



New connection on: : 12-05-2018 : 04:13:52 - Last disconnection on: : 12-05-2018 : 03:07:55

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

Welcome to EPOQUE Rebuild under the Production Environment

[EPODOC: SS 18] (earth or ground) and (test* or meter) ans resist*

An operator is missing. *ERROR(-101310)*

[SS 18] (earth or ground) and (test+ or meter) ans resist+

An operator is missing. *ERROR(-101310)*

[SS 18] (earth or ground) and (test+ or meter) and resist+

Results in EPODOC **6.239**

[SS 19] 18 and induct+

Results in EPODOC **452**

[SS 20] 19 and (bank near capacit+)

Results in EPODOC **0**

EPODOC: No term found in index 'BI' for the truncation 'BANK NEAR CAPACIT+'. *WARNING(401)*

[SS 21] 19 and capacit+

Results in EPODOC **214**

[SS 22] 21 and bank

Results in EPODOC **1**

[SS 23] ..v

[EPODOC: SS 23] 18 and bank and capaci+

Results in EPODOC **27**

[SS 24] ..v

[EPODOC: SS 24] /IC G01R

Results in EPODOC 791.212

[SS 25] /IC G01R 27/20

Results in EPODOC 0

EPODOC: term 'G01R 27/20' not found in index 'IC'. WARNING(1)

[SS 26] /IC G01R27/20

Results in EPODOC 2.294

[SS 27] 18 and 26

Results in EPODOC 308

[SS 28] 27 and induct+

Results in EPODOC 23

[SS 29] ..v

[EPODOC: SS 29] ..li



1/23 © EPODOC / EPO

PN - [CN107632203](#) A 20180126

PR - CN20171690368 20170814

AP - CN20171690368 20170814

DT - I

PA - STATE GRID HUNAN ELECTRIC POWER CO; POWER RES INSTITUTE OF STATE GRID HUNAN ELECTRIC POWER COMPANY; STATE GRID CORP CHINA

TI - Method for **testing ground** impedance of large **earth** grid in accordance with **earth** effects

AB - The invention discloses a method for **testing** the **ground** impedance of a large **earth** grid in accordance with **earth** effects. The method includes the following steps: arranging a plurality of voltage electrode measurement points at equal intervals in a voltage measurement line; recording the distance between each voltage electrode measurement point with the edge of a to-be-detected **earth** grid, and the actual value of the **ground** impedance of the to-be-detected **earth** grid at each voltage electrode measurement point, computing the **resistance** component value and the **inductance** component value therein; based on the recorded data, using a curve-fitting method to separately obtain a **resistance** component curve and the expression thereof and an **inductance** component curve and the expression thereof; performing second derivation on the expression of the **resistance** component, substituting the obtained extreme point to the expression of the **resistance** component, performing computing to obtain a **resistance** component measurement value $R <(x_0)>$; and taking a vertical axis intercept $L <0>$ of the expression of the **inductance** component as the **inductance** component measurement value, thus obtaining the measurement value of the **ground**

impedance of the to-be-detected **earth** grid $Z_0 = R_0 + jL_0$. According to the invention, the method herein can effectively increase the accuracy in **testing** the **ground** impedance of the large **earth** grid.

2/23 © EPODOC / EPO

- PN - [CN206557296U](#) U 20171013
- PR - CN20172254921U 20170316
- AP - CN20172254921U 20170316
- DT - I
- PA - STATE GRID ZHEJIANG TAIZHOU CITY LUQIAO DISTR POWER SUPPLY COMPANY; STATE GRID CORP CHINA; STATE GRID ZHEJIANG ELECTRIC POWER CO TAIZHOU POWER SUPPLY CO LTD
- TI - Join in marriage existing field **test** device of net **ground resistance**
- AB - The utility model discloses a join in marriage existing field **test** device of net **ground resistance**, high -frequency transformer in including the casing and locating the casing, high -frequency transformer are equipped with the drive signal power winding, measure **induction** coil, **ground** lead is sensed with the high frequency electric kinetic potential to the drive signal power winding, the signal of response in **ground** lead is by measuring **induction** coil monitoring back output, the casing middle part is equipped with the vertical measuring aperture that passes for **ground** lead that link up, the drive signal power winding, measure **induction** coil all around the measuring aperture setting, compared with the prior art, the oral area terminal surface of casing is equipped with the seal groove along circumference down, be equipped with the sealing strip in the seal groove, the oral area terminal surface of going up the casing is equipped with sealed sand grip along circumference, sealed sand grip block compresses tightly in the seal groove and with the sealing strip. The utility model discloses during the installation with punching mode suit on **ground** lead, seal all subassemblies inside the casing simultaneously to the **test** who adapts to outdoor various weather environment.

3/23 © EPODOC / EPO

- PN - [CN206557289U](#) U 20171013
- PR - CN201621400539U 20161220
- AP - CN201621400539U 20161220
- DT - I
- PA - CHINA NAT PETROLEUM CORP; SAFETY AND ENVIRONMENTAL PROTECTION RES INSTITUTE SEPRI OF CNPC
- TI - Tank grounding net **resistance meter**
- AB - The utility model provides a tank grounding net **resistance meter**, include: **induction** coil, pulse circuit, **test** loop, data conversion circuit and signal transmission circuit, wherein, the **induction** coil cover is established on the **ground** connection download of tank grounding net to connect pulse circuit, **test** loop connects **ground** connection download and data conversion circuit, and data conversion circuit connects signal transmission circuit, pulse circuit production pulse current erupts simultaneously and delivers to **induction** coil, and **induction** coil passes through electromagnetic **induction** and produces the induced -current through the **ground** connection download, and **test** loop generates grounding **resistance** value according to induced -current, and data conversion circuit converts grounding **resistance** value the signal of telecommunication into and outwards conveys through pulse current 1. The utility model discloses monitoring **earth** mat running state that can be directly

perceived quick to guarantee the normal operating of the regional **earth** mat of oil tank, reduce the oil tank explosive event that can not normally release and bring because of the thunderbolt, guaranteed personnel, the property safety of work area.

