx-A000-00
2.	ZS-30EEx repeater power supply. Scheme. Input circuit diagram. No ZS30EEx-B001-TA	1A	ZS30EEx-S001-TA
	ZS-30EEx repeater power supply. Scheme. Output circuit diagram. No. ZS30EEx-B002-TA for 4...20mA, 0...20mA, 0...5mA current outputs	2B	
	ZS-30EEx repeater power supply. Scheme. Output circuit diagram. No ZS30EEx-B002-TA for 0...10V, 0...5V, 1...5V, 2...10V voltage outputs.	2C	
3.	ZS-30EEx repeater power supply. Electronics boards lay-out.	1A	ZS30EEx-A001-TA
	ZS-30EEx repeater power supply. Plate lay-out	2A	
	Casing of repeater power supply ZS30EEx	3	



[9]

## SCHEDULE

[10]

### Supplementary EC-Type Examination Certificate KDB 05ATEX082/1

4.	Input circuit board unit. Reeved elements side view.	1A	ZS30EEx-B001-TA
	Input circuit board unit. ZS30EEx-WE print and SMD elements view.	2A	
	Input circuit board unit. Specification.	3A	
5.	Output circuit board unit. Reeved elements side view.	1A	ZS30EEx-B002-TA
	Output circuit board unit. ZS30EEx-WY print and SMD elements view.	2A	
	Output circuit board unit. Specification. version 01 (output 4...20mA), version 02 (output 0...20mA), version 03 (output 0...5mA)	4A 5A	
	Output circuit board unit. Specification. version 04 (output 0...10V), version 05 (output 0...5 V) version 06 (output 1...5V), version 07 (output 2...10 V)	6A 7A	
6.	Supplement (analysis AN.ZS-30EEx.01 section 8.8)	1	AN.ZS-30.31EEx.01
7.	Technical documentation of repeater power supply type ZS-31EEx. List of documentation.	1A	ZS31EEx-A000-00
		2A	
8.	ZS-31EEx repeater power supply. Scheme. Input circuit diagram No ZS31EEx-B001-TA	1A	ZS31EEx-S001-TA
9.	Input circuit board unit Reeved elements side plate view	1A	ZS31EEx-B001-TA
	Input circuit board unit ZS31EEx-WY print and SMD elements view.	2A	
	Input circuit board unit. Specification.	3A	
10.	Output circuit board unit. Specification Version 01 (output 4...20mA)	4A	ZS31EEx-B002-TA
	Output circuit board unit. Specification. Version 02 (output 0...20mA), version 03 (output 0...5mA)	5A	
	Output circuit board unit. Specification Version 04 (output 0...10V), version 05 (output 0...5 V)	6A	
	Output circuit board unit. Specification Version 06 (output 1...5V), version 07 (output 2...10 V)	7A	
11.	Supplement (analysis AN.ZS-31EEx.01 section 8.8)	1	AN.ZS-30.31EEx.01
12.	Sheet of changes n° 1	1	ZS30EEx-A000-02
		2	





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Jednostka Certyfikująca  
Zespół Certyfikacji WYROBÓW  
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[1] **SUPPLEMENT No 2**  
**to EC-TYPE EXAMINATION CERTIFICATE**  
**KDB 05ATEX082**

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Equipment and protective system:

**Repeater power supply ZS-30EE<sub>x</sub>, ZS-31EE<sub>x</sub>**

[4] Manufacturer:

**Aplisens - Produkcja**

**Przetworników Ciśnienia i Aparatury Pomiarowej Sp.z.o.o**

[5] Address:

**ul. Morelowa 7, 03-192 Warszawa**

[6] Changes were introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report  
KDB No. 05.074/2 [T-5399]

[7] Marking:



**I (M1) [EE<sub>x</sub>ia]I**

**II (1) G [EE<sub>x</sub>ia]IIC**

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997 (PN-EN 50014:2004)

