



Translation

(1) **EC-Type Examination Certificate**

- (2) **- Directive 94/9/EC -**  
**Equipment and protective systems intended for use**  
**in potentially explosive atmospheres**

(3) **BVS 03 ATEX E 207 X**

(4) **Equipment:** Verstärker type V\*E\*\_\*\_\*\_\*\_\*

(5) **Manufacturer:** KEM Küppers Elektromechanik GmbH

(6) **Address:** D 85757 Karlsfeld

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of EXAM BBG Prüf- und Zertifizier 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 03.2202EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997+A1-A2 General requirements  
EN 50020:2002 Intrinsic safety 'i'

(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, 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

(12) The marking of the equipment shall include the following:

 **II 2G EEx ia IIC T5 / T6**

**EXAM BBG Prüf- und Zertifizier GmbH**

Bochum, dated 17. July 2003

Signed: Jockers

\_\_\_\_\_  
Certification body

Signed: Eickhoff

\_\_\_\_\_  
Special services unit

(13)

Appendix to

(14)

## EC-Type Examination Certificate

### BVS 03 ATEX E 207 X

(15) 15.1 Subject and type

Amplifier	Type V*E*-*-*-*		
		ST	= version with connector
		**	= version with terminals
		2*	= 2-wire application
		3A	= 3-wire application active
		3P	= 3-wire application passive
		EG	= version providing separate enclosure and inductor
		EK/L/R/S	= compact version
		VI	= amplifier inductive
		VT	= carrier frequency

#### 15.2 Description

The Amplifier Type V\*E\*-\*-\*-\* is an intrinsically safe supplied apparatus receiving r.p.m./ flow measuring signals of magnetic (Type VIE\*-\*-\*-\* ) or non magnetic (Type VTE\*-\*-\*-\* ) mechanical turbine-, spindle- or gear wheel flow meters without contacting the measuring medium and comprises a light alloy or stainless steel enclosure mountable to mechanical flow meters containing printed circuit boards with electronic components.

The intrinsically safe supply- and signal circuit in 2-wire or 3-wire configuration is connected to terminals or a plug.

Version VIEG-\*-\*-\* provides a remote signal pick-up inductor interconnected to the amplifier by means of a cable connected to a separate terminal block.

#### 15.3 Parameters

15.3.1 Supply and signal circuit; 3-wire active NPN, version V\*E\*-3A-\*  
 (supply: terminals 1, 2; signal output: terminals 2, 3)

15.3.1.1	Supply circuit			
	Voltage	$U_i$	DC	30 V
	Current	$I_i$		150 mA
	Power	$P_i$		250 mW *)
	Internal resistance	$R_i$		1200 $\Omega$
	Effective internal capacitance	$C_i$		negligible
	Effective internal inductance	$L_i$		negligible

\*) relevant for T6 application; not relevant for T5 / T4 / T3 application.

15.3.1.2	Signal output circuit				
	Voltage	$U_o$	DC	30	V
	Current	$I_o$		25	mA
	Internal resistance	$R_i$		1200	$\Omega$
	Effective internal capacitance	$C_i$			negligible
	Effective internal inductance	$L_i$			negligible
15.3.2	Supply and signal circuit; 3-wire passive, NPN open collector, version V*E*-3P-** (supply: terminals 1, 2; signal output: terminals 2, 3)				
15.3.2.1	Supply circuit				
	Voltage	$U_i$	DC	30	V
	Current	$I_i$		150	mA
	Power	$P_i$		250	mW *)
	Internal resistance	$R_i$		1200	$\Omega$
	Effective internal capacitance	$C_i$			negligible
	Effective internal inductance	$L_i$			negligible
	*) relevant for T6 application; not relevant for T5 / T4 / T3 application.				
15.3.2.2	Signal output circuit				
	Voltage	$U_i$	DC	30	V
	Current	$I_i$		500	mA
	Power	$P_i$		250	mW *)
	Internal resistance	$R_i$		1200	$\Omega$
	Effective internal capacitance	$C_i$			negligible
	Effective internal inductance	$L_i$			negligible
	*) relevant for T6 application; not relevant for T5 / T4 / T3 application.				
15.3.3	Supply and signal circuit; 2-wire NAMUR, version V*E*-2*-** (Supply and signal: terminals 1, 2; terminal 3: no connection)				
	Voltage	$U_i$	DC	30	V
	Current	$I_i$		150	mA
	Power	$P_i$		175	mW
	Effective internal capacitance	$C_i$		56,4	nF
	Effective internal inductance	$L_i$			negligible
15.3.4	Terminals for external signal pickup; version VIEG-**-** (terminals 5, 6)				
	Voltage	$U_o$	UC	0,8	V
	Current	$I_o$		2	mA
	Power	$P_o$		1,6	mW
	Internal resistance	$R_i$		15	$\Omega$
	Effective internal capacitance	$C_i$			negligible
	Effective internal inductance	$L_i$			negligible
	Voltage	$U_i$	UC	30	V
	Current	$I_i$		65	mA
	Power	$P_i$		25	mW
15.3.5	Ambient temperature range:			$-20^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$	

(16) Test and assessment report  
BVS PP 03.2202 EG as of 17.07.2003

(17) Special conditions for safe use

17.1 With regard to temperature of the signal pickup sensor, the following table applies to the achieved temperature class:

Temperature class	Surface temperature of the pickup sensor due to external sources of heat
T6	≤ 80°C
T5	≤ 95°C
T4	≤ 130°C
T3	≤ 180°C

17.2 Terminals KL 5 / KL 6 of the amplifier type VIEG-\*\*-\*\* are designated for interconnection to either certified intrinsically safe apparatus or Simple Apparatus according to clause 5.4 of EN 50020:2002.

17.3 The inductance- /resistance ratio L/R of apparatus or of signal pickup circuits interconnected to terminals KL 5 / KL 6 of amplifier type VIEG-\*\*-\*\*, shall not exceed 2,4 mH/Ω.

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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.

44809 Bochum, 17.07.2003  
BVS-Scha/Mi A 20030136

**EXAM BBG Prüf- und Zertifizier GmbH**

  
\_\_\_\_\_  
Certification body

  
\_\_\_\_\_  
Special services unit