4/23 © EPODOC / EPO

- PN - [CN206450761U](#) U 20170829
- PR - CN20162647158U 20160627
- AP - CN20162647158U 20160627
- DT - I
- PA - BAIYIN POWER SUPPLY COMPANY STATE GRID GANSU ELECTRIC POWER COMPANY
- TI - Exempt from disconnect **ground** wire **test** iron tower **ground resistance**'s device
- AB - The utility model relates to an exempt from disconnect **ground** wire **test** iron tower **ground resistance**'s device mainly comprises CPU the control unit, power supply module, display screen, contravariant variable frequency power supply, voltage and current sampling circuit, current electrode decanting point, the reference voltage utmost point, reference point, binding post. With four luoshi coil current mutual - **inductors** pincers on the **ground** connection download in iron tower four corners, inject the alien frequencies electric current into between current electrode and iron tower, through procedure software, calculate the grounding **resistance** value of iron tower. Device of this **test** iron tower **ground resistance** need not to demolish iron tower **ground** connection download and can measure iron tower **ground resistance** with iron tower body of the tower tie point, and it is simple to have a wiring, and the simple operation alleviates intensity of labour, can improve circuit iron tower **ground resistance test** efficiency more than 2 times, and the maintenance cost is saved more than 50% to the one year.

5/23 © EPODOC / EPO

- PN - [CN105467248](#) A 20160406
- PR - CN20151955996 20151217
- AP - CN20151955996 20151217
- DT - I
- CT - || STSE (A)
[JP2002139530](#) A 20020517 [A] (HIOKI ELECTRIC WORKS, et al)
 [A] 1-2
 * 全文 *;
[JP2004309182](#) A 20041104 [A] (CHUBU ELECTRIC POWER, et al)
 [A] 1-2
 * 全文 *;
[CN102298108](#) A 20111228 [A]
 [A] 1-2
 * 全文 *;
[CN202930571U](#) U 20130508 [A] (CHENGDU SUNLIGHT SCIENCE & TECHNOLOGY CO LTD)
 [A] 1-2
 * 全文 *;
[KR20130125515](#) A 20131119 [A] (MARINE HIGH TECH SYSTEM CO LTD [KR], et al)
 [A] 1-2
 * 全文 *;
[CN103792433](#) A 20140514 [A] (STATE GRID CORP CHINA, et al)
 [A] 1-2

	* 全文 *; CN203773008U U 20140813 [A] (CHINA ELECTRIC POWER RES INST, et al) [A] 1-2 * 全文 *; CN104569608 A 20150429 [A] (STATE GRID CORP CHINA, et al) [A] 1-2 * 全文 *
CTNP	- STSE (A) [A] - 黄佳瑞 等, "杆塔接地体冲击散流分布试验研究", 《南方电网技术》 [A] 1-2 * 第34-39页 * [A] - 邓长征 等, "接地装置冲击大电流试验系统研制及杆塔接地冲击特性测试", 《高电压技术》 [A] 1-2 * 第1527-1535页 * [A] - 罗思敏, "垂直型直流接地极散流特性试验研究", 《南方电网技术》 [A] 1-2 * 第28-33页 * [A] - 吴锦鹏 等, "环形金属回流极对接地装置暂态特性的影响", 《清华大学学报》 [A] 1-2 * 第1621-1625页 * [A] - 陈先禄 等, "输电线路杆塔接地装置的冲击接地电阻计算公式", 《电网技术》 [A] 1-2 * 第9-12页 *
CNOI	- G01R27/20 ; G01R31/00
PA	- UNIV TSINGHUA; SHAANXI ELECTRIC POWER RES INST; CHINA ELECTRIC POWER RES INST
TI	- Method for measuring and amending impact characteristics of grounding device
AB	- The invention discloses a method for measuring and amending impact characteristics of a ground device. The method comprises the steps that grounding electrodes or buried rings which are arranged at equal intervals and disposed around the grounding device are selected; electric current backflow electrodes are disposed outside the grounding electrodes or the metal rings and are separately disposed via the arrangement manner of industrial frequency grounding resistance testing; and voltage reference points are determined through the industrial frequency grounding resistance testing. The method for measuring and amending the impact characteristics of the grounding disclosed by the invention has the advantages that uniform distribution of the grounding device in all-around current divergence can be ensured; the problem that testing results are far smaller than actual values when the rings are used as the electric current backflow electrodes can be avoided, and accurate measurement results of impact grounding impedance can be obtained directly; the distance between each backflow electrode and the tested grounding device is greatly reduced, and the length of a current lead is reduced; and thanks to the reduction of lead inductance, output capacity of an impact current generator is enhanced, current waveforms are ensured, and manufacture cost of the impact current generator is reduced.
6/23	© EPODOC / EPO
PN	- CN204613302U U 20150902
PR	- CN2015283684U 20150206
AP	- CN2015283684U 20150206
DT	- I

- PA - YINCHUAN ELECTRIC POWER TECHNOLOGY BRANCH OF GUODIAN SCIENCE AND TECHNOLOGY RES INST
- TI - Experimental **tester** of multi-functional electrical equipment
- AB - The utility model relates to an experimental **tester** of multi-functional electrical equipment. Its characteristics are: including keeping apart voltage regulator (GTB), should keep apart the input winding both ends of voltage regulator (GTB) and pass through the master switch power connection, and should keep apart the 2nd output terminal who draws an adjustable output terminal respectively and fix on voltage regulator (GTB's) the output winding to isolation industry frequency alternate current signal through an output terminal and the 2nd output terminal output 0-600V is as **test** signal. Through using the identification, the utility model discloses a **tester** can replace the **test** of crude generator rotor alternating current impedance, **earth** mat **resistance test**, the **test** of mutual-inductor voltage-current characteristic to can realize the general-purpose effect of instrument, make electric experiment work instrument oversimplify, it is small in quantity, light in weight.

