

# High-Precision Automatic Inspection and Test Unit for Electrical Resistance Testing RESISTOMAT®

Model 2304

Code: 2304 E  
 Manufacturer: burster  
 Delivery: ex stock  
 Warranty: 24 months

2304-E



## Automatic inspection and test unit



Automatic choice of measuring ranges from 200  $\mu\Omega$  to 20 k $\Omega$   
 Resolution up to 1 n $\Omega$   
 Standard interfaces IEEE488, RS232, RS485, USB (option)  
 Checking of tolerances, classification with statistics.

## Highest measuring accuracy



Measuring error  $\leq 0.01\%$   
 Future-orientated measuring method with thermal e.m.f. compensation.  
 High level of stability due to constant comparisons with internal reference values.

## Inductive probes



Current regulation results in voltage-free disconnection, calculation of cooling curves of coils.

## Menu control



Setting for measuring current entry for absolute or relative limits, classification with statistics, bar display for calibration of measuring probes, determination of resistivity, and many other functions.

## Functional Description

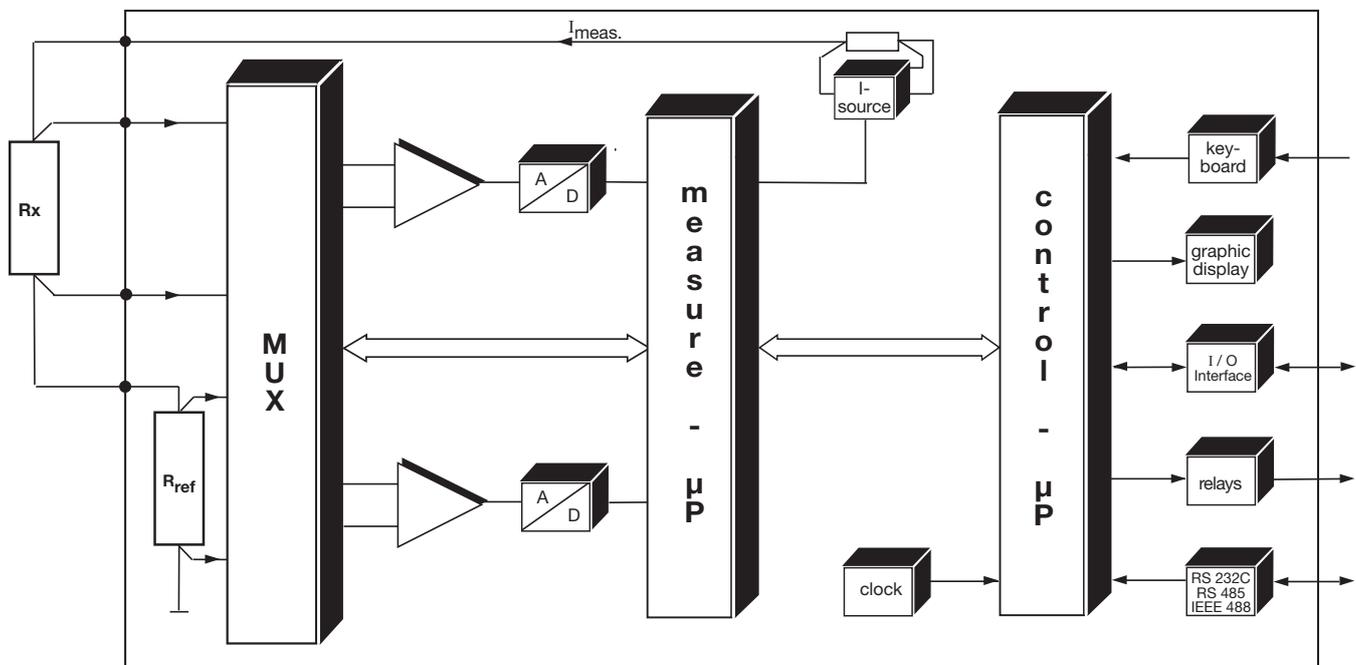
The operation of the measuring section of the RESISTOMAT® model 2304, 2305 high-precision inspection and test unit is based on an upgraded 4-wire design. It measures not only the voltage drops with injected current across the test object but also across an internal reference resistor. The quotient is calculated from both voltage drops. The resistance of the test object is calculated by multiplying this with the characteristic value of the reference resistor. Apart from eliminating the error of contact layer and contact resistance, this method has the advantage that errors reduce to the quality of the internal reference resistors alone. The deviations in these reference resistances are well known and accounted for the multiplication. The result is that the resistance of the test object can be determined very quickly and accurately irrespective of the resistances present in the current circuit.

In order to meet high standards in measuring and testing requirements the device was equipped with an integrated high-resolution A/D converter with particularly low linearity deviations. The test objects are measured at both poles, thus eliminating parasitic thermal e.m.f. voltages. The quotient measuring method used, with constant comparison function automatically ensures zero point calibration. Thus an optimum measuring accuracy is guaranteed.

The unit features an extensive standard software for storing measured cooling curve values, temperature compensation, classification, statistical functions, printer and interface drivers, clock, line frequency adaption ... Two microprocessors ensure optimum and exact measuring and testing.

For PC user the device software 2304-P001 is available.

## Block Diagram



## Applications

The automatic inspection and test unit combines a high degree of measuring accuracy, variable resolution and long-term stability with versatile, user-friendly operation. A number of permanently installed programs allow the user to display and evaluate measured values easily. The unit can therefore be used for a wide range of applications:

**High-precision measuring** of ohmic resistances in the laboratory, test field and production.

**Series tests** - programmable frequency distribution with switch output per class (histogram), specification of tolerance in absolute or relative values.

Calibration in production - particularly easy, due to the analog bar display for limit values.

Measurements on **coil, motor and transformer windings** - special limiting of the measuring current before disconnecting the measuring lines.

**Recording of cooling curves** on windings - adjustable time intervals, measured values stored in memories.

**Meter probes** on cables and wires with temperature compensation and output of measured values in  $\Omega$  or %.

Determining **resistivity values** with material-related temperature compensation.

Measurements of **contact resistances** on switches, relays, pushbutton contacts with low measuring current, volume resistance on fuses.