

Translation

EC-Type Examination Certificate

- (1) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (2) No. of EC-Type Examination Certificate: **BVS 11 ATEX E 090**
- (3) Equipment: **Evaluator type ANNOVEX GMA.***.*****
- (4) Manufacturer: **WOELKE Industrielektronik GmbH (Germany)**
- (5) Address: **45239 Essen, Germany**
- (6) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.
- (7) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council 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 test and assessment report BVS PP 11.1039 EG.
- (8) The Essential Health and Safety Requirements are assured by compliance with:
- EN 60079-0:2009 General requirements
EN 60079-11:2007 Intrinsic safety "i"
EN 50303:2000 Equipment Group I Category M1
- (9) 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 appendix to this certificate.
- (10) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment.
These are not covered by this certificate.
- (11) The marking of the equipment shall include the following:



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DEKRA EXAM GmbH
Bochum, dated 22.09.2011

Signed: Simanski

Certification body

Signed: Dr. Wittler

Special services unit

- (13) Appendix to
- (14) EC-Type Examination Certificate
BVS 11 ATEX E 090
- (15) 15.1 Subject and type

Evaluator type ANNOVEX GMA.**.**.***

First and second digit
Third and fourth digit
Fifth digit
Sixth digit
Seventh digit

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First and second digit: application
Evaluator

= 31

Third and fourth digit: type of sensor / principle of measurement
without sensor

= 00

Fifth digit: configuration and designation
Evaluator, receptacles and terminals

= 7

Sixth digit: signal output (measured value)
Analogue-output 5/6 -15 Hz
Analogue-output 0.1 - 1 mA
Analogue-output 0.2 - 1 mA
Analogue-output 4 - 20 mA
Analogue-output 0.4 - 2 V
Analogue-output 1 - 5 V
Digital-output

= 1
= 3
= 4
= 5
= 6
= 7
= 8

Seventh digit: signal-outputs of limit-value indicators (switch contact)
without limit-value indicator
4 Opto isolators
4 Relays (single pole double throw, providing diode)
4 Relays (single pole double throw, not providing diode)
2 Opto isolators, 2 relays

= 0
= 1
= 3
= 4
= 5

15.2 Description

The Evaluator type ANNOVEX GMA.**.**.*** - used as logger, interface and indicator of measured values – consist of a plastics enclosure (surface resistance $\leq 10^9 \Omega$) fitted with electronic assemblies mounted on a backplane printed circuit board.

Operating- and display-facilities, such as Reed-switches, LCD-display and LEDs, are installed below the enclosure cover fitted with an inspection glass.

The intrinsically safe circuits of the evaluator (power supply, current-, frequency- and alarm-outputs) are connected to a 33-pole terminal block located on the backplane PCB.
Application of the terminals - except for power supply - varies with reference to number and type of replaceable electronic assemblies, mounted on the backplane PCB.
Allocation of the terminals to individual installation of electronic assemblies is given by means of specified terminal numbers.

The side faces of the evaluator enclosure are fitted with cable entry glands for IS circuits (power supply, current-, frequency- and alarm-outputs) and multi-pole receptacles for interconnection of external IS measuring equipment.

15.3 Parameters

15.3.1 Supply circuit

Terminals no. X1 to X3 (+), X4 to X6 (GND)

Voltage	U_i	DC	16	V
Current	I_i		2	A
Rated voltage	U_N	DC	9 -16	V
Rated current	I_N	\leq	200	mA
Effective internal capacitance	C_i	\leq	110	nF
Effective internal inductance	L_i	\leq	5	μH

15.3.2 Connection facilities 1 to 3 for interconnection of external sensors / transmitters

Receptacle X111 (connection 1)

Receptacle X112 (connection 2)

Receptacle X110 (connection 3)

Supply pins: no. 3+4 (+), no. 1+2 (GND) of each receptacle

Voltage U_o , Current I_o , Power P_o , maximum external capacitance C_o , maximum external inductance L_o , maximum external inductance-resistance ratio L_o/R_o identical with U_o , I_o , P_o , C_o , L_o , L_o/R_o of IS power supply connected to terminals X1 to X6, reduced by:

Effective internal capacitance) ¹	C_i	\leq	110	nF
Effective internal inductance) ²	L_i	\leq	5	μH

Data-input /-output: pins no. 5+6 (output), no. 7+8 (input) of each receptacle

Voltage) ³	$U_o = U_i$	DC	16	V
Current (input + output)	I_o		32	mA
Power (input + output)	P_o		130	mW
Characteristics				linear
Effective internal capacitance	C_i			negligible
Effective internal inductance	L_i			negligible

Determination of I_o and P_o referring to data-input /-output waved, due to internal current limiting resistors 1 k Ω each:

L_o and C_o applying to the data-input /-output can only be specified in combination with the interconnected IS sensor.

