

Earth Clamp Meter

Useful data can be saved on Android devices
via Bluetooth communication



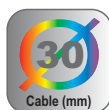
Technical Datasheet



K4202

The K4202 measures earth resistance from 0.05 to 1500Ω and can be measured without the auxiliary earth spikes in multi-earthing systems. True RMS leakage or phase current readings from 0.1mA to 30.0A provides vital additional information in earthing networks. The filter function offers increased immunity to electrical noise and a noise mark appears in excessively high noisy environments.

The K4202 stores up to 100 measurements and real time measurements can be transferred, shown and saved on an Android device using Bluetooth communication. Saved data includes measurement, GPS location, date and time.



Specifications

Detailed specifications on page 2

FUNCTION	RANGE
Earth resistance Auto range	1500Ω
Ac current (50Hz/60Hz) Auto range	30A
Power source	LR6/R6 (AA) (1.5V) x 4
Current consumption	Approx. 90mA (max. 140mA)
Measurement time	Approx 21 hrs (LR6) Approx 5 hrs (R6)
Auto power-off	Turns power off about 10 minutes after the last button operation
Applicable standards	IEC 61010-1 CAT.IV 300V Pollution degree 2 IEC 61010-2-032, IEC 61326-2-2 (EMC)
Withstand voltage	AC 5320Vrms/5 seconds
Conductor size	Approx. φ32mm
Dimensions	246 (L)×120 (W)×54 (D) mm
Weight	Approx. 780g (including batteries)



Features

- Easy Earth / Ground resistance measurement
- True RMS readings
- Jaw Ø32mm
- Earth / Ground Resistance 0.05Ω to 1500Ω resolution
- AC A 0.1mA to 30A Resolution
- Noise check function
- 100 Data storage points
- Bluetooth Function

Standard Accessories

K8304 (Resistors for operation check), K9167 (Carrying case [Hard]), LR6 (AA) × 4, Instruction manual

Ordering Information

Branches: Johannesburg | Cape Town | Durban | Port Elizabeth | Bloemfontein
011 872 5500 | 021 556 3091 | 031 569 1024 | 041 452 1172 | 051 430 4958
National Telephone Number: 08 61 62 5678



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100 Data Storage Points
Bluetooth Function



32mm Jaw Diameter



Earth/Ground Resistance
0.05Ω to 1500Ω resolution

Function	Range	Resolution	Measuring Range	Accuracy
Earth Resistance Auto range	20Ω	0.01Ω (*)	0 ~ 20.99Ω	± 1.5% ± 0.05Ω
	200Ω	0.1Ω	16.0 ~ 99.9Ω	± 2%rdg ± 0.5Ω
			100 ~ 209.9Ω	± 3%rdg ± 2Ω
	1500Ω	1Ω	160 ~ 399Ω	± 5%rdg ± 5Ω
			400 ~ 599Ω	± 10%rdg ± 10Ω
		10Ω	600 ~ 1580Ω	
AC current (50Hz/60Hz) Auto range	100mA	0.1mA	0.0 ~ 104.9mA	± 2% ± 0.7mA
	1000mA	1mA	80 ~ 1049mA	
	10A	0.01A	0.80 -10.49A	± 2%
	30A	0.1A	8.0 - 31.5A	
Operating Indication	Earth resistance function: Constant voltage injection Current detection (Frequency: Approx. 2400Hz) Dual Integration AC current function: Successive approximation			
Over-range indication	"OL" is displayed when input exceeds the upper limit of a measuring range			
Response Time	Approx. 7 seconds (Earth resistance) Approx. 2 seconds (AC current)			
Sample Rate	Approx. 1 time per second			

Why earth measurements can be found by only clamping it?

R_x is defined as earth resistance under test, and R_1, R_2, \dots, R_n are defined as earth resistance of other measuring objects. These earth resistances, R_1, R_2, \dots, R_n can be considered that they are connected in parallel. And They can be regarded as a combined resistance R_s . The R_s can be regarded small enough against R_x since a combined resistance consists of several resistances. Following is an equivalent circuit diagram of this circuit.

A known Voltage V is applied to the object (Resistance R_x) measured from the voltage injection transformer CT1, and the current I corresponding to the earth resistance is flowed.

The current I is detected with detection transformer CT2, and object (Resistance R_x) measured can be put out by the calculation. (refer to the right diagram)

$$\frac{V}{I} = R = R_x + R_s$$

$$R_x \gg R_s = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \dots + \frac{1}{R_n}}$$

$$\frac{V}{I} = R_x$$

Recorded data can be transferred (up to 100 measurements)

Measured data with time and location info can be sent by E-mail

GPS data collection may be lost since the GPS signal differs depending on the location of satellites. To access GPS data and send emails, an Internet connection is required. Communication charges may be incurred separately for using these functions.

Comparator function informs when the measured value is lower/higher than the preset value

Beep! Beep!



Various useful functions are available on Android devices using Bluetooth communication

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