EN 50020:2002 (PN-EN 50020:2005)

[9] The marking will not change

Specjalista ds. Certyfikacji  
Urządzeń Przemysłowych

dr inż. Michał Górny



KIEROWNIK  
Zespołu Certyfikacji WYROBÓW  
KD "BARBARA" Mikołów

dr hab. inż. Krzysztof Cybulski, prof. GIG

Date of issue: 7.02.2007

Date of English version: 10.05.2013

Page 1 of 4

[10]

## SCHEDULE

[11]

**Supplement no 2 to EC-Type Examination Certificate KDB 05ATEX082**

[12] **Description of the variation to the equipment or protective system:**

For limiting an intrinsically safe outputs parameters were changed values of resistors R301 and R302 and additionally was introduced resistor R101C.

**Technical parameters:**

ZS-30Ex ZS-31Ex	Terminals: P+ P- $I_o=0,092A$ , $L_i=0,66mH$ , $C_i=30 nF$ , $L_o = 2,2mH$ ; $U_o = 16,8V$ , $P_o = 0,43W$ , $C_o = 0,36\mu F$ ; $U_o = 18,9V$ , $P_o = 0,43W$ , $C_o = 0,23\mu F$ ; $U_o = 21,0V$ , $P_o = 0,52W$ , $C_o = 0,155\mu F$ ; $U_o = 23,1V$ , $P_o = 0,52W$ , $C_o = 0,11\mu F$ ; $U_o = 25,2V$ , $P_o = 0,57W$ , $C_o = 0,077\mu F$ ; Linear output characteristic. Other parameters are not changed.
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After entering the above-mentioned changes the type of device changes to: ZS30-EEx to ZS30-EEx1, ZS-31EEx to ZS-31EEx1.

[13] **Special conditions for safe use:**

- Not changed



[14]

## SCHEDULE

[15]

**Supplement no 2 to EC-Type Examination Certificate KDB 05ATEX082**

[16] **Test report:**

Report No. KDB Nr 05.074/2 [T-5399]

[17] **Special condition for safe use:**

- Not changed

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

Met by compliance with standards listed in section 8 of this Certificate.

[19] **Descriptive documents:**

Drawing name	Sheet No.	Drawing No.
Dokumentacja Techniczna zasilaczy-separatorów typ ZS-30EEx. Wykaz rysunków konstrukcyjnych.	1B, 2B	ZS30EEx-A000-00
Zasilacz-separator ZS-30EEx. Schemat. Schemat płytki układu wejściowego nr rys. ZS30EEx-B001-TA	1B	ZS30EEx-S001-TA
Zespół płytki układu wejściowego. Widok płytki od strony elementów przewlekanych.	1B	ZS30EEx-B001-TA
Zespół płytki układu wejściowego. Specyfikacja.	3B	
Bariera kompletna „BEx”.	1	ZS30EEx-B005-TA
Bariera BEx.	1	ZS30EEx-B006-TA
Karta zmian nr 2	1	ZS30EEx-A000-02
Dokumentacja Techniczna zasilaczy-separatorów typ ZS-31EEx. Wykaz rysunków konstrukcyjnych.	1B, 2B	ZS31EEx-A000-00
Zasilacz-separator ZS-31EEx. Schemat. Schemat płytki układu wejściowego nr rys. ZS31EEx-B001-TA	1B	ZS31EEx-S001-TA

[14]

## SCHEDULE

[15]

### Supplement no 2 to EC-Type Examination Certificate KDB 05ATEX082

Zasilacz-separator ZS-31EEx. Rozmieszczenie zespołów płytek	1A	ZS31EEx- A001-00
Zasilacz-separator ZS-31EEx. Rozmieszczenie tabliczek	2A	
Owiercenie obudowy zasilaczy-separatorów ZS31EEx	3	ZS30EEx- B001-TA
Zespół płytki układu wejściowego. Widok płytki od strony elementów przewlekanych.	1B	ZS31EEx- B001-TA
Zespół płytki układu wejściowego. Specyfikacja.	3B	
Bariera kompletna „BEx”.	1	ZS30EEx- B005-TA
Bariera „BEx”.	1	ZS30EEx- B006-TA





