

HIOKI



CLAMP ON EARTH TESTER FT6380

Field Measuring Instruments



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



**Easy Open Jaw
Light Weight**



High Accuracy

**0.02 Ω to 1600 Ω wide measurement range for earth resistance measurement
1.00 mA to 60.0 A covering small leakage current to load current**

For multi grounded systems only



ISO 9001
JMI-0216



ISO 14001
JQA-E-90091



www.hioki.com

HIOKI company overview, new products, environmental considerations and other information are available on our website.



True RMS

CAT IV 600 V

Get Things Done with Super Slim Jaws

Easy clamping!

Open jaws easily with just two fingers. Only half the grip power is needed compared to typical clamp earth testers.



Clamp at the narrowest point!

Now you can easily clamp the earth cable on the pole without digging. The dramatically slim 0.79 inch (20mm) jaws let you finish your job easily and efficiently.



0.87 inch
(22 mm)

0.79 inch
(20 mm)

1.5 inch
(38 mm)
0.87 inch
(22 mm)



LCD with beautiful back light

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



Quick Start!

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

High Accuracy and Repeatability

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

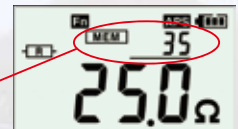
Alarm Function

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

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.

Memory number



Filter function enables even more accurate measurements

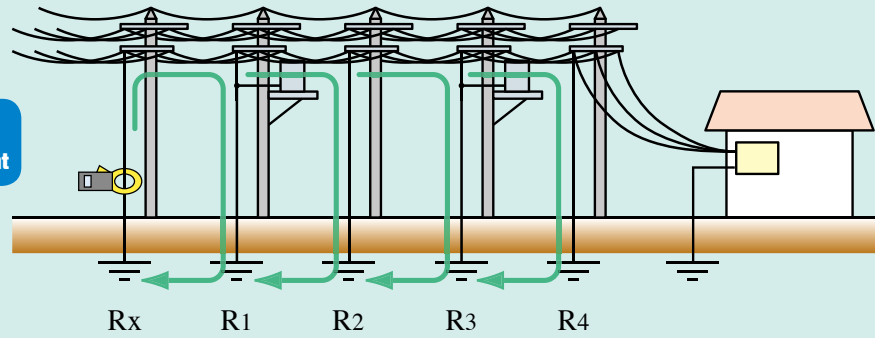
Resistant mode filter: digital filter gives you steadier readings.

Current mode filter: Low-pass filter eliminates harmonics current over 180Hz.

Measurement Principle

FT6380 can measure Multi-Grounded systems.

Voltage Injection
Current Measurement



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

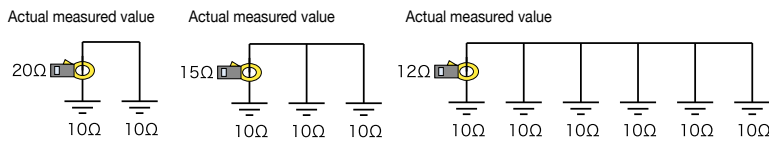
1. The voltage transducer injects a defined voltage into the multi-grounded system.
2. From the defined voltage and measured current, the total circuit loop resistance is calculated in the following equation.

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.

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

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

Measurement Examples



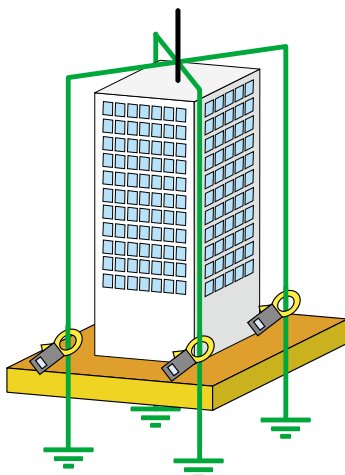
In multi-grounded system, the larger the number of grounding poles, the more accurate the measured value. Where the number of grounding poles are few, if just only one carries a very small resistance (e.g., 1Ω), the measured value will be close to the true value. On the other hand, poles with large resistances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

* The illustration may differ slightly from the field application.

