

Certificate of Conformity

Ex EQUIPMENT

Certificate No.: **ANZEx 12.2008X**

Current Issue: 1

Date of Issue: 14 December 2017

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

Equipment: Intrinsically Safe TRUE RMS MULTIMETER Fluke 28 II EX

Type of Explosion Protection: Intrinsic Safety 'i'

Explosion Protection Marking: Ex ia I Ma
-15 °C ≤ Ta ≤ +50 °C

*This certificate is granted subject to the conditions as set out in
Standards Australia/Standards New Zealand Miscellaneous Publication **MP87.1***

Signed for and on behalf of issuing body

Name & Position


G. Barnier – Principal Engineer - Certification

This certificate is not transferable and remains the property of the issuing body.

The status of this certificate can be confirmed through the database located at www.anzex.com.au

Certificate issued by:

Safety in Mines, Testing and Research Station
2 Robert Smith Street, REDBANK QLD 4301

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**Additional
Manufacturing
Location(s):** None

STANDARDS:

The equipment 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 60079-0:2011 Ed 6 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11: 2011 Ed 6 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

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

TEST & ASSESSMENT REPORTS:

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

Test Report No.; Issuing Body: DE/PTB/ExTR11.0087/01, DE/PTB/ExTR11.0087/02; PTB

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

File Reference: 17/0071

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Schedule

Equipment Description:

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.

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. Varta Max Tech, No. 4703
3. Varta Industrial Alkaline, No. 4003
4. Rayovac, Alkaline AAA (U.S. type)
5. Panasonic Alkaline Power LR03
6. Panasonic Pro Power LR03

Variations Permitted by this Issue

- Removal of battery option Duracell Procell, MN2400 LR03
- Removal of battery option Duracell Plus, MN2400 LR03
- Removal of battery option Panasonic, LR03XWA
- Addition of battery option Panasonic Alkaline Power LR03
- Addition of battery option Panasonic Pro Power LR03
- Removal of Group III, dusts
- Ambient temperature range now referred to respective battery type used
- Component changes, inclusions and alternatives

Electrical Ratings/Parameters:

None

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Specific Conditions of Use:

Conditions listed for previous issues remain applicable, there are no additional specific conditions of use for this issue.

Manufacturer's Documents associated with this Issue:

Document Number	Pages / Sheets	Document Title	Revision	Date
700003AL01A	5	Safety Instructions : FLUKE 28 II Ex	10G	20.02.2017
700003AZ07A	1	Encapsulation areas	03G	12.07.2016
28II EX-1002	1	SCHEMATIC, VOLTS CLAMPS	005A	2016-06-29
28II EX-1001	3	SCHEMATIC, MAIN	007	17JUN16
3888660	6	Excerpt – FLUKE BOM	007	June 17, 2016
700003BA04A	1	Mainboard Mounting Top	02G	06.05.2014
700003BB04A	1	Mainboard Mounting Bottom	02G	06.05.2014
700003YA04A	1	Mainboard Layout Top	02G	28.04.2014
700003YB04A	1	Mainboard Layout Bottom	02G	06.05.2014
700003YC04A	1	Mainboard Layer 2	02G	28.04.2014
700003YD04A	1	Mainboard Layer 3	02G	06.05.2014
700003YE04A	1	Mainboard Layer 4	02G	05.05.2014
700003YF04A	1	Mainboard Layer 5	02G	06.05.2014
700022FZ06A	1	Label Kennzeichnung IECEx SIMTARS	00	30.11.17

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History of Previous Issues and Variations

Issue 0 dated 25 September 2012

Manufacturer's Documents associated with Issue 0:

Document Number	Pages / Sheets	Document Title	Revision	Date
700003AL01A	5	Safety Instructions : FLUKE 28 II Ex	07Z	20.09.2012
700003AD16A	1	Stackup	00G	22.03.2011
700003AZ03A	1	Marking ANZEx	04Z	05.09.2012
700003AZ09A	1	Marking Top	01G	13.02.2012
700003AZ06A	1	Assembly	01G	29.03.2010
700003AZ07A	1	Encapsulation areas	02G	19.01.2012
28II EX-1002	1	SCHEMATIC, VOLTS CLAMPS	005	16SEP11
700003BA02A	1	VOLTS CLAMP Mounting Top	01G	07.12.2011
700003BB02A	1	VOLTS CLAMP Mounting Bottom	00G	20.07.2011
700003YA02A	1	VOLTS CLAMP Layout Top	01G	07.12.2011
700003YB02A	1	VOLTS CLAMP Layout Bottom	01G	07.12.2011
28II EX-1003	1	SCHEMATIC, AMPS CLAMPS BOARD	004	15JUN11
700003BA03A	1	AMPS CLAMP Mounting Top	00G	20.07.2011
700003YA03A	1	AMPS CLAMP Layout Top	00G	20.07.2011
700003YB03A	1	AMPS CLAMP Layout Bottom	00G	20.07.2011
28II EX-1001	3	SCHEMATIC, MAIN	005	16SEP11
3888660	6	Excerpt – FLUKE BOM	006-1	March 8, 2012
700003BA04A	1	Mainboard Mounting Top	01G	07.12.2011
700003BB04A	1	Mainboard Mounting Bottom	01G	07.12.2011
700003YA04A	1	Mainboard Layout Top	01G	07.12.2011
700003YB04A	1	Mainboard Layout Bottom	01G	07.12.2011

(Drawings continued next page)

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Document Number	Pages / Sheets	Document Title	Revision	Date
700003YC04A	1	Mainboard Layer 2	01G	07.12.2011
700003YD04A	1	Mainboard Layer 3	01G	07.12.2011
700003YE04A	1	Mainboard Layer 4	01G	07.12.2011
700003YF04A	1	Mainboard Layer 5	01G	07.12.2011
700003YG04A	1	Mainboard Alternative Outline	00G	02.02.2012

Specific Conditions of Use associated with Issue 0:

1. 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.
2. The device shall only be used with the provided (red) Ex-holster in the hazardous area.
3. The device must not be opened in the hazardous area.
4. The batteries can only be removed or replaced in a non-hazardous area. (note the label and safety instructions).
5. Use only the fuses which are tested for the Fluke 28 II EX (see safety instructions).
6. After each measurement of a non-intrinsically safe circuit, the Fluke 28 II Ex must be off for at least 3 minutes before it is put again into a hazardous area.
7. The following entity parameters shall be observed:

V/Ohm - COM Connection:

Ui (V)	Ci	Li	Ri (kΩ)	Uo (V)	Io (mA)	Po
65	negligible	negligible	2.47*	9.54	3.7	negligible

* linear characteristic

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

Lo (mH)	1000	100	2	0.5	0.1	0.01
Co (μF)	0	0.61	1	1.4	2.1	3.6

A-COM Connection:

Ui (V)	Ii (A)	Ci	Li	Uo (V)	Io (mA)	Po (mW)
65	5	negligible	negligible	0	0	0

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mA/ μ A-COM Connection:

Ui (V)	Ci	Li	Uo (V)	Io (μ A)	Po
65	negligible	negligible	1.95	9.7	negligible

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

Lo (mH)	1000	100	5	1	0.5	0.005
Co (μ F)	0	14	19	25	30	1000

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).