7/23 © EPODOC / EPO

- PN - [CN104698280](#) A 20150610
- PR - CN2015161220 20150206
- AP - CN2015161220 20150206
- DT - I
- CT - || STSE (A)
[CN201583597U](#) U 20100915 [X] (SHILI WANG)
[X] 1-5
* 说明书第17-22段, 图1 *;
[CN203324382U](#) U 20131204 [A] (WANG SHILI)
[A] 1-5
* 全文 *;
[CN103869195](#) A 20140618 [A] (YINCHUAN ELECTRIC POWER TECHNOLOGY BRANCH OF GUODIAN SCIENCE AND TECHNOLOGY RES INST)
[A] 1-5
* 全文 *;
[CN204613302U](#) U 20150902 [R] (YINCHUAN ELECTRIC POWER TECHNOLOGY BRANCH OF GUODIAN SCIENCE AND TECHNOLOGY RES INST)
[R] 1、2、5
* 权利要求1、2、5 *
- PA - YINCHUAN POWER TECHNOLOGY BRANCH OF GUODIAN SCIENCE AND TECHNOLOGY RES INST
- TI - Multi-functional **test** instrument for electrical equipment experiments
- AB - The invention relates to a multi-functional **test** instrument for electrical equipment experiments. The **test** instrument is characterized by comprising an isolation voltage regulator (GTB), the two ends of an input winding of the isolation voltage regulator (GTB) are connected with a power supply through a main switch, and an adjustable first output terminal and a fixed second output terminal are led out of the output winding of the isolation voltage regulator (GTB) respectively, accordingly, isolation power frequency alternating-current signals in a range of 0V to 600V are output through the first output terminal and the second output terminal to be used as **test** signals. Usage proves that the **test** instrument can replace the original generator rotor alternating-current impedance **test**, **earth** screen **resistance test** and **inductor** volt-ampere characteristic **test**, the **test** instrument is multifunctional, and electrical experiment work instruments are simplified, small in number and low in

weight.

8/23 © EPODOC / EPO

PN - [CN104360168](#) A 20150218

PR - CN20141752203 20141209

AP - CN20141752203 20141209

DT - I

PA - HUIZHOU POWER SUPPLY BUREAU OF GUANGDONG POWER GRID CORP; UNIV TSINGHUA; GPGC ELECTRIC POWER RES INST; GUANGZHOU YUENENG POWER TECHNOLOGY DEV CO LTD

TI - Method and system for eliminating mutual **inductance** between leads in **ground resistance** measurement

AB - The invention relates to a method and a system for eliminating mutual **inductance** between leads in **ground resistance** measurement. By synchronously measuring measurement voltage and current waveform and analyzing the amplitude ratio of voltage to current and the phase angle difference between the voltage and the current, **ground** impedance under a given frequency and an impedance angle of the **ground** impedance can be obtained, the mutual **inductance** between the leads of a voltage electrode and a current electrode in measurement is obtained by calculation, and a true value of the **ground** impedance can be obtained by subtracting a part generated by the mutual **inductance** from the **ground** impedance on the basis. According to a **testing** method, the influence caused by various background interference signals is effectively avoided, and an accurate measurement result can be obtained even if the output current is very low. According to the method for eliminating the mutual **inductance** between the leads in the **ground resistance** measurement, the **test** pay-off workload is small, and a voltage lead and a current lead can be paved abreast. **Test** data can be acquired and analyzed under the automatic control of a portable system without manual intervention, and the characteristic of simplicity in operation is achieved. The data are directly analyzed on the scene by virtue of the portable system, the visualization is high, and industrial frequency **ground resistance** can be immediately given.

9/23 © EPODOC / EPO

PN - [CN104020356](#) A 20140903

PR - IN2013CHE915 20130302

AP - CN2014174368 20140303

DT - I

CT - || STSE (A)
[US6331768](#) B1 20011218
 [A] (DRORI JOSEPH [US], et al)
 [A] 1-21
 * 全文 *;
[CN101764430](#) A 20100630
 [A] (NANYUAN POWER TECHNOLOGY DEV C)
 [A] 1-21
 * 全文 *;
[CN101930031](#) A 20101229
 [A] (WANGBAO LUO)
 [A] 1-21
 * 全文 *;
[CN101976843](#) A 20110216
 [A] (FUNING POWER SUPPLY COMPANY OF JIANGSU ELECTRIC POWER COMPANY)
 [A] 1-21
 * 全文 *;
[CN102128988](#) A 20110720
 [A] (FLUKE CORP)
 [A] 1-21
 * 全文 *;
[CN102183694](#) A 20110914
 [X] (FLUKE CORP)
 [X] 1-21
 * 权利要求第1-20项, 说明书第[0008]-[0062]段, 附图1、2a-2b、3a-3b、4、5a-5d、6 *;
[CN202041584U](#) U 20111116
 [A] (UNIV XI AN JIAOTONG, et al)
 [A] 1-21
 * 全文 *;
[CN102509436](#) A 20120620
 [A] (SCIENCE RES INST HUNAN ELECTRIC POWER CO LTD, et al)
 [A] 1-21
 * 全文 *;
[CN102680798](#) A 20120919
 [A] (UNIV SHANDONG JIANZHU)
 [A] 1-21
 * 全文 *

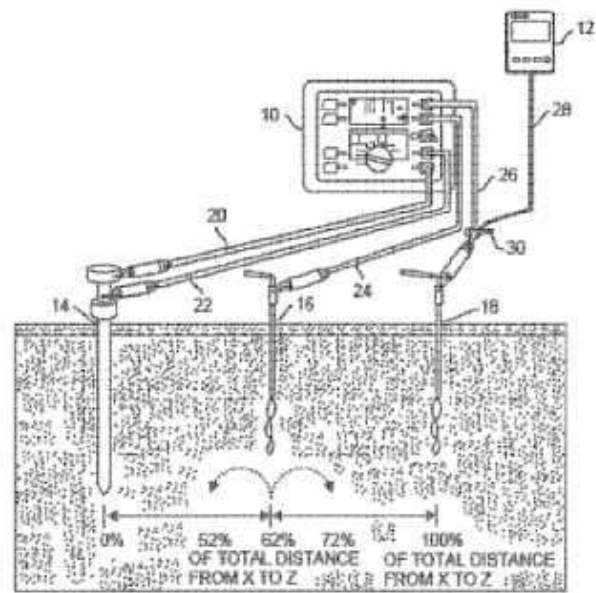


FIG. 1

CCI - [G01R27/20](#)

CUI - [G01R27/08](#)

- PA - FLUKE CORP
- TI - **Earth ground tester** with remote control
- AB - The invention relates to an **earth ground tester** with remote control. Methods and apparatuses for measuring **earth ground resistivity** are provided. A main unit can be configured to couple to each of a plurality of electrodes over a respective wire, perform a **resistance** measurement over the plurality of electrodes, and transmit an **induction** signal over one or more of the respective wires indicating a representation of a **resistance** value calculated as part of the **resistance** measurement. A remote unit can be configured to detect the **induction** signal over the one or more of the respective wires using an **inductance** mechanism, process the **induction** signal to determine the representation of the **resistance** value, and render the representation of the **resistance** value on an interface of the remote unit.

