

### Easy pole earth resistance measurement with super slim jaw

For multi grounded systems only

Easy Open Jaw  
Light Weight

NEW



WIRELESS ADAPTER  
Z3210  
(Option)



GENNECT Cross is a free app.

Download on the App Store

GET IT ON Google Play

Measurements can be transferred to a smartphone or tablet and reports can be created with site photos, maps and drawings. Can be transferred to an Excel® file. (It will be supported by the 2021 upgrade.)



# Get Things Done with Super Slim Jaws

## Easy clamping!

Open jaws easily with just two fingers.



## Clamp at the narrowest point!

The dramatically slim 0.79 inch (20mm) jaws let you finish your job easily and efficiently.



## Quick Start!

No wait time after powering on. Start measuring instantly without zero calibration.

## LCD with beautiful back light

With the bright back light, you can easily read the measurement value even in dark locations.



## Alarm Function

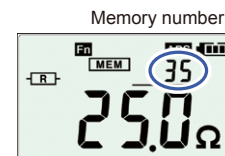
Set the alarm to audibly and visually notify yourself that the resistance or current value exceeds the threshold.

## High Accuracy and Repeatability

Well-designed magnetic shields eliminate the leakage flux between the two cores that often affect measurement accuracy.

## Large storage capacity (up to 2,000 data)

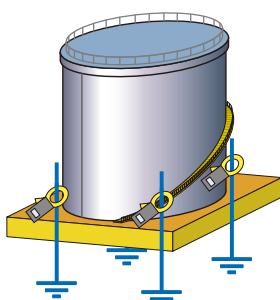
You can store up to 2,000 measurement values in the field and recall them in your office later.



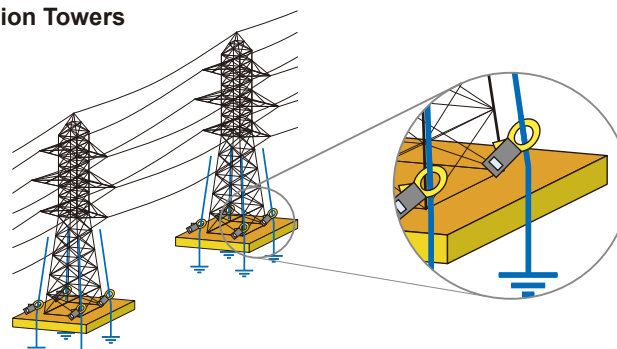
## Applications

Multiple grounding can be easily checked with the clamps.

### Hazardous Storage Tanks



### Transmission Towers



# Wireless transmission of measurements to smartphones and tablets



## Transport to GENNECT Cross

GENNECT Cross, a free app designed specifically for use with Hioki measuring instruments, lets you check and manage measurement results and create reports. Data can be smoothly managed in the field by linking with photos, maps and drawings taken at the measurement site.

PDF Reports  
Photos, Maps

CSV  
Measurement data

JPG Image data

Learn more

Download on the App Store

GET IT ON Google Play

GENNECT Cross is available for Android and IOS.



## Transport to the Excel® file (It will be supported by the 2021 upgrade.)

Open an Excel® file and select a cell. The measured value being held on the instrument's display will be transferred to the computer and entered into the selected cell.

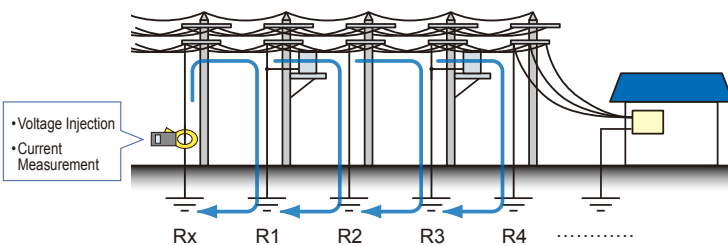
Location	Circuit no.	Ref. value	Measurement place	Value (MΩ)
A Block Circuit Breaker A	L-A	0.1MΩ	R-E	101 M Ohm
			S-E	101 M Ohm
			T-E	101 M Ohm
			R-S	66.4 M Ohm
			S-T	99.9 M Ohm
			T-R	99.9 M Ohm
			R-E	102 M Ohm
			R-E	102 M Ohm

Z3210 Website

## Measurement Principle

### Can measure Multi-Grounded systems.

Clamp on the earth cable. The instrument has two cores for voltage injection and current measurement.



1. The voltage transducer injects a defined voltage into the multi-grounded system.
2. From the defined voltage and measured current, the total circuit loop resistance is calculated in the following equation.

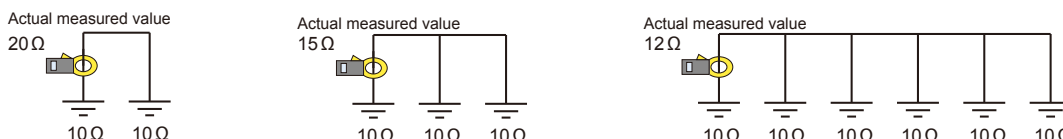
$$R_x + \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4}} = \frac{V}{I}$$

In a typical multi-grounded system, the parallel resistance value is small enough to be ignored and the equation as referred on the left can be simulated as follows.

