

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

JJG 837-2003

Replacing JJG 837-1993

Verification Regulation of D.C. low Resistance Meters (English Translation)

Issued on: September 23, 2003

Implemented on: March 23, 2004

Issued by: The General Administration of Quality Supervision, Inspection and Quarantine issued, This verification procedure was approved by the General Administration of Quality Supervision, Inspection and Quarantine on September 23, 2003.

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DC low resistance meter verification procedure

1 Scope

This procedure applies to DC analog indicators and digital versions from 0.05 to 5 with milliohms, micro-ohms or lower ranges.

The first verification, subsequent verification and in-use inspection of the DC low-value resistance measuring instrument (hereinafter referred to as the low-resistance meter) Test.

This procedure does not apply to the verification of AC low resistance meters.

2 Citations

This procedure refers to the following documents.

JJF1059-1999 "Measurement and Expression of Measurement Uncertainty" GB 4793.1-1995 "Safety requirements for electrical equipment for measurement, control and laboratory use" GB/T 13978-1992 "General technical conditions for digital multimeters" when using this procedure, care should be taken to use the current valid version of the above cited documents.

3 Overview

The low resistance meter is a low value resistance measuring instrument with milliohm, micro ohm or lower range, which can measure the resistance of the coil, Wire resistance, contact resistance, welding resistance and riveting resistance. The instrument generally uses a four-terminal connection method to eliminate the connection.

The effects of contact resistance and lead resistance.

The basic principle of the commonly used low resistance meter is to make a constant DC current pass through the measured resistance, and then measure the resistance.

The pressure drop at the end is then converted into a resistance value and reflected directly from the meter.

The commonly used low resistance meter consists of a constant current source, a voltage sampling processing unit, and an indication (display).

The block diagram is shown in Appendix A, and there are low-resistance meters using other principles, such as high-current low-voltage with fast double-sampling comparison method.

Low resistance meter with resistance and voltage ratio.

4 Metrological performance requirements

4.1 Base value error

4.1.1 Base value error representation of analog indicating low resistance meter

$E = \frac{RX - R_0}{R_0} \times 100\%$ (1) where. E---base value error;

RX---the reading value of the watched table (resistance indication value);

R₀---The measured value of the measured resistance of the meter.

4.1.2 Base value error of digital low resistance meter

4.1.2.1 Absolute error representation $\Delta = \pm(a\%RX + b\%R_m)$ (2)