PN - [US2014247063](#) A1 20140904

PR - IN2013CHE915 20130302

AP - US201414194581 20140228

DT - **

CT - || R141 (A1)
[US5565785](#) A 19961015 [] (RODGERS BARRY [US], et al);
[US2011121845](#) A1 20110526 [] (LAEPPL KLAUS [DE], et al);
[US6246240](#) B1 20010612 [] (VAIL III WILLIAM BANNING [US]);
[US2008078252](#) A1 20080403 [] (GRABER WILLIAM F [US], et al);
[US2011121844](#) A1 20110526 [] (LAEPPL KLAUS [DE]);
[US2013128396](#) A1 20130523 [] (DANESH SEYED AMIR ALI [GB], et al);
[US2008100282](#) A1 20080501 [] (CRICK ROBERT [US]);
[US7525317](#) B2 20090428 [] (YANG HSIN-MING [TW]);
[US9158022](#) B2 20151013 [] (PARK IN-HWA [KR], et al)

CCI - [G01R27/20](#)

CUI - [G01R27/08](#)

PA - FLUKE CORP [US]

TI - **Earth Ground Tester With Remote Control**

AB - Methods and apparatuses for measuring **earth ground resistivity** are provided. A main unit can be configured to couple to each of a plurality of electrodes over a respective wire, perform a **resistance** measurement over the plurality of electrodes, and transmit an **induction** signal over one or more of the respective wires indicating a representation of a **resistance** value calculated as part of the **resistance** measurement. A remote unit can be configured to detect the **induction** signal over the one or more of the respective wires using

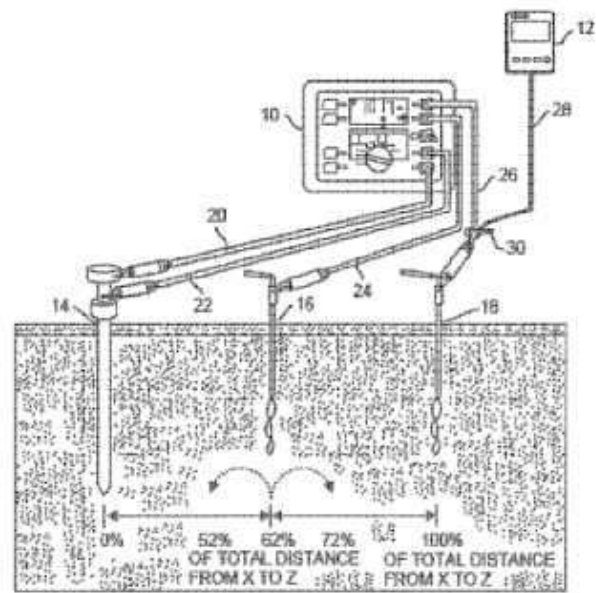


FIG. 1

an **inductance** mechanism,
process the **induction** signal
to determine the
representation of
the **resistance** value, and
render the representation of
the **resistance** value on an
interface of the remote unit.

11/23 © EPODOC / EPO

- PN - [EP2772767](#) A1 20140903
PR - IN2013CHE915 20130302
AP - EP20140157325 20140228
DT - *; Rep
CT - || STSE (A1)
[EP2325660](#) A2 20110525
[XI] (FLUKE CORP [US])
[X] 1-3,6-12,14,15
* figures 1-6 *
* paragraphs [0001] , [0008]
*
* paragraphs [0010] , [0 11] *
* paragraphs [0033] , [0034]
 , [0037] *
* paragraphs [0045] , [0 49] *
* claims 1, 9 *
[I] 4,5,13;
[EP2325661](#) A1 20110525
[XI] (FLUKE CORP [US])
[X] 1-3,6-12,14,15
* figures 1-7 *
* paragraphs [0001] , [0021]
 , [0022] *
* paragraphs [0024] , [0025]
*
* paragraph [0032] -
paragraph [0034] *
[I] 4,5,13;
[US6037784](#) A 20000314
[A] (SMITH KENNETH R [US])
[A] 1-15
* figures 1, 2A, 2B *
* column 1, line 5 -
column 2, line 56 *;
[US2008136421](#) A1 20080612
[A] (BRYANT JOHN [US], et al)
[A] 1-15
* figures 1-6, 15A-16, 20, 21 *
* paragraph [0069] -
paragraph [0098] *

CCI - [G01R27/20](#)

CUI - [G01R27/08](#)

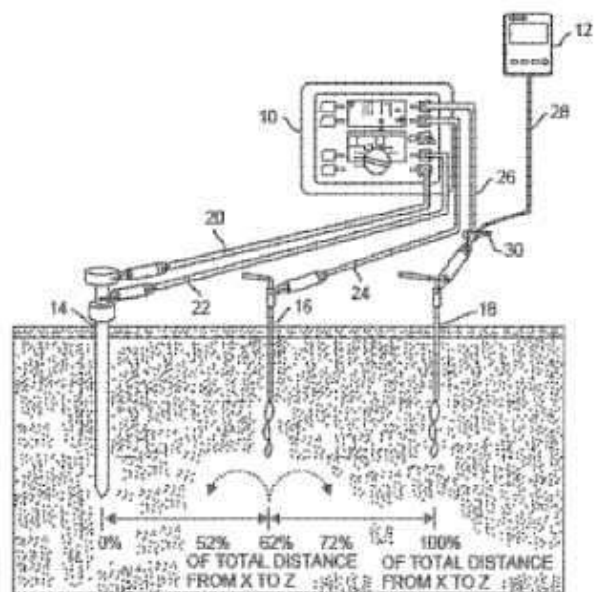


FIG. 1

PA - FLUKE CORP [US]

TI - **Earth ground tester** with remote control

AB - Methods and apparatuses for measuring **earth ground resistivity** are provided. A main unit (10) can be configured to couple to each of a plurality of electrodes (14, 16, 18) over a respective wire (20, 22, 24, 26), perform a **resistance** measurement over the plurality of electrodes, and transmit an **induction** signal over one or more of the respective wires indicating a representation of a **resistance** value calculated as part of the **resistance** measurement. A remote unit (12) can be configured to detect the **induction** signal over the one or more of the respective wires using an **inductance** mechanism (30), process the **induction** signal to determine the representation of the **resistance** value, and render the representation of the **resistance** value on an interface of the remote unit.