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**SUPPLEMENT No 3**  
**to EC-TYPE EXAMINATION CERTIFICATE**  
**KDB 05ATEX082**

[1] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[2] Equipment and protective system:  
**Repeater power supply ZS-30EEx, ZS-31EEx**


[3] Manufacturer:  
**APLISENS S. A. - Produkcja**  
Przemysłowej Aparatury Pomiarowej i Elementów Automatyki

[4] Address:  
**ul. Morelowa 7, 03-192 Warszawa**


[5] Changes were introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB No. 09.194 [T-5399]

[6] Marking:  
 **I (M1) [EExia] I**  
**II (1) G [EExia] IIC**

[7] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
EN 60079-0:2006; (PN-EN 60079-0:2009);  
EN 60079-11:2007; (PN-EN 60079-11:2007);

[8] The marking will change to:  
 **I (M1) [Ex ia] I**  
**II (1) G [Ex ia] IIC**

SPECJALISTA ds. CERTYFIKACJI  
URZĄDZEN PRZECIWWYBUCHOWYCH

  
mgr inż. Wojciech Kwiatkowski



  
**KIEROWNIK**  
Zespół Certyfikacji Wyrobów  
KD „BARBARA” Mikołów  
doc. dr hab. inż. Krzysztof Cybulski

Date of issue: 22.01.2010  
Date of English version: 2.03.2010

[10]

## SCHEDULE

[11]

**Supplement no 3 to EC-Type Examination Certificate KDB 05ATEX082**

[12] **Description of the variation to the equipment or protective system:**

Was examined compliance of equipment with standards:

- EN 60079-0:2006; (PN-EN 60079-0:2009);
- EN 60079-11:2007; (PN-EN 60079-11:2007).

Introduced changes:

- mains transformer,
- tracks on printed circuit board,
- voltage limiter BEx,
- intrinsically safe parameters of equipment.

**Technical parameters of the device have been changed to following:**

Ambient temperature : $-25\text{ }^{\circ}\text{C} \div 55\text{ }^{\circ}\text{C}$ or $+5\text{ }^{\circ}\text{C} \div 55\text{ }^{\circ}\text{C}$ ;	
ZS-30Ex , ZS-31Ex	Terminals: P+ P- $I_o=100\text{ mA}$ , $L_o = 2,2\text{ mH}$ ; linear output characteristic.
version 1 (25V)	$U_o = 25,5\text{ V}$ , $P_o = 0,63\text{ W}$ , $C_o = 0,09\text{ }\mu\text{F}$ ;
version 2 (22V)	$U_o = 23,1\text{ V}$ , $P_o = 0,56\text{ W}$ , $C_o = 0,13$ ;
version 3 (20V)	$U_o = 21,0\text{ V}$ , $P_o = 0,5\text{ W}$ ; $C_o = 0,175\text{ }\mu\text{F}$ ;
version 4 (18V)	$U_o = 18,4\text{ V}$ , $P_o = 0,41\text{ W}$ , $C_o = 0,270\text{ }\mu\text{F}$ ;
version 5 (15V)	$U_o = 15,75\text{ V}$ , $P_o = 0,4\text{ W}$ , $C_o = 0,450\text{ }\mu\text{F}$ ;

Note: The above load parameters apply where:

1. The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values or
2. The inductance and capacitance are distributed as in a cable or
3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance or lumped capacitance, up to 50% of each of the L and C values is allowed.

Marking of the device have been changed to ZS-30Ex1, ZS-31Ex1.

