


Earth Resistance and Resistivity Meters



# AMRU-200

amperis

[www.amperis.com](http://www.amperis.com)

 AMPERIS PRODUCTS S.L  
Agricultura,34  
27003, Lugo, Spain

 **Contact**

+T [+34] 982 20 99 20 | F [+34] 982 20 99 11  
info@amperis.com | [www.amperis.com](http://www.amperis.com)

## It allows to take the measurements of:

- earthing resistance using auxiliary electrodes,
- earthing resistance using auxiliary electrodes and clamp (for measurements of multiple earthing)
- earthing resistance using double clamps (for measurement of earthing when it is impossible to use auxiliary electrodes),
- impulse earth resistance (without disconnecting measured earthing),
- ground resistivity (Wenner method),
- current using the clamp (e.g. leakage) and flexible clamp (Rogowsky coil),
- measurement of continuity of equipotential bondings and protective conductors (meeting the requirements of IEC 60364-6-61:2000 section 6.12.2) with - Auto-zero function - with current 200mA.

### ● **Additionally:**

- measurement of resistance of auxiliary electrodes RS and RH,
- measurement of interference voltage
- measurement of interference frequency
- measurement in the presence of interference voltage in the power network with frequency 16 2/3 Hz, 50Hz, 60Hz and 400Hz (with automatic selection of proper frequency of measuring signal or with manual selection)
- selection of maximum measuring voltage (25V and 50V)
- introducing the distance between the electrodes for the resistivity in metres (m) and feet (ft)
- memory of 990 measurements (10 banks of 99 cells each),
- calibration of clamp used,
- real time clock (RTC),
- data transmission to the computer (USB),
- indication of battery state.

### ● **Electric security:**

- type of insulation: double, according to EN 61010-1 and IEC 61557
- measurement category: CAT IV 300V acc. to EN 61010-1
- protection class acc. to EN 60529: IP54

### ● **Other technical data:**


- LCD display: graphic, backlighted
- interface: USB
- number of measurements carried out of set of batteries: > 1200
- warranty: 36 months

### ● **Rated operational conditions:**

- operation temperature: -10...+50°C
- storage temperature: -20...+70°C
- humidity: 20...80%



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**Measurement of interference voltage**

Range	Resolution	Accuracy
0...100V	1V	±(2% m.v. + 3 digits)

**Measurement of interference frequency**

Range	Resolution	Accuracy
15...450Hz	1Hz	±(1% m.v. + 2 digits)

**Measurement of earthing resistance (method 3- and 4-pole)  
measurement range to IEC61557-5: 0,100Ω...19,9kΩ**

Range	Resolution	Accuracy
0,000...3,999Ω	0,001Ω	±(2% m.v. + 4 digits)
4,0...39,99Ω	0,01Ω	±(2% m.v. + 2 digits)
40...399,9Ω	0,1Ω	
400...3999Ω	1Ω	
4,00k...19,99Ω	0,01kΩ	±(5% m.v. + 2 digits)

**Measurement of continuity of equipotential bondings and protective conductors  
(Rcont) measurement range to IEC61557-4: 0,045Ω...19,99kΩ**

Range	Resolution	Accuracy
0,00...3,999Ω*	0,001Ω	±(2% m.v. + 4 digits)
4,0...39,99Ω	0,01Ω	±(2% m.v. + 2 digits)
40,0...399,9Ω	0,1Ω	
400...3999Ω	1Ω	
4,0k...19,99kΩ	0,01kΩ	±(5% m.v. + 2 digits)

\* - na faixa de 0,000...0,045Ω, a precisão não é especificada.

**Measurement of resistance of auxiliary electrodes RH and RS**

Range	Resolution	Accuracy
0...999Ω	1Ω	±(5% (RS+RE+RH) + 8 digits)
1,00k...9,99kΩ	0,01kΩ	
10,0k...19,9kΩ	0,1kΩ	

**Measurement of multiple earthing resistance with using the clamp and auxiliary electrodes (3p + clamp)  
measurement range to IEC61557-5: 0,120Ω...1,99kΩ**

Range	Resolution	Accuracy
0,00...3,999Ω*	0,001Ω	±(8% m.v. + 4 digits)
4,0...39,99Ω	0,01Ω	±(8% m.v. + 3 digits)
40...399,9Ω	0,1Ω	
400...1999Ω	1Ω	

\* in range 0,000...0,045Ω the accuracy is not specified.

**Measurement of multiple earthing resistance with using double clamps**

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(10% m.v. + 3 digits)
20,0...149,9Ω	0,1Ω	±(20% m.v. + 3 digits)

Measurement of ground resistivity Measurement method: Wennera,  $\rho=2\pi LRE$

Rango	Resolución	Error básico
0,0...199,9 $\Omega$ m	0,1 $\Omega$ m	Depending on measurement accuracy RE with 4p method, but not less than $\pm 1$ digit
200...1999 $\Omega$ m	1 $\Omega$ m	
2,00k...19,99k $\Omega$ m	0,01k $\Omega$ m	
20,0k...99,9k $\Omega$ m	0,1k $\Omega$ m	
100k...999k $\Omega$ m	1k $\Omega$ m	

L - distance between probes: 1...50m

Measurement of AC current (leakge)

Rango	Resolución	Error básico
0,1...99,9mA 1	0,1mA	$\pm(8\% \text{ m.v.} + 5 \text{ digitos})$
100...999mA 1	1mA	$\pm(8\% \text{ m.v.} + 3 \text{ digitos})$
1,00...4,99A 1,2 5,00...9,99A 1,2	0,01A 0,01A	$\pm(5\% \text{ m.v.} + 5 \text{ digitos})$
10,0...99,9A 1,2	0,1A	$\pm(5\% \text{ m.v.} + 5 \text{ digitos})$
100...300A 1,2	1A	

1 - receiving clamp (diameter 52mm) - C-3

2 - flexible clamp (Rogowsky coil) with diameter 400 mm - F-1

Measurement of dynamic earthing resistance (RD) with impulse wave method (4p )

Rango	Resolución	Error básico
0,0...99,9 $\Omega$	0,1 $\Omega$	$\pm(2,5\% \text{ m.v.} + 3 \text{ digitos})$
100...199 $\Omega$	1 $\Omega$	

choice impulse edges: 4/10ms, 10/350ms „m.v.”- measured value



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