12/23 © EPODOC / EPO

PN - [CN103176051](#) A 20130626

PNFP - [CN103176051B](#) B 20170503

PR - [FR20110062431](#) 20111223

AP - [CN20121567503](#) 20121224

DT - I

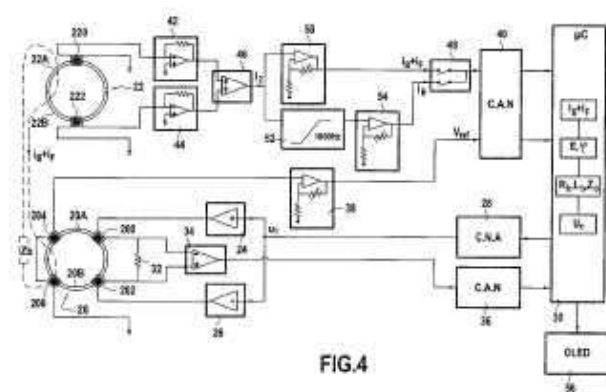
CCI - [G01R27/20](#)

CUI - [G01R19/0007](#) ; [G06F17/12](#)

PA - (A)
CHAUVIN ARNOUX

TI - (A)
Earth/ground clamp for measuring **earth resistance** of electrical installations

AB - (A)
The present invention discloses an **earth** clamp (10)



capable of **testing** contact voltage, comprising: a measuring circuit formed of a voltage inducing transformer (20) and a current measuring transformer (22), adapted to be mutually coupled by an **earth** conductor whose **earth** impedance is to be measured; and a microcontroller (30) to deliver an alternating voltage at fixed frequency F_m to the voltage inducing transformer and, in response, to receive measurement signals representing a reference voltage V_{ref} generated in the **earth** conductor and an **earth** current $i_B + i_F$ induced in the current measuring transformer, wherein the microcontroller is configured to extract by numerical computation an amplitude E of the reference voltage, an amplitude i_B and an amplitude i_F of the **earth** current and a phase shift between the reference voltage and the loop current i_B , and to deduce therefrom **resistive** R_b and **inductive** L_b parts at the fixed frequency F_m of the **earth** impedance, then to calculate the **earth** impedance Z_b at a determined frequency using the active R_b and reactive L_b parts, and the microcontroller further computes the contact voltage U_c at the determined frequency from the product of the **earth** impedance times the amplitude i_F .

13/23 © EPODOC / EPO
 PN - [CN201184897Y](#) Y 20090121
 PR - CN2008262244U 20080225
 AP - CN2008262244U 20080225
 DT - I
 PA - SICHUAN ELECTRIC POWER EXPERIM [CN]

- TI - System for measuring **earth** network **resistance** and **inductance** using impact current
- AB - The utility model relates to a system for measuring **resistance** and **inductance** of a **ground** grid by applying impact current, and aims to solve the problems of measurement of **ground** impedance, the **resistance** and the **inductance** when the **ground** grid is flowed by lightning current. The input of an impact current generator (B) is connected with the output of an isolation transformer (A), the input of the isolation transformer (A) is connected with an alternating current power supply, the output of the impact current generator (B) carries out the charge of a capacitor (I) through a silicon stack (C) and a protection **resistor** (D), a controllable silicon (G) controls the capacitor (I) to carry out the discharge of a **test** loop, a shunt **resistor** (F), an adjustable **inductor** (E) and an equivalent **ground** grid (H) are connected in a discharge loop of the capacitor (I) in series, a first voltage division **resistor** and a second voltage division **resistor** (M1, M2) which are connected in series are connected with the equivalent **ground** grid (I) in parallel. The shunt **resistor** (F) and the second voltage division **resistor** (M2) are connected with the input of an A/D converter (J), and the output of the A/D converter is connected with a microprocessor (K).

14/23 © EPODOC / EPO

- PN - [CN101236222](#) A 20080806
- PNFP - CN101236222B B 20110209
- PR - CN2008144810 20080225
- AP - CN2008144810 20080225
- DT - I
- PA - (A)
SICHUAN POWER TEST INST [CN]
(B)
SICHUAN TEST AND RES INST OF ELECTRICAL POWER; JIANMING LI
- TI - (A)
System and method for applying impact current for measuring grounded screen electric **resistance** and **inductor**
(B)
Method for applying impact current for measuring grounded screen electric **resistance** and **inductor**
- AB - (A)
The invention relates to a system and a method of measuring the **resistance** and **inductance** of an earthed network through dash current, which solve the problem of measuring the **ground** impedance, **resistance** and **inductance** of the earthed network when the lightning current passes through the earthed network. The input of a dash current generator (B) is connected with the output of an isolating transformer (A), the input of the isolating transformer (A) is connected with an AC power supply, the output of the dash current generator (B) charges a capacitor (I) through a silicon stack (C) and a protective **resistance** (D), a silicon controlled (G) controls the capacitor (I) to discharge to a **test** loop, a shunting **resistance** (F), an adjustable **inductance** (E) and an equivalent **ground** network (H) are connected in series in the discharge loop of the capacitor (I), and a first divider **resistance** and a second divider **resistance** (M1, M2) are connected in parallel with the equivalent **ground** network (H). The shunting **resistance** (F) and the second divider **resistance** (M2) are connected with the input of an A/D converter (J), and the output of the A/D converter is connected with a microprocessor (K).
(B)

The invention relates to a system and a method of measuring the **resistance** and **inductance** of an earthed network through dash current, which solve the problem of measuring the **ground** impedance, **resistance** and **inductance** of the earthed network when the lightning current passes through the earthed network. The input of a dash current generator (B) is connected with the output of an isolating transformer (A), the input of the isolating transformer (A) is connected with an AC power supply, the output of the dash current generator (B) charges a capacitor (I) through a silicon stack (C) and a protective **resistance** (D), a silicon controlled (G) controls the capacitor (I) to discharge to a **test** loop, a shunting **resistance** (F), an adjustable **inductance** (E) and an equivalent **ground** network (H) are connected in series in the discharge loop of the capacitor (I), and a first divider **resistance** and a second divider **resistance** (M1, M2) are connected in parallel with the equivalent **ground** network (H). The shunting **resistance** (F) and the second divider **resistance** (M2) are connected with the input of an A/D converter (J), and the output of the A/D converter is connected with a microprocessor (K).

