

**FLUKE®**

**707Ex**  
mA Calibrator

## Safety Information

PN 2166282

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# 707Ex mA Calibrator












## Safety Information

A **Warning** identifies conditions and actions that pose hazard(s) to the user; a **Caution** identifies conditions and

actions that may damage the Calibrator or the equipment under test.

Safety and electrical symbols used in this sheet and on the Calibrator are displayed in Table 1.

**Table 1. International Electrical Symbols**

Symbol	Meaning	Symbol	Meaning
	Power ON/OFF		Double insulated
	Earth ground		Conforms to relevant Canadian and US Standards. Certification # LR110460-2
	Risk of Danger. Important information. Refer to manual.		Conforms to relevant European Union directives.
	Battery		Direct current
	Hazardous Voltage		Conforms to Factory Mutual requirements
	Conforms to ATEX requirements		

Read the entire Users Manual and the 707Ex mA Calibrator CCD (Concept Control Drawing) before using the Calibrator.

## **⚠ ⚠ Warnings and Cautions**

To avoid electric shock, injury, or damage to the Calibrator:

- Use the Calibrator only as described in this Users Manual and the Fluke 707Ex mA Calibrator CCD (Concept Control Drawing) or the protection provided by the Calibrator may be impaired.
- Inspect the Calibrator before use. Do not use it if it appears damaged.
- Check the test leads for continuity, damaged insulation, or exposed metal. Replace damaged test leads.
- Never apply more than 28 V between the input terminals, or between any terminal and earth ground. Applying more than 28 volts to the input terminals invalidates the Calibrator's Ex Approval and may result in permanent damage to the unit so it can no longer be used.
- Use the proper terminals, mode, and range for your measuring or sourcing application.
- To prevent damage to the unit under test, put the Calibrator in the correct mode before connecting the test leads.
- When making connections, connect the COM test probe before the live test probe. When disconnecting, disconnect the live probe before the COM probe.
- Never use the Calibrator with the red holster removed.
- Never use the Calibrator with the case open. Opening the case violates Ex Approval
- Make sure the battery door is closed before you use the Calibrator.

- Replace the battery as soon as the **+** (low battery) symbol appears to avoid false readings that can lead to electric shock.
- Remove test leads from the Calibrator before opening the battery door.
- This equipment is specified for use in measurement category I (CAT I) pollution degree 2 environments and should not be used in CAT II, CAT III, or CAT IV environments. Voltage transients should not exceed 300 volts for the CAT I applications where this product is used. Measurement transients are defined in IEC1010-1 as 2  $\mu$ s rise time with a 50  $\mu$ s duration at 50 % of the maximum amplitude height.
- Measurement Category I (CAT I) is defined for measurements performed on circuits not directly connected to the mains.

## **Safety Advice**

To ensure safe operation of the Calibrator, fully observe all instructions and warnings contained in this sheet. In case of doubt (due to translation and/or printing errors), refer to the original English users manual.

## **Faults and Damage**

Applying a voltage greater than 28 V to the input of the Calibrator invalidates its Ex Approval and may impair its safe operation in an Ex-hazardous area.

If there is any reason to suspect that the safe operation of the Calibrator has been affected, it must be immediately withdrawn from use, and precautionary measures must be taken to prevent any further use of the Calibrator in an Ex-hazardous area.

The safety features and integrity of the unit may be compromised by any of the following:

- External damage to the housing

- Internal damage to the Calibrator
- Exposure to excessive loads
- Incorrect storage of the unit
- Damage sustained in transit
- Correct certification is illegible
- Using the product with the red holster removed
- Functioning errors occur
- Permitted limitations are exceeded
- Functioning errors or obvious measurement inaccuracies occur which prevent further measurement by the Calibrator.


### **Safety Regulations**

The use of this 707Ex mA Calibrator meets the requirements of the regulations providing that the user observes and applies the requirements as laid down in the regulations and that improper and incorrect use of the unit is avoided.

- Use must be restricted to the specified application parameters.
- Do not open the Calibrator.
- Do not remove or install the battery within the Ex-hazardous area.
- Do not carry additional batteries within the Ex-hazardous area.
- Use only type-tested batteries. The use of any other battery will invalidate the Ex-certification and present a safety risk.
- Do not use the Calibrator in an Ex-hazardous area unless it is completely and securely fitted in its accompanying red holster.

- After using the Calibrator in a non-intrinsically safe protected circuit, a rest time of 3 minutes minimum duration must occur before the Calibrator is taken into and/or used in an Ex-hazardous area.

### **Ex-Certification Data**

- ATEX Certificate of Conformity: ZELM 02 ATEX 0120 X
- Certification:  II 2 G EEx ia IIC T4
- Permitted for zone1, Equipment Group II, gas group C hazardous gases, vapor or mist, Temperature class T4.
- Factory Mutual, N.I. Class 1 Div. 2 Groups A-D
- Permitted for Division 2 hazardous gases, vapor or mist, Gas Groups A-D
- Entity Parameters:  $U_o = 27.6 \text{ V}$ ,  $I_o = 96.13 \text{ mA}$ ,  $C_o = 76 \text{ nF}$ ,  $L_o = 2.5 \text{ mH}$ ,  $U_i = 30 \text{ V}$ ,  $I_i = 24 \text{ mA}$ ,  $C_i = 10 \text{ nF}$ ,  $L_i = 0 \text{ mH}$

### **Approved Batteries**

<b>Battery Description</b>	<b>Manufacturer</b>	<b>Type</b>
Alkaline, 9 volt	Duracell	6LR61
Alkaline Ultra, 9 volt	Duracell	6LR61
Professional Alkaline Battery Procell, 9 volt	Duracell	6LR61
Alkaline Energizer, 9 volt	Eveready	6LR61
Alkaline Power Line Industrial Battery, 9 volt	Panasonic	6LR61
Alkaline, 9 volt	Daimon	6LR61

### **General Specifications**

**Maximum voltage between any terminal and earth ground or between any two terminals:**

28 V

**Storage temperature:**

– 30 °C to 60 °C

**Operating temperature:**

– 10 °C to 50 °C

**Relative humidity:**

95 % up to 30 °C

75 % up to 40 °C

45 % up to 50 °C

**CE:**

Complies with EN61010-1 and EN61326

### **Contacting Fluke**

To contact Fluke, call one of the following telephone numbers:

USA: 1-888-44-FLUKE (1-888-443-5853)

Canada: 1-800-36-FLUKE (1-800-363-5853)

Europe: +31 402-675-200

Japan: +81-3-3434-0181

Singapore: +65-738-5655

Anywhere in the world: +1-425-446-5500

For USA Service: 1-888-99-FLUKE

(1-888-993-5853)

Or, visit Fluke's Web site at [www.fluke.com](http://www.fluke.com).

To register your product, visit [register.fluke.com](http://register.fluke.com)

### **LIMITED WARRANTY AND LIMITATION OF LIABILITY**

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

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