)¹ identical with C_i referring to the supply circuit

)² applies to each connection in addition to L_i referring to the supply circuit

)³ identical with U_o of IS power supply connected to terminals X1 to X6

15.3.3 Frequency-signal outputs (Opto isolator outputs)

33-pole terminal block, terminal position 12 to 21, marking X312 to X321

Terminals X312 (+), X313 (-); output 1

Terminals X314 (+), X315 (-); output 2

Terminals X316 (+), X317 (-); output 3

Terminals X318 (+), X319 (-); output 4

Terminals X320 (+), X321 (-); output 5

Voltage	U_i	DC	30	V
Current	I_i		100	mA
Power	P_i		100	mW
Effective internal capacitance	C_i			negligible
Effective internal inductance	L_i			negligible

The frequency-signal outputs provide galvanic separation to each other and to all other evaluator circuits.

15.3.4	Current- or voltage signal output (alternate option with reference to 15.3.3) 33-pole terminal block, terminal position 12 to 21; marking X412 to X421 Terminals X412 (+), X413 (-); output 1 Terminals X414 (+), X415 (-); output 2 Terminals X416 (+), X417 (-); output 3 Terminals X418 (+), X419 (-); output 4 Terminals X420 (+), X421 (-); output 5	Voltage Current Internal resistance Power Characteristics Effective internal capacitance Effective internal inductance Maximum external capacitance Maximum external inductance Maximum external inductance-resistance ratio	U_o I_o I_o R_i P_o C_i L_i C_o L_o (L_o/R_o)	DC 9.56 V 233 mA 50 mA $\geq 41 \Omega$ $\leq 560 \text{ mW}$ linear 1.1 μF negligible $\leq 20 \mu\text{F}$ $\leq 8.6 \text{ mH}$ 820 $\mu\text{H}/\Omega$
15.3.5	Alarm-signal circuits providing relays 33-pole terminal block, terminal position 22 to 33; marking X522 to X533 Terminals X524 / X523 (contact: normal closed), X524 / X522 (contact: normal open); output 1 Terminals X527 / X526 (contact: normal closed), X527 / X525 (contact: normal open); output 2 Terminals X530 / X529 (contact: normal closed), X530 / X528 (contact: normal open); output 3 Terminals X533 / X532 (contact: normal closed), X533 / X531 (contact: normal open); output 4	Voltage Current Power Effective internal capacitance Effective internal inductance	U_i I_i P_i C_i L_i	DC 30 V 1 A 30 W negligible negligible
15.3.6	Alarm-signal circuits providing opto-isolators (alternate option with reference to 15.3.5) 33-pole terminal block, terminal position 22 to 33; marking X522 to X533 Terminals X522 (+), X524 (-); output 1 Terminals X525 (+), X527 (-); output 2 Terminals X528 (+), X530 (-); output 3 Terminals X531 (+), X533 (-); output 4	Voltage Current Power Effective internal capacitance Effective internal inductance	U_i I_i P_i C_i L_i	DC 30 V 100 mA 100 mW negligible negligible
15.3.7	Alarm-signal circuits providing two opto-isolators and two relays (alternate option with reference to 15.3.5 or 15.3.6 respectively) 33-pole terminal block, terminal position 22 to 33; marking X522 to X533 Terminals X522 (+), X524 (-); output 1 Terminals X528 (+), X530 (-); output 3	Voltage Current Power Effective internal capacitance Effective internal inductance	U_i I_i P_i C_i L_i	DC 30 V 100 mA 100 mW negligible negligible

Terminals X527 / X526 (contact: normal closed), X527 / X525 (contact: normal open); output 2
Terminals X533 / X532 (contact: normal closed), X533 / X531 (contact: normal open); output 4

Voltage	U_i	DC	30	V
Current	I_i		1	A
Power	P_i		30	W
Effective internal capacitance	C_i		negligible	
Effective internal inductance	L_i		negligible	

The alarm-signal circuits 15.3.5, 15.3.6, 15.3.7 provide galvanic separation to each other and to all other evaluator circuits

15.3.8 Ambient temperature range $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

(16) Test and assessment report

BVS PP 11.1039 EG as of 22.09.2011

(17) Special conditions for safe use

None

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 22.09.2011
BVS-Scha/Sch A 20110039


Certification body
Special services unit