

TX-1000A Intelligent Metal Resistivity Measuring Instrument



1 Overview

TX-1000A intelligent metal conductor resistivity meter is a high-resolution and high-precision desktop model based on TX-300 series of intelligent resistivity meters. It can be used to measure the resistivity and conductivity of metal wires, bars and other materials, as well as the resistance and meter resistance of stranded wires and cables. It adopts current-voltage four-terminal measuring method, advanced electronic techniques, singlechip technique and automatic detection technology. Their performances completely accord with the technical requirements of GB/T3048.2 and GB/T3048.4. It is widely used in electric power, electric wire and cable industry, scientific research institutions, colleges and universities, and verification institutions at all levels.

2 Main features of the instrument

- measure the conductivity, resistivity, meter resistance and DC resistance of motor, transformer, etc. of the wire, pole and bar with the maximum diameter of 1-45mm.
- The resolution of the instrument is up to $10^{-8} \Omega$ ($0.01 \mu \Omega$), which ensures the measurement accuracy of the resistance and conductivity of the metal conductor with the maximum

diameter up to $\varnothing 45\text{mm}$ (sectional area up to 1589mm^2).

- Configure high-precision ($\pm 0.1\text{ }^\circ\text{C}$) temperature sensor or test fixture with high-precision conductor temperature sensor, greatly improving the accuracy of temperature automatic compensation in measurement.
- Combining advanced electronic, singlechip and automatic measurement techniques in one instrument, with superior automatic functions and simple operation.
- All measured numerical values can be obtained by just one press on the key without any calculation. The instrument is adequate for continuous, fast and accurate measurements.
- AC power supply design, suitable for field use.
- With large screen and font. Can display measured values and auxiliary parameters at the same time, including resistivity, conductivity, resistance, temperature, measuring current and temperature compensation coefficient.
- The functions of automatic constant current selection, automatic current reversal, automatic zero point correction and automatic temperature compensation are maintained for every measurement, to guarantee the accuracy of measured value.
- Special portable four-terminal measuring fixture is suitable for fast measurements of different materials and the wire/bar with different standards.
- The build-in data accumulator can record and save 1000 groups of measuring data and parameters. Connecting it to the host computer, the complete report can be generated.
- Built in data memory can record and save 1000 sets of measurement data and parameters, and connect the upper computer to generate a complete report.

3 TX-1000A Main Parameters

| Parameter Item | Resistivity | Conductivity | Resistance |
|-------------------|--|---|------------------------------|
| Measuring range | $0.01\mu\Omega\cdot\text{m}\sim 2.5\mu\Omega\cdot\text{m}$ | $0.4\text{MS}/\text{m}\sim 100\text{MS}/\text{m}$ $0.69\%\text{IACS}\sim 172\%\text{IACS}$ | $0.1\mu\Omega\sim 150\Omega$ |
| Resolution | $10^{-4}\sim 10^{-6}\mu\Omega\cdot\text{m}$ | $0.01\sim 0.001\%\text{IACS}$ | $0.01\mu\Omega$ (I=10A) |



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| Precision | $\pm 0.25\%$ | $\pm 0.25\%$ | $100\mu\Omega \sim 150\Omega$: $\pm 0.15\%$ |
| Temperature measurement | $0^{\circ}\text{C} \sim 55^{\circ}\text{C}$, Accuracy of $\pm 0.1^{\circ}\text{C}$ | | |
| Internal constant current of the instrument | $16\mu\text{A}$ level $\sim 10\text{A}$ level (automatic selection according to the measuring requirement) | | |
| Wire/cable measuring fixture | provided 1000mm standard test fixture (Optional TXJ-300 / 150 / 240 / 630 / 1200 test fixture)or other non-standard test fixture with different size; | | |
| Automatic temperature compensation | The measured value will be automatically compensated to the value at 20°C . | | |
| Wire/cable measuring items | ① Solid conductor resistivity ρ_v , conductivity σ , resistance R , resistance per unit length R_l , ② resistivity, resistance per unit length (Ω/m), Ω/km (type B) | | |
| Printout data | Date, time, temperature correction coefficient α , wire specifications, and all measured values of conductor and wire/cable | | |
| Normal working environment | Temperature: $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$; relative humidity: $0 \sim 80\%$ | | |
| Display | large screen LCD, which can simultaneously display multiple measurement parameters with backlight | | |
| Power supply | $220\text{VAC} \pm 10\%$, 50-60Hz; power 160W | | |
| Internal memory | Can save 1000 groups of measured data. | | |
| PC communication mode | RS232 serial port | | |
| Host size | $350(\text{W}) * 260(\text{H}) * 200(\text{D})$ | | |



Xiamen Tianyan Instrument Co., Ltd

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| Master machine shell | Aluminum alloy case |
| Packaging and protection | Master machine, test fixture, charge, communication cables, correction resistance, operation manual and a CD-ROM, Flush bonading printer, charger four-terminal resistance test clamp, temperature sensor ,and etc. |

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