15/23 © EPODOC / EPO

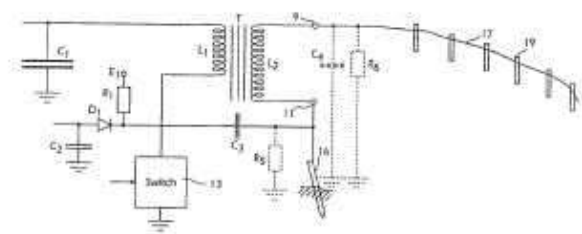
PN - [US5771147](#) A 19980623

PR - WO1994SE01268
19941229; SE19930004342
19931229

AP - US19960663108 19960822

DT - *

CT - [US3051449](#) A []; [US3205378](#)
A [];
[US3332001](#) A []; [US3378694](#)
A [];
[US3397344](#) A []; [US3448361](#)
A [];
[US3525878](#) A []; [US3566149](#)
A [];
[US3581299](#) A []; [US3590279](#)
A [];
[US3654489](#) A []; [US3655994](#)
A [];
[US3655995](#) A []; [US3743924](#)
A [];
[US3772601](#) A []; [US3883804](#)
A [];
[US3928809](#) A []; [US4087705](#)
A [];
[US4090140](#) A []; [US4099128](#)
A [];
[US4150307](#) A []; [US4158785](#)
A [];
[US4160214](#) A []; [US4274033](#)
A [];
[US4310869](#) A []; [US4322817](#)
A [];
[US4329595](#) A []; [US4394583](#)
A [];
[US4396879](#) A []; [US4456835](#)



A [];
[US4771245](#) A []; [US4859868](#)
 A [];
[US5550530](#) A []; [EP0036089](#)
 A1 [];
[EP0248133](#) A1 []; [DE179435](#)
 C [];
[DE2847993](#) A1 []; [NZ216748](#)
 A [];
[NZ219542](#) A []

CTNP - [] Semko Certificate issued
 Apr. 15, 1987

CCI - [G01R27/205](#) ; [H05C1/04](#) ;
[H05C3/00](#)

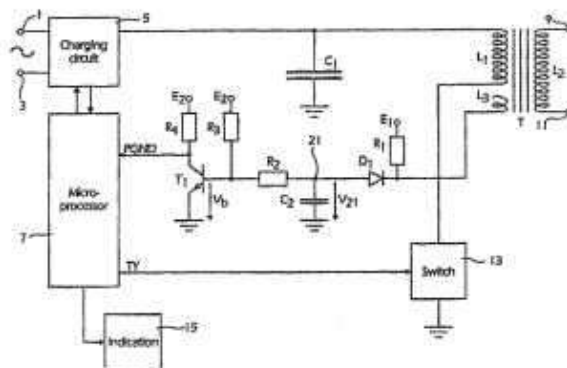
PA - ALFA LAVALAGRIAB [SE]

TI - Defective **earth testing** for an
 electric fence energizer

AB - PCT No. PCT/SE94/01268 Sec.
 371 Date Aug. 22, 1996 Sec.
 102(e) Date Aug. 22, 1996 PCT
 Filed Dec. 29, 1994 PCT Pub.
 No. WO95/18519 PCT Pub.
 Date Jul. 6, 1995 In an electric
 fence energizer there is an
 exterior **earth** connection
 such as an **earth** connection
 post (16). The electric fence
 energizer comprises in the
 conventional way a
 transformer (T) having a
 primary winding (L1) and a
 secondary winding (L2), one
 exterior terminal (9) of which
 is connected to the conductor
 (17) in the electric fence and
 the other exterior terminal
 (11) is connected to the **earth**
 connection, high voltage
 pulses being induced over the
 secondary winding (L2) when
 voltage pulses are applied
 over the primary winding (L1).
 For a determination of the
 quality of the **earth**
 connection, the voltage over a
 small part of the secondary
 winding (L2) is obtained
 capacitively by means of an
 extra winding (L3) in the
 transformer (T). For an
 evaluation of this voltage, it
 is connected, only for a

determined polarity, to a charging circuit for a capacitor (C2), which is discharged over a known **resistor** (R2, R3). The voltage (V21) over this capacitor (C2) is processed for a determination of the quality of the connection to **earth**. Then the time difference can be determined between the time (t0) when the **induction** high voltage pulse over the secondary winding (L2) starts, and the times (t1, t2) when a voltage change of the capacitively obtained signal after that starts and when the voltage returns to its stationary value. These time differences are compared to threshold values for determination of the quality of the connection to **earth**. The capacitively obtained voltage can also be used for other determinations in the electric fence energizer.

- 16/23** © EPODOC / EPO
- PN - [WO9518519](#) A1 19950706
- PR - SE19930004342 19931229
- AP - WO1994SE01268 19941229
- DT - **
- CT - |SE| ISR (A1)
[EP0248133](#) A1 19871209
 [A] (NEW ZEALAND DEV FINANCE [NZ]);
[US3378694](#) A 19680416
 [A] (GRIFFETH THURMAN F)
- CCI - [G01R27/205](#) ; [H05C1/04](#) ;
[H05C3/00](#)
- PA - ALFA LAVALAGRIAB [SE];
 ERIKSSON LARS ARNE [SE];
 KARLSSON GOERAN KARLOLOV [SE]
- TI - DEFECTIVE **EARTH TESTING**
 FOR AN ELECTRIC FENCE
 ENERGIZER
- AB - In an electric fence energizer
 there is an exterior **earth**



