

## FR3010 Digital Earth Resistance meter



Model FRS3010 digital earth resistance meter uses three-wire voltage-current method for measuring earth resistance, while it performs low-resistance measurement using two-wire method. The large backlit LCD display, the microprocessor structure and the adjustable alarm threshold ensure convenient handling, stable operation and high accuracy.

Model FR3010 microprocessor-controlled digital earth resistance meter automatically detects the connection status of each interface, as well as the interference voltage and its frequency. The device is also capable of measuring the resistance value of the auxiliary probes. The built-in memory can store 500 data sets, the saved data can be recalled on the screen. The resistance measurement range of the device is  $0.01\Omega \sim 3000\Omega$ , the voltage measurement range is  $0.01\text{-}600.0\text{V}$

### Technical specification

- Functions: grounding resistance measurement, voltage test, low-value resistance measurement
- Measurement method:
  - Earth resistance: accurate 3-pole measurement
  - Low-resistance: 2-pole measurement
- Earth resistance measurement: current-voltage method
  - Measuring current:  $>20\text{ mA}$  (sine wave), 128 Hz
  - Measuring range:  $0.01\sim 3000\ \Omega$
  - Resolution:  $0.01\Omega$
  - Accuracy  $\pm 1.5\% \pm 5$  digits
- Voltage measurement (relative to ground)
  - Measuring range:  $0.01\text{-}600\text{ V AC}$
  - Resolution:  $0.01\text{V}$
  - Accuracy  $\pm 1.5\% \pm 3$  digits
- Reference conditions:  $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ,  $\leq 75\% \text{ RH}$  (auxiliary probe resistance  $100\Omega \pm 5\%$ , voltage to ground  $<10\text{V}$ )
- Display
  - 4-digit  $108 \times 65\text{mm}$  super large backlit LCD display
  - Over-load indication: OL message on the display
  - Adjustable back light
  - Measurement in progress indication: flashing LED, countdown display on LCD
- Measuring speed: voltage: app. 2/s, earth resistance: approx. 5 s
- Data storage
  - Storage of a set of 500 measured values
  - Measured values can be recalled on the display
- Alarm function
  - Adjustable alarm threshold
  - Sound signal if the measured value exceeds the set alarm threshold
- Operating temperature and humidity:  $-10\sim 40^{\circ}\text{C}$ ,  $\leq 80\% \text{ RH}$
- Storage temperature and humidity:  $-20\sim 60^{\circ}\text{C}$ ,  $\leq 70\% \text{ RH}$
- Power supply:
  - Battery: DC 6V 1.5V LR14 battery
  - Battery status indication on the display
  - Number of measurements:  $\geq 5000$
- Energy consumption
  - Backlight:  $25\text{mA max}$
  - Standby:  $25\text{mA max}$  (backlight off)
  - Measurement:  $70\text{mA max}$  (backlight off)
- Dimensions: width $\times$ height $\times$ depth:  $240 \times 188 \times 85\text{ mm}$
- Weight
  - Device:  $1230\text{ g}$  (including battery)
  - Test leads:  $610\text{ g}$  (including simple test leads)
  - Auxiliary ground rod (auxiliary probe):  $360\text{ g}$  (2 pcs.)
  - Carrying bag:  $1200\text{ g}$
- Overload protection: earthing resistance measurement: between E-H and E-Probes,  $280\text{V AC}/3$  seconds
- Insulation resistance:  $>10\text{M}\Omega$  ( $500\text{ V}$  between the circuit and the housing)
- Test voltage: AC  $3700\text{Veff}$  value (between the circuit and the cover)
- Mechanical protection: IP54
- Applicable standards
  - IEC61010-4-3, radio frequency electromagnetic field  $\leq 1\text{V/m}$
  - IEC61010-1, IEC1010-2-31, IEC61557-1.5, IEC60529, pollution degree 2, CAT III 300 V

### Standard accessories

- Measuring cables for earth resistance measurement: red 15 m, yellow 10 m, green 5 m
- Measuring cable for 2-wire resistance and voltage measurement: red 1.5 m, green 1.5 m
- Auxiliary earth probe: 2 pcs:  $\varnothing 10\text{ mm} \times 200\text{ mm}$
- Carry bag
- User manual
- Calibration certificate