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

## Measurement Examples

In multi-grounded system, the larger the number of grounding poles, the more accurate the measured value. Where the number of grounding poles are few, if just only one carries a very small resistance (e.g., 1Ω), the measured value will be close to the true value. On the other hand, poles with large resistances (e.g., 100Ω) will result in greater measurement uncertainties.





## General specifications Product warranty period: 3 years, (Accuracy guarantee period 1 year, Accuracy guarantee period after adjustment made by Hioki 1 year)

Display	LCD, Max. 2,000 count Display refresh rate: Approx. 2 times/sec.
Range switching	Auto-range
Maximum measurable conductor diameter	φ32mm
Power supply	LR6 alkaline battery × 2
Continuous operating time	Approx. 40 hours (25 Ω measurement, backlight off, without Z3210 installed) Approx. 35 hours (25 Ω measurement, backlight off, with Z3210 installed and using wireless communications)
Auto-power-save	Instrument automatically turns off approx. 5 min. after last key operation.
Operating temperature and humidity range	-10°C (14°F) to 50°C (122°F), 80% RH or less (non-condensation)
Storage temperature and humidity range	-20°C (-4°F) to 60°C (140°F), 80% RH or less (non-condensation, except for the battery)
Dust-proof and waterproof	IP40 (EN60529) With Jaws Closed
Maximum rated terminal-to-ground voltage	600 VAC measurement category IV (anticipated transient overvoltage 8000 V)
Maximum input current (Current measurement)	100 AAC continuous, 200 AAC for 2 minutes (50 Hz/60 Hz)
Effects of conductor position (Current measurement)	Within ±0.5% rdg (using the center of the sensor as the reference, in all positions)
Effect of external magnetic field (Current measurement)	10 mA or less in an external magnetic field of 400 A/m at 50 Hz/60 Hz AC
Standards	Safety: EN61010, EN61557-1/-5/-13 EMC: EN61326
Dimensions	Approx. 73W × 218H × 43D mm (2.87"W × 8.58"H × 1.69"D)
Mass	Approx. 620g (except for the battery)
Accessories	Carrying case, Resistance check loop (1Ω±2%, 25Ω±1%), Strap, LR6 alkaline battery × 2, Instruction manual
Option	Z3210 WIRELESS ADAPTER

## Current mode Accuracy guarantee temperature and humidity range: 23°C±5°C (73°F±9°F), 80% RH or less (no condensation)

Range	Accuracy Range	Resolution	Accuracy	
			45Hz≤f≤66Hz Specified by filter ON/OFF.	30Hz≤f<45Hz, 66Hz<f≤400Hz Only filter off is specified.
20.00mA	1.00mA to 20.00mA	0.01mA	±2.0% rdg±0.05mA	±2.5% rdg±0.05mA
200.0mA	18.0mA to 200.0mA	0.1mA	±2.0% rdg±0.5mA	±2.5% rdg±0.5mA
2.000A	0.180A to 2.000A	0.001A	±2.0% rdg±0.005A	±2.5% rdg±0.005A
20.00A	1.80A to 20.00A	0.01A	±2.0% rdg±0.05A	±2.5% rdg±0.05A
60.0A	18.0A to 60.0A	0.1A	±2.0% rdg±0.5A	±2.5% rdg±0.5A

Current measurement filter function Cutoff frequency 180Hz±30Hz (-3dB)

Zero suppression 0.05mA less than

## Resistance mode Accuracy guarantee temperature and humidity range: 23°C±5°C (73°F±9°F), 80% RH or less (no condensation)

Range	Accuracy Range	Resolution	Accuracy
0.20Ω	0.02Ω to 0.20Ω	0.01Ω	±1.5% rdg±0.02Ω
2.00Ω	0.18Ω to 2.00Ω	0.01Ω	±1.5% rdg±0.02Ω
20.00Ω	1.80Ω to 20.00Ω	0.01Ω	±1.5% rdg±0.05Ω
50.0Ω	18.0Ω to 50.0Ω	0.1Ω	±1.5% rdg±0.1Ω
100.0Ω	50.0Ω to 100.0Ω	0.1Ω	±1.5% rdg±0.5Ω
200.0Ω	100.0Ω to 200.0Ω	0.2Ω	±3.0% rdg±1.0Ω
400Ω	180Ω to 400Ω	1Ω	±5% rdg±5Ω
600Ω	400Ω to 600Ω	2Ω	±10% rdg±10Ω
1200Ω	600Ω to 1200Ω	10Ω	±20% rdg
1600Ω	1200Ω to 1600Ω	20Ω	±35% rdg

Measurement frequency Approx. 2,400Hz

Zero suppression 0.02Ω less than

## Alarm function (Beeps when measured value is less than or greater than threshold.)

Alarm HI/LO	Separate HI/LO settings for resistance measurement and current measurement
	Resistance measurement: HI/LO Current measurement: HI/LO
Alarm threshold setting range	Resistance measurement: 0.02Ω to 1600Ω Initial value 25.0Ω
	Current measurement: 0.05mA to 200.0mA, 0.201A to 60.0A Initial value: 1.00mA

## Option



Model name	Model No. (Order Code)
WIRELESS ADAPTER	Z3210

Model name	Model No. (Order Code)
CLAMP ON EARTH TESTER	FT6380-50

## Package Contents



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