HIOKI

New

CLAMP ON EARTH TESTER

FT6380, FT6381

Field Measuring Instruments

Easy pole earth resistance measurement with super slim jaw

High Accuracy

Easy Open Jaw

Light Weight

CE True RMS

For multi grounded systems only

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

CAT IV 600 V

FT6381 Data transfer to Android™ phones using *Bluetooth*® wireless technology.*

Real time data transfer, automatic report generation on Android™ phone.

ISO 9001 JMI-0216

ISO14001 JQA-E-90091

INTERNET HIOKI Website www.hioki.com

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

* Please download and install the "FT6381 Communication Software" from the Google Play™ store in order to use the wireless connection function with an Android™ phone. The software is free, but the user is responsible for any Internet connection costs incurred in the course of downloading or using the application.

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)

High Accuracy and Repeatability

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

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.

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

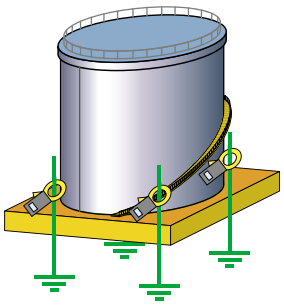
Alarm Function

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

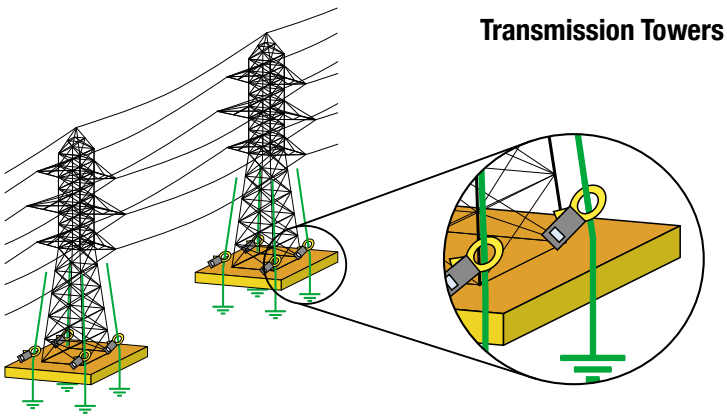
Applications

* The illustration may differ slightly from the field application.

Hazardous Storage Tanks



Transmission Towers



Automatic Report Generation

Bluetooth

For the U.S./ Canada/ Europe/ Singapore/ Mexico/ Japan only

Model FT6381 can create reports instantly in the field using an Android™ phone via a Bluetooth® wireless technology.

Single Point Report

1 Real time data transfer **2** Automatic Report Generation on your Android™ phone

Report includes the Measurement Value, Date and Time, Map with GPS information and Pass/Fail information