connection such as an **earth** connection post (16). The electric fence energizer comprises in the conventional way a transformer (T) having a primary winding (L1) and a secondary winding (L2), one exterior terminal (9) of which is connected to the conductor (17) in the electric fence and the other exterior terminal (11) is connected to the **earth** connection, high voltage pulses being induced over the secondary winding (L2) when voltage pulses are applied over the primary winding (L1). For a determination of the quality of the **earth** connection the voltage over a small part of the secondary winding is obtained capacitively by means of an extra winding (L3) in the transformer (T). For an evaluation of this voltage it is connected, only for a determined polarity, to a charging circuit for a capacitor (C2), which is discharged over a known **resistor** (R2, R3). The voltage (V21) over this capacitor (C2) is processed for a determination of the quality of the connection to **earth**. Then the time difference can be determined between the time (t0), when the **induction** is a high voltage pulse over the secondary winding (L2) starts, and the time (t1, t2), when a voltage change of the capacitively obtained signal after that starts and when the voltage returns to its stationary value. These time differences are compared to threshold values for determination of the quality of the connection to **earth**. The capacitively

obtained voltage can also be
used for other determinations
in the electric fence energizer.

17/23 © EPODOC / EPO

PN - [JPH03180771](#) A 19910806
PR - JP19890320864 19891211
AP - JP19890320864 19891211
DT - I
FI - G01R27/20
FT - 2G028/AA02; 2G028/BF05; 2G028/CG02; 2G028/CG05; 2G028/DH12; 2G028/FK02;
2G028/FK09; 2G028/GL20; 2G028/LR01
PA - NIPPON TELEGRAPH & TELEPHONE
TI - MEASUREMENT OF GROUNDING **RESISTANCE**
AB - PURPOSE: To easily perform a connection **test** of cable metal sheath and a
grounding **resistance** measurement for both terminals at the same time and to attain
a drastic reduction of the working time by measuring a loop **resistance** of return line
of an **induction** shielding cable to the **earth**. CONSTITUTION: When a constant voltage
E driven by a transmitter 17 is impressed to a return circuit to the **earth** constituting
of the metal sheath 1 of **induction** shielding cable and grounding devices 2, 3 of both
terminals thereof by using a current transformer 15, a circuit current I is made to
flow. The loop **resistance** of return circuit to the **earth**, $R + (RE1 + RE2)$ is measured by
means of detecting the circuit current I with a current transformer 16 and an
ammeter 18. Since the **resistance** R of metal sheath 1 is already known according to
the sort of cables, the total value of grounding **resistances** of both terminals,
 $RE1 + RE2$ is obtained. In the case the metal sheath 1 is not connected, the circuit
current I is not detected and the disconnection can be decided, so the
connection **test** is as good as performed at the same time. Then, the measuring time
is reduced to about 1/20 as compared with the conventional measuring method, and
also the workability is improved.

18/23 © EPODOC / EPO

PN - [JPS562570](#) A 19810112
PR - JP19790079417 19790622
AP - JP19790079417 19790622
DT - I
CT - [JPS49114468](#) A [
FI - G01R27/20; G01R31/02; H02H3/17
FT - 2G014/AA32; 2G014/AB01; 2G014/AC15; 2G028/AA02; 2G028/AA03; 2G028/BE10;
2G028/CG05; 2G028/DH03; 2G028/DH05; 2G028/DH12; 2G028/FK02; 2G028/GL11;
2G028/GL14; 2G028/HN01; 2G028/LR01; 2G028/LR04; 2G028/LR14; 5G004/AA01;
5G004/AB02; 5G004/CA02; 5G004/DC01; 5G004/DC02; 5G004/GA02; 5G004/XX28
PA - TEMPEARL INDUSTRIAL
TI - **EARTH TESTER**
AB - PURPOSE: To measure **earth resistance** automatically and directly without reference
to the **earth** side of an electric power line by connecting one terminal of the series
circuit of a DC power source, current detector and impedance to the center point of
impedance connected between electric power lines. CONSTITUTION: Among
internal **resistances** R_g , R_1 , R_2 and R_0 of galvanometer G, impedance elements R_1 , R_2

and R0 use DC **resistances** and R0 employs a choke coil, etc., of high **inductance**. As a result, **earth** AC current from AC power source A is small and from DC power source E0, we have **earth** DC component current $I_g = E_0 / [r_A + r_B + (R_1 R_2) / (R_1 + R_2) + R_0 + R_g]$ providing that r_A and r_B are the **earth** resistance of the electric power source and circuit to be **tested**. On the other hand, galvanometer G, using a DC moving coil ammeter, responds to only a DC component. Further, even if **resistances** R1 and R2 are reversely connected to electric power lines 1 and 2 by mistake, one neon lamp only comes on and current I_g is unchangeable. Therefore, the **earth resistance** of the **tested** circuit can automatically be measured direct.

19/23 © EPODOC / EPO

PN - [JPS63231276](#) A 19880927

PNFP - JPH0668528B B2 19940831

PR - JP19870067513 19870319

AP - JP19870067513 19870319

DT - I

CT - (A)
[JPS6035628](#) A []

FI - G01R27/18; G01R27/20

FT - 2G028/AA01; 2G028/BF01; 2G028/CG05; 2G028/DH03; 2G028/FK02; 2G028/FK09; 2G028/GL17; 2G028/LR01; 2G028/LR04; 2G028/LR06; 2G028/MS01; 2G028/MS05

PA - (A)
KATAOKA YOSHINORI

TI - (A)
HOT-LINE **EARTH RESISTANCE METER**

AB - (A)
PURPOSE: To accurately measure **earth resistance** even if there is floating electrostatic capacity to the **ground** and **induction** in a hot-line state by utilizing a DC current for the whole circuit and reducing the influence of an AC component by using reactors and a capacitor. CONSTITUTION: Two reactors 20 and 21 are connected between cables and the capacitor 25 which has large capacity is connected between the neutral point between the reactors 20 and 21 and the **ground**. A DC power source E22, a limiting **resistance** R23, and a DC ammeter 24 which are connected in series are connected to the capacitor 25 in parallel. Consequently, when the cables are viewed in terms of DC, the capacitor 25 is infinite in **resistance** and the reactors 20 and 21 are zero, so the deflection on the DC ammeter 24 is zero unless grounding is performed. When the grounding is performed, the deflection I on the ammeter 24 is $I = E / (R + \text{earth resistance } RX)$ and the **earth resistance** RX of the DC ammeter 24 is graduated in consideration of even the limiting **resistance** 23 to know the secure **earth resistance**.