[13] **Special conditions for safe use:** not changed





GIG



AC 038



KDB ATEX



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This certificate and its  
schedules may only be  
reproduced in its entirety and  
without change



[1] **SUPPLEMENT No 4**  
**to EC-TYPE EXAMINATION CERTIFICATE**  
**KDB 05ATEX082**

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Equipment and protective system:  
**Repeater power supply ZS-30Ex1, ZS-31Ex1**


[4] Manufacturer:  
**APLISENS S. A. - Produkcja**  
Przemysłowej Aparatury Pomiarowej i Elementów Automatyki

[5] Address:  
**ul. Morelowa 7, 03-192 Warszawa**

[6] Changes were introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.


The examination and test results are recorded in confidential report  
KDB No. 09.194-1 [T-5399]

[7] Marking:  
 **I (M1) [Ex ia] I**  
**II (1)G [Ex ia] IIC**

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009; (PN-EN 60079-0:2009);

EN 60079-11:2012; (PN-EN 60079-11:2012);

[9] The marking will change to:  
 **I (M1) [Ex ia Ma] I**  
**II (1)G [Ex ia Ga] IIC**

Specjalista ds. Certyfikacji  
Urządzeń Przeciwwybuchowych

dr inż. Michał Górny



KIEROWNIK  
Zespołu Certyfikacji WYROBÓW  
KD "BARBARA" Mikołów  
dr hab. inż. Krzysztof Cybulski, prof. GIG

Date of issue: 30.01.2013

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[10]

## SCHEDULE

[11]

**Supplement no 4 to EC-Type Examination Certificate KDB 05ATEX082**

[12] **Description of the variation to the equipment or protective system:**

The device has been adapted by manufacturer to the standards:

- EN 60079-0:2009; (PN-EN 60079-0:2009);
- EN 60079-11:2012; (PN-EN 60079-11:2012).

The type of device has been changed to: ZS-30EEx1 to ZS-30Ex1, ZS-31EEx1 to ZS-31Ex1.

As the results of the performed analyses, it is concluded that Repeater power supply ZS-30Ex1, ZS-31Ex1 comply with EN 60079-0:2009 and EN 60079-11:2012 requirements.

Technical parameters have been changed to the following:

Ambient temperature: $-25\text{ °C} \div 55\text{ °C}$ or $+5\text{ °C} \div 55\text{ °C}$ ;	
ZS-30Ex, ZS-31Ex	<u>Terminals: P+ P-</u> $I_o=100\text{ mA}$ , $L_o = 2,2\text{ mH}$ ; linear output characteristic.
Version 1 (25V)	$U_o = 25,5\text{ V}$ , $P_o = 0,63\text{ W}$ , $C_o = 0,09\text{ }\mu\text{F}$ ;
Version 2 (22V)	$U_o = 23,1\text{ V}$ , $P_o = 0,56\text{ W}$ , $C_o = 0,13\text{ }\mu\text{F}$ ;
version 3 (20V)	$U_o = 21,0\text{ V}$ , $P_o = 0,5\text{ W}$ ; $C_o = 0,175\text{ }\mu\text{F}$ ;
version 4 (18V)	$U_o = 18,4\text{ V}$ , $P_o = 0,41\text{ W}$ , $C_o = 0,270\text{ }\mu\text{F}$ ;
version 5 (15V)	$U_o = 15,75\text{ V}$ , $P_o = 0,4\text{ W}$ , $C_o = 0,450\text{ }\mu\text{F}$ ;

Note: The above load parameters apply where:

1. The external circuit contains no combined lumped inductance  $L_i$  and lumped capacitance  $C_i$  greater than 1% of the above values or
2. The inductance and capacitance are distributed as in a cable or
3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations up to 50% of each of the L and C values is allowed, but no more than  $C_o=1\text{ }\mu\text{F}$  for gas groups I, IIA, IIB and 600 nF for group IIC.

[13] **Special conditions for safe use:**

-not changed