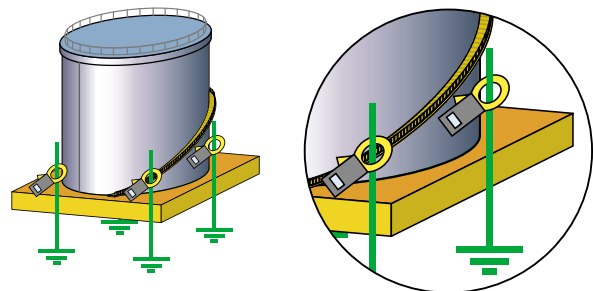


Applications

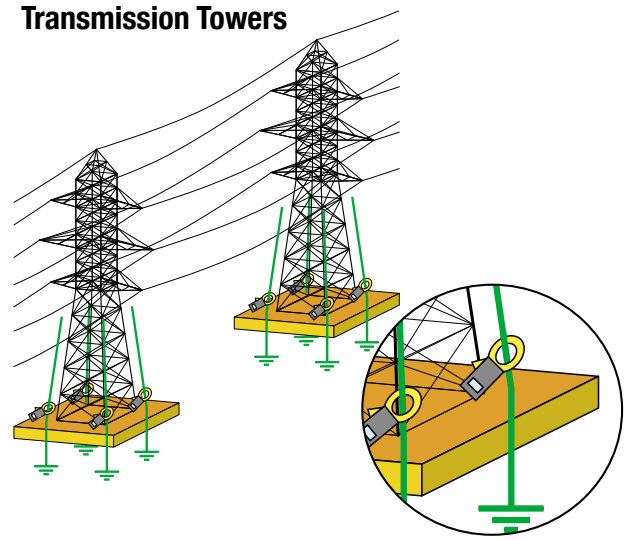
Building lightning protection



Hazardous Storage Tanks



Transmission Towers



Specifications

Current measurement specifications

Display	Digital/ LCD, max. 2000 digits	Display update rate: 2 times / s
Range switching	Auto-range	
Maximum conductor diameter for measurement	ø 32 mm (1.26 in)	
Power supply	LR6 alkaline battery × 2 Continuous operating time: Approx. 35 hours With display backlight off	
Auto power save	Power save state when 5 minutes have elapsed since the last operation	
Operating temperature and humidity	-10°C (14°F) to 50°C (122°F), 80 % rh or less (non-condensation)	
Storage temperature and humidity	-20°C (-4°F) to 60°C (140°F), 80 % rh or less (non-condensation, except for the battery)	
Dustproof and waterproof	IP40 (EN60529) With Jaws Closed	
Maximum rated voltage to earth	600 VAC measurement category IV (anticipated transient overvoltage 8000 V)	
Dielectric strength	Between the Case and the Clamp core 7400 Vrms 1 minute	
Maximum input current	100 A AC continuous, 200 A AC for 2 minutes (50/60 Hz)	
Conductor position effects	Within ±0.5% rdg. (using the center of the sensor as the reference, in all positions)	
Magnetic field interference	10 mA or less in an external magnetic field of 400 A/m at 50/60 Hz AC	
Applicable standards	Safety: EN61010 EMC: EN61326	
Dimensions, Mass	Approx. 73 mm (2.87 in) W × 218 mm (8.58 in) H × 43 mm (1.69 in) D, Approx 620 g (21.9 oz)	
Accessories	Carrying Case×1, Resistance Check Loop×1, Strap×1, Instruction Manual×1, Alkaline Battery(LR6)×2	

Resistance mode

Accuracy guaranteed for 1 year, Temperature and humidity
for guaranteed accuracy: 23±5°C 80%rh or less (no condensation)

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

Frequency of measurement Approx. 2,400Hz.

Alarm function

Alarm Hi/Lo	Separate Hi/Lo settings for resistance measurement and current measurement
	Resistance measurement: Hi.AL/Lo.AL Current measurement: Hi.AL/Lo.AL
Alarm threshold setting range	Resistance measurement: 0.02 Ω to 1,600 Ω
	Resistance measurement initial value: 25.0 Ω
	Current measurement: 0.05 mA to 200.0 mA, 0.201 A to 60.0 A Current measurement initial value: 1.00 mA

Current Mode

Accuracy guaranteed for 1 year
Temperature and humidity for guaranteed accuracy: 23±5°C 80%rh or less (no condensation)

Range	Measurement Range	Resolution	Frequency Range	Accuracy	
				Filter off	Filter on
20.00 mA	1.00 mA to 20.00 mA	0.01 mA	45 ≤ f ≤ 66Hz	±2.0 % rdg. ±0.05 mA	±2.0 % rdg. ±0.05 mA
			30 ≤ f < 45Hz, 66 < f ≤ 400Hz	±2.5 % rdg. ±0.05 mA	—
200.0 mA	18.0 mA to 200.0 mA	0.1 mA	45 ≤ f ≤ 66Hz	±2.0 % rdg. ±0.5 mA	±2.0 % rdg. ±0.5 mA
			30 ≤ f < 45Hz, 66 < f ≤ 400Hz	±2.5 % rdg. ±0.5 mA	—
2.000 A	0.180 A to 2.000 A	0.001 A	45 ≤ f ≤ 66Hz	±2.0 % rdg. ±0.005 A	±2.0 % rdg. ±0.005 A
			30 ≤ f < 45Hz, 66 < f ≤ 400Hz	±2.5 % rdg. ±0.005 A	—
20.00 A	1.80 A to 20.00 A	0.01 A	45 ≤ f ≤ 66Hz	±2.0 % rdg. ±0.05 A	±2.0 % rdg. ±0.05 A
			30 ≤ f < 45Hz, 66 < f ≤ 400Hz	±2.5 % rdg. ±0.05 A	—
60.0 A	18.0 A to 60.0 A	0.1 A	45 ≤ f ≤ 66Hz	±2.0 % rdg. ±0.5 A	±2.0 % rdg. ±0.5 A
			30 ≤ f < 45Hz, 66 < f ≤ 400Hz	±2.5 % rdg. ±0.5 A	—

Accessories

Carrying Case



Resistance Check Loop



Note: Company names and Product names appearing in this catalog are trademarks or registered trademarks of various companies.

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