

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

ANZEx Scheme

Certificate of Conformity

Certificate No: **ANZEx 12.2008X** Issue: **0** **25 September 2012** Original Issue

Applicant: **ecom instruments GmbH**
Industriestrasse 2
97959 Assamstadt
Germany

Electrical Equipment: **Intrinsically Safe TRUE RMS MULTIMETER**
Fluke 28 II EX

Type of Protection and Marking Code: **Ex ia I Ma**
-15°C ≤ Ta ≤ +50°C
ANZEx 12.2008X

Manufactured by: **ecom instruments GmbH**
Industriestrasse 2
97959 Assamstadt
Germany

The certification database located at <http://www.anzex.com.au> shows the currency of this certificate.

Issued by:



Safety in Mines, Testing and Research Station
2 Smith Street, REDBANK QLD 4301, Australia
Postal Address: PO Box 467, GOODNA QLD 4300, Australia
Phone: + 61 7 3810 6381 Fax: + 61 7 3810 6366



www.jas-anz.org/register

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This certificate is granted subject to the conditions as set out in Standards Australia/Standards New Zealand P-008 Ex Mark Management Committee Publication MP87.1.

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

- IEC 60079-0: 2007** **Explosive atmospheres**
Part 0: Equipment – General requirements
- IEC 60079-11: 2006** **Explosive atmospheres**
Part 11: Equipment protection by intrinsic safety “i”

This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No. and Issuing Body: **DE/PTB/ExTR11.0087/01; PTB**

Quality Assessment Report No. and Issuing Body: **DE/PTB/QAR07.0004; PTB**

File Reference: **12/0066**



Signed for and on behalf of issuing authority

Principal Engineer - Certification
Engineering, Testing and Certification Centre

Position

25 September 2012

Date of issue

This certificate is not transferable, remains the property of the issuing body and must be returned in the event of its being revoked or not renewed.

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Schedule

Equipment:

The FLUKE 28 II EX is a "TRUE RMS MULTIMETER" for measuring voltage, current, resistance and capacitance inside (and outside) of potentially explosive atmospheres. The device is supplied in a holster which contains conductive material for protection against electrostatic charge, provides LC display, connection facility for accessories and operation switches on the front. Three alkaline AAA size primary batteries, housed in the Battery Carrier, energize the multimeter.

Accessories

Accessory	Type
Test leads	TL175
Bead temperature probe	80BK-A
Alligator clips	AC 172, AC 175
AC current clamp	i400
Temperature probe	80PK-27

Permitted types of battery:

1. Eveready Energizer, No. E92
2. Duracell Procell, MN2400 LR03
3. Varta Max Tech, No. 4703
4. Varta Industrial Alkaline, No. 4003
5. Duracell Plus, MN2400 LR03
6. Rayovac, Alkaline AAA (U.S. type)
7. Panasonic, LR03XWA.

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Drawings:

Drawing No.	Drawing Title	Revision No.	Drawn/ Revision Date
700003AL01A (5 pages)	Safety Instructions : FLUKE 28 II Ex	07Z	20.09.2012
700003AD16A	Stackup	00G	22.03.2011
700003AZ03A	Marking ANZEx	04Z	05.09.2012
700003AZ09A	Marking Top	01G	13.02.2012
700003AZ06A	Assembly	01G	29.03.2010
700003AZ07A	Encapsulation areas	02G	19.01.2012
28II EX-1002	SCHEMATIC, VOLTS CLAMPS	005	16SEP11
700003BA02A	VOLTS CLAMP Mounting Top	01G	07.12.2011
700003BB02A	VOLTS CLAMP Mounting Bottom	00G	20.07.2011
700003YA02A	VOLTS CLAMP Layout Top	01G	07.12.2011
700003YB02A	VOLTS CLAMP Layout Bottom	01G	07.12.2011
28II EX-1003	SCHEMATIC, AMPS CLAMPS BOARD	004	15JUN11
700003BA03A	AMPS CLAMP Mounting Top	00G	20.07.2011

(Drawings continued next page)

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Drawing No.	Drawing Title	Revision No.	Drawn/ Revision Date
700003YA03A	AMPS CLAMP Layout Top	00G	20.07.2011
700003YB03A	AMPS CLAMP Layout Bottom	00G	20.07.2011
28II EX-1001 (3 sheets)	SCHEMATIC, MAIN	005	16SEP11
3888660 (6 sheets)	Excerpt – FLUKE BOM	006-1	March 8, 2012
700003BA04A	Mainboard Mounting Top	01G	07.12.2011
700003BB04A	Mainboard Mounting Bottom	01G	07.12.2011
700003YA04A	Mainboard Layout Top	01G	07.12.2011
700003YB04A	Mainboard Layout Bottom	01G	07.12.2011
700003YC04A	Mainboard Layer 2	01G	07.12.2011
700003YD04A	Mainboard Layer 3	01G	07.12.2011
700003YE04A	Mainboard Layer 4	01G	07.12.2011
700003YF04A	Mainboard Layer 5	01G	07.12.2011
700003YG04A	Mainboard Alternative Outline	00G	02.02.2012

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Conditions of Certification:

The Fluke 28 II EX is suitable for short-term operation in mines susceptible to firedamp of Group I. Permanent contact of the Fluke 28 II EX with oil, hydraulic fluid or grease is to be avoided.

The device shall only be used with the provided (red) Ex-holster in the hazardous area.

The device must not be opened in the hazardous area.

The batteries can only be removed or replaced in a non-hazardous area. (note the label and safety instructions).

Use only the fuses which are tested for the Fluke 28 II EX (see safety instructions).

Outside a potentially explosive area, the intrinsically safe Fluke 28 II Ex TRUE-RMS multimeter may be operated with its nominal values ($U_i \leq 1000V$ and $I_i \leq 10A$, see also the instructions). After each measurement of a non-intrinsically safe circuit, the Fluke 28 II Ex must be switched off for at least 3 minutes before it is put again into a hazardous area.

The following entity parameters shall be observed:

1) V/Ohm - COM Connection:

U_i (V)	C_i	L_i	R_i (k Ω)	U_o (V)	I_o (mA)	P_o
65	negligible	negligible	2.47*	9.54	3.7	negligible

* linear characteristic

The maximum permissible external inductance L_o and capacitance C_o are listed below. For this the simultaneous occurrence of capacitance and inductance is taken into account.

L_o (mH)	1000	100	2	0.5	0.1	0.01
C_o (μ F)	0	0.61	1	1.4	2.1	3.6

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2) A-COM Connection:

U _i (V)	I _i (A)	C _i	L _i	U _o (V)	I _o (mA)	P _o (mW)
65	5	negligible	negligible	0	0	0

3) mA/μA-COM Connection:

U _i (V)	C _i	L _i	U _o (V)	I _o (μA)	P _o
65	negligible	negligible	1.95	9.7	negligible

The maximum permissible external inductance L_o and capacitance C_o are listed below. For this the simultaneous occurrence of capacitance and inductance is taken into account.

L_o(mH)	1000	100	5	1	0.5	0.005
C_o(μF)	0	14	19	25	30	1000

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