



Quality and reliability is our tradition

KYORITSU

# EARTH CLAMP TESTER KEW 4202

**간단하게 접지선을 클램프하여  
쉽게 접지/대지 저항의 측정이 가능  
안드로이드 어플을 사용한 무선 통신 기능**



※안드로이드 단말기는 별매입니다.

**원격 모니터  
E-메일 첨부 기능  
GPS 데이터 수집**



Note: 단독 접지는 측정할 수 없습니다.  
(다중 접지 시스템에서만 사용 가능)

## Bluetooth 무선 통신을 이용, 안드로이드 단말기의 다양하고 유용한 기능의 활용이 가능합니다.

- 실시간 측정값을 안드로이드 단말기로의 전송, 관찰 및 저장이 가능합니다. (최대 100건)
- 저장된 데이터에는 측정값, GPS 위치, 날짜, 시간 정보가 기록되어 있습니다.  
“언제”, “어디에서” 측정을 했는지, 지도에서 쉽게 확인할 수 있습니다.
- 측정값이 설정값보다 낮거나 높을 경우,  
안드로이드 단말기의 비교 기능으로 알려줍니다.

## 접지/대지 저항과 누설 전류 측정 기능

- 다중접지시스템에서 보조접지봉없이 0.05에서 1200  $\Omega$ 까지 접지저항의 측정이 가능합니다.
- 접지망의 필수 추가 정보인 0.1mA에서 30.0A까지 True RMS 누설 전류 및 상 전류의 측정이 가능합니다.
- 필터 기능은 전기적 잡음을 제거하고, 과도하게 높은 잡음이 있는 환경에서는 NOISE 마크가 표시됩니다.



## KEW 4202 Specifications

Function	Range	Resolution	Measuring ranges	Accuracy
Earth resistance Auto range	20Ω	0.01Ω *	0.00~20.99Ω	±1.5%±0.05Ω
	200Ω	0.1Ω	16.0~99.9Ω	±2%±0.5Ω
			100.0~209.9Ω	±3%±2Ω
	1200Ω	1Ω	160~399Ω	±5%±5Ω
			400~599Ω	±10%±10Ω
	10Ω	600~1260Ω	—	
AC current (50Hz/60Hz) Auto range	100mA	0.1mA	0.0~104.9Ω	±2%±0.7mA
	1000mA	1mA	80~1049mA	±2%
	10A	0.01A	0.80~10.49Ω	
	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 times per second			
Power source	DC 6V : LR6(size AA alkaline battery) ×4 or R6P (size AA manganese battery) × 4			
Current consumption	Approx. 90mA (max. 140mA)			
Measurement time	Approx. 21 hours (when LR6 is used) Approx. 5 hours (when R6P is used)			
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 Between the Transformer jaws fitted parts and case enclosure (except for jaws)			
Conductor size	Approx. φ32mm			
Dimension	246 (L)×120 (W)×54 (D)mm			
Weight	Approx. 780g (including batteries)			
Included Accessories	LR6 × 4, Instruction manual, 8304 (Resister for operation check), 9167 (Carrying case [Hard])			

\* Crest factor ≤ 3 (50Hz/60Hz, peak value shall not exceed 60A) \*4 counts or less are corrected to 0.

Our special application is available on download site for free.



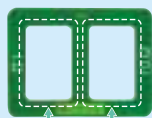
Download



KEW Smart 4202

\*Communication charges may be incurred separately to download application

## Included Accessories



MODEL8304  
Resistor for operation check

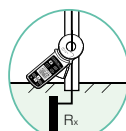


MODEL9167  
Carrying case  
[Hard]

## Earth Clamp lineup

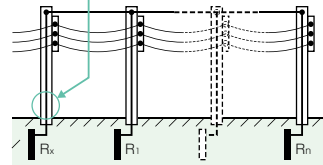
	KEW4202	KEW4200
Common functions	Earth resistance, AC current, Back light function, Data hold function, Auto power off, Memory function	
Individual function	Bluetooth connection	—

## Why earth measurements can be found by only clamping it?



R<sub>x</sub> is defined as earth resistance under test, and R<sub>1</sub>, R<sub>2</sub>...R<sub>n</sub> are defined as earth resistance of other measuring objects.

These earth resistances, R<sub>1</sub>, R<sub>2</sub>... R<sub>n</sub> can be considered that they are connected in parallel. And They can be regarded as a combined resistance R<sub>s</sub>. The R<sub>s</sub> can be regarded small enough against R<sub>x</sub> since a combined resistance consists of several resistances. Following is an equivalent circuit diagram of this circuit.



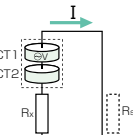
$$R_s = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \dots + \frac{1}{R_n}}$$

A known Voltage V is applied to the object (Resistance R<sub>x</sub>) 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<sub>x</sub>) 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)



Measurement results



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



\*Available on the Android devices equipped with Bluetooth/ GPS/ Data communication function Supporting Android ver. 2.2 - 3.2  
Max communication distance: 10m  
External communication method : Bluetooth Ver2.1+EDR Class2  
Bluetooth is a registered trademark of the Bluetooth SIG, Inc.  
Android is a registered trademark of the Google SIG, Inc.



## Safety Warnings :

Please read the "Safety Warnings" in the instruction manual supplied with the instrument thoroughly and completely for correct use. Failure to follow the safety rules can cause fire, trouble, electrical shock, etc. Therefore, make sure to operate the instrument on a correct power supply and voltage rating marked on each instrument.

For inquiries or orders :



**KYORITSU ELECTRICAL  
INSTRUMENTS  
WORKS, LTD.**

5-20, Nakane, Meguro-ku, Tokyo, 152-0031 Japan

Phone: +81-3723-0131

Fax: +81-3-3723-0152

E-mail: info-eng@kew-ltd.co.jp

<http://www.kew-ltd.co.jp>



In consideration of the environment, soy ink and recycled paper were used in this publication.

• The contents of this leaflet are subject to change without notice.

KEW 4202-1E Mar. 12 AD