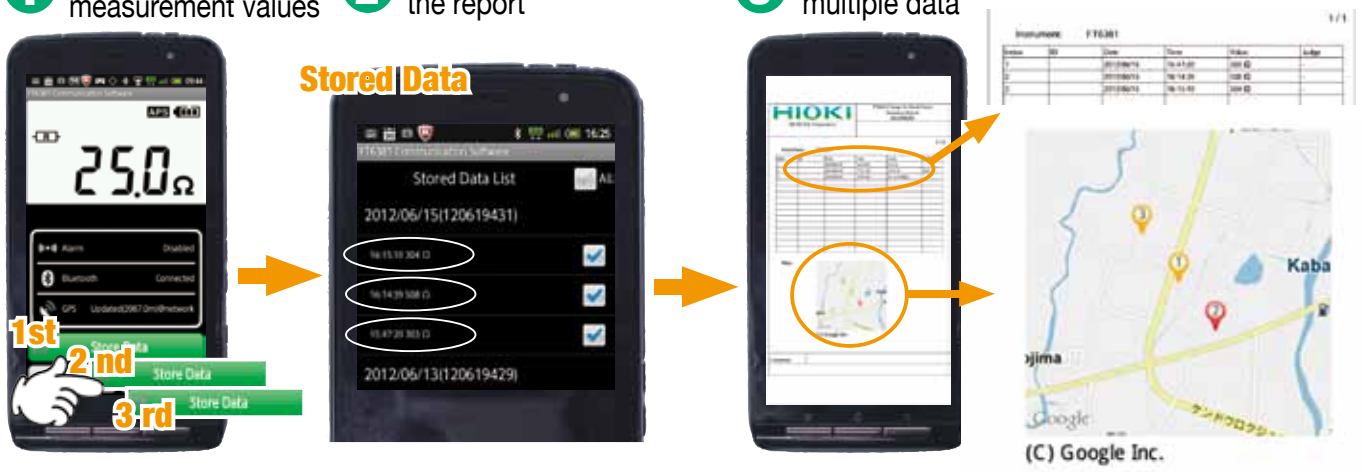
3 Download data

Via e-mail

After making a report, you can see it on the Android™ phone or send the data to your PC at the office via e-mail.

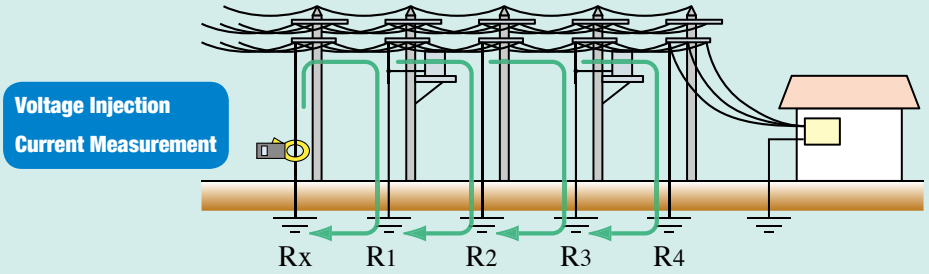
Summary Report

1 Store multiple measurement values **2** Select all the data for the report **3** Instant summary report generation from multiple data



Measurement Principle

FT6380/6381 can measure Multi-Grounded systems.



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

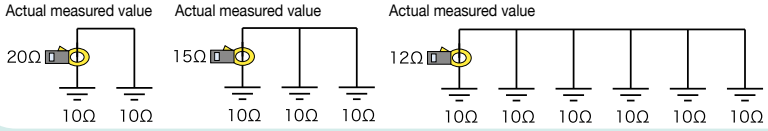
1. The voltage transducer injects a defined voltage into the multi-grounded system.
2. From the defined voltage and measured current, the total circuit loop resistance is calculated in the following equation.

$$Rx + \frac{1}{\frac{1}{R1}+\frac{1}{R2}+\frac{1}{R3}+\frac{1}{R4}\cdots} = \frac{V}{I}$$

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.

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

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.

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, Bluetooth OFF (FT6381)
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, Wireless (For FT6381 only): FCC Part 15.247/ IC RSS-210/ EN 300 328, 301 489-1, 301-489-17/ Singapore DA106438/ Mexico (COFETEL) RCPHIWT13-0616
Dimensions, Mass	Approx. 73 mm (2.87 in) W × 218 mm (8.58 in) H × 43 mm (1.69) D , Approx 620 g (21.9 oz)
Accessories	Carrying Case×1, Resistance Check Loop×1, Strap×1, Instruction Manual×1, Alkaline Battery(LR6)×2

FT6381 Interface

Interface	*Bluetooth*® v2.1+EDR
Communication Distance	10 m (Class 2.1)
Communication Protocol	SPP (Serial Port Profile)
Compatibility	Smartphone/ Tablet (Android™)
Applicable OS	Android™ 2.1 or later

The application supports Android OS 2.1 or later, but proper operation is not guaranteed on all Android. handsets. For more information about the devices on which proper operation has been confirmed, see Hioki's website.

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

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.

Accessories

Carrying Case

Resistance Check Loop

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. ±0.05m A	—
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. ±0.5m A	—
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	—

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All information correct as of Jul. 2, 2013. All specifications are subject to change without notice.
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