

# Test and certification body

## ZELM Ex

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

(2) Equipment and Protected Systems Intended for Use in Potentially Explosive Atmospheres -  
**Directive 94/9/EC**

(2) **EC-type examination certificate number**

#### **ZELM 05 ATEX 0274**

(4) **Equipment: Explosion-protected Multimeter Type 87V Ex**

(5) Manufacturer: **ecom Instruments GmbH**

(6) Address: **D-97959 Assamstadt**

(7) The design of this equipment and its various approved embodiments are defined in the attachment to this type examination certificate.

(8) The Prüf- und Zertifizierungsstelle ZELM, notified body no. 0820 in accordance with Article 9 of the EC Council Directive dated March 23, 1994 (94/9/EC), certifies that this equipment has been found to conform with the essential health and safety requirements for the design and construction of equipment and protected systems for proper intended use in potentially explosive areas in accordance with Appendix II of the directive.

**The results of the test are documented in the confidential test report no. ZELM Ex 0390512412.**

(9) The essential health and safety requirements are met by virtue of conformity with

**EN 60079-0 :2004**

**EN 50020:2002**

(10) If the certification number is followed by an "X", then this indicates that special conditions exist for the safe operation of the equipment. These special conditions are contained in the attachment to this certificate.

(11) This EC-type examination certificate only refers to the construction/design, checking and testing of the specified equipment or protection system in accordance with Directive 94/9/EC. Further requirements contained in this directive may apply with regard to the manufacturing process and the supply of the equipment or protected system. Such requirements are not covered by this certification.

(12) The equipment must be labelled with the following information:

### **Ex II 2 G EEx ia IIC T4**

Certification body ZELM

Braunschweig, August 4, 2005

*Signature*

Dipl.-Ing. Harald Zelm

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## ZELM Ex

### Attachment

(13)

(14) EC-type examination certificate ZELM 05 ATEX 0274

(15) Description of the equipment

The explosion-protected Multimeter Type 87V Ex serves to make mobile measurements on intrinsically safe and non-intrinsically safe circuits.

The equipment is fitted with a power supply in the form of an internal battery.

The permitted ambient temperature is -20°C to +50°C.

#### Electrical data

Supply (Internal battery) 1 unit Block battery according to IEC 6LR 61 - U = 9V  
The internal circuits are intrinsically safe.

Measuring circuit type of ignition protection: intrinsically safe, EEx ia IIC  
for measuring intrinsically safe circuits

Maximum values:  $U_i = 65 \text{ V}$   
 $I_i = 5 \text{ A}$

The effective internal capacitance and inductance are negligibly small.

#### Maximum output values at the voltage measuring input

$U_o = 10.35 \text{ V}$   
 $I_o = 4 \text{ mA}$   
 $C_o = 2.52 \text{ }\mu\text{F}$   
 $L_o = 100 \text{ mH}$

#### Maximum output values at the current-measuring inputs

$U_o = 2.8 \text{ V}$   
 $I_o = 68 \text{ mA}$   
 $C_o = 1000 \text{ }\mu\text{F}$   
 $L_o = 8 \text{ mH}$

#### Measurements on non-intrinsically safe circuits

Measurement inputs Maximum values:  $U_i = 1000 \text{ V}$   
 $I_i = 10 \text{ A}$

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Attachment to EC-type examination certificate ZELM 05 ATEX 0274

(16) Test report no.

ZELM Ex 0390512412

(17) Note

The equipment must not be opened within the Ex-area.

The multimeter must be operated within the potentially explosive area using the designated holster only.

Only batteries successfully type-approved according to paragraph 10.9 of EN 50020:2002 are permitted. The manufacturers and types are listed in the operating instructions. Changing the battery is allowed only outside the potentially explosive area.

Observance of the following is mandatory:

**After each measurement on non-intrinsically safe circuits, observe a waiting period of 3 minutes before taking the equipment into the Ex-area again.**

The operating instructions must be followed.

(18) Essential health and safety requirements

satisfied by virtue of the standards

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EC-type examination certificates without signature and stamp are not valid.

This EC-type examination certificate may only be circulated without alteration. Extracts or alterations are subject to approval by the Prüf- und Zertifizierungsstelle ZELM Ex

Prüf- und Zertifizierungsstelle ZELM Ex • Siekgraben 56 • D-38124 Braunschweig