



AC 038



KDB ATEX



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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

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Date of English version: 5.06.2006

KIEROWNIK  
Zespołu Certyfikacji Wytobów  
KD "BARBARA" Mikołów

*doc. dr hab. inż. Krzysztof Cybulski*



GŁÓWNY INSTYTUT GÓRNICICTWA  
KIEROWNIK  
Jednostki Certyfikującej

*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:	Terminals: P+ P- 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:	Terminals: V+ V-, LN Terminals: Um=230V





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## 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





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**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





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## 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	ZS30EEEx-S001-TA
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	





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## SCHEDULE

[14] EC-Type Examination Certificate KDB 05ATEX082

[19] Descriptive documents: continued

TS1 complete transformer	1	ZS31EEEx-B110-00
Transformer unit	1	ZS31EEEx-B111-00
Winding unit	1	ZS31EEEx-B012-00
Winding casing	1	ZS31EEEx-C005-00
TS1 transformer - printed circuit	1	ZS31EEEx-C004-00
TS2 complete transformer	1	ZS31EEEx-B120-00
TS2 transformer unit	1	ZS31EEEx-B121-00
TS2 winding unit	1	ZS31EEEx-B013-00
TS2 winding casing	1	ZS31EEEx-C006-00
TS2 transformer - printed circuit	1	ZS31EEEx-C007-00
Intrinsic safety standards compliance analysis of repeater power supply ZS-31EEEx + Enclosure 1.	1...6 1	AN.ZS-31EEEx.01