20/23 © EPODOC / EPO

PN - [CN200953038Y](#) Y 20070926

PR - CN2006278983U 20060515

AP - CN2006278983U 20060515

DT - I

PA - XIAN SIFANG ELECTROMECHANICAL [CN]

TI - Counterpoise comprehensive parameter **testing** device

AB - This utility model discloses one **test** device of comprehensive parameters of **ground**

grid. It includes one pilot frequency **test** mains connected to an AC220V mains, one secondary **test** mains connected to the output terminal of the pilot frequency **test** mains and one self-contained **tester**. The secondary **test** mains is an impedance matching transformer with multi-stage outputs whose 0V terminal is connected to the **ground** via a downlead. The **tester** constitutes current **induction** connection with the **test** lead wires of connected electrodes via Rogowski coils or constitutes voltage connection with the **tested ground** grid via the **tested** voltage electrode. The **tester** in this utility model is characterized by high **resistance** to power frequency interference and highly accurate, fast, safe and reliable measurements. It is be used for the comprehensive **test** and appraisal of operating conditions of **ground** grid at power plants, substations, distribution stations, etc.

21/23 © EPODOC / EPO

PN - [CN1948975](#) A 20070418

PNFP - CN1948975B B 20110406

PR - CN20061134268 20061114

AP - CN20061134268 20061114

DT - I

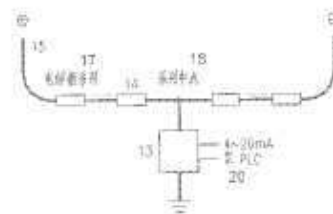
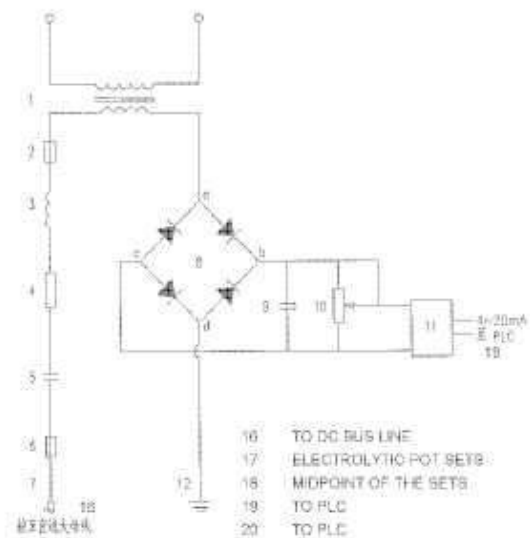
CCI - [C25C3/16](#) ; [G01R27/18](#)

PA - (A)
SHENYANG AL & MG ENG RES
INST [CN]

- (B)
SHENYANG AL & MG ENG RES
INST

TI - (A B)
Apparatus and method
for **testing**
absolute **resistance to ground**
of electrolytic tank series

AB - (A B)
The invention discloses
electrolytic aluminum factory
pot line **ground**
insulation **resistance**
detecting device and method.
It includes the following
structure that it sets the
isolating transformer of
which secondary side one end
is connected with
divider **resistance**, limiting
circuit **inductance** coil, the
first capacitance, and
connecting cable; another end
is connected with
rectification bridge a end of
which b and c ends is parallel
connecting with rheostat and
capacitance; d end is
connected with connecting



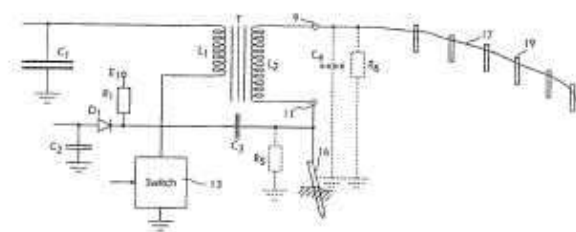
cable; electric pressure signal converter; neutral grounding circuit which is set between the electrolytic bath midpoint and the **ground**. The invention can real time detect whether the pot line **ground** insulation is damaged or not, which one occurs insulation destruction in order to notice repair personnel timely to eliminate the breakdown and ensure operating personnel and device safety.

22/23 © EPODOC / EPO

- PN - [CN2616913Y](#) Y 20040519
- PR - CN2002224951U 20020528
- AP - CN2002224951U 20020528
- DT - I
- PA - JIAYUAN TECHNOLOGY TRADE AND D [CN]
- TI - Power frequency mutual **inductance** type **ground resistance** measuring instrument
- AB - The utility model relates to an electrotechnical measuring equipment, which can measure the power frequency grounding **resistance** value of the power equipment, and the effective value of the power frequency of the leakage current of the grounding wires current without assistant **ground** piles, wherein, the magnetic cores of two current transformers CT1 and CT2 are made into a clamp by silicon steel sheets; the **tested** wire circuits are the secondary coils of the CT1, the primary coil of the CT2; the other two coils is L1 and L2; a circuit **resistance** which is a single winding of a R 0 is connected into the two magnetic cores. When the grounding **resistance** is measured, the signals which are similar to power frequency are transmitted by the L 1; while the current is measured, no signals are transmitted by L1. After the signals received by L2 are amplified, frequency selected, rectified, filtered, and through a computation circuit, a measuring result is shown in the voltmeter.

23/23 © EPODOC / EPO

- PN - [CA2179928](#) A1 19950706
- PR - SE19930004342 19931229
- AP - CA19942179928 19941229
- DT - I
- CCI - [G01R27/205](#) ; [H05C1/04](#) ; [H05C3/00](#)
- PA - ALFA LAVALAGRI AB [SE]
- TI - DEFECTIVE **EARTH TESTING**
FOR AN ELECTRIC FENCE
ENERGIZER
- AB - In an electric fence energizer there is an exterior **earth** connection such as an **earth**



connection post (16). The electric fence energizer comprises in the conventional way a transformer (T) having a primary winding (L1) and a secondary winding (L2), one exterior terminal (9) of which is connected to the conductor (17) in the electric fence and the other exterior terminal (11) is connected to the **earth** connection, high voltage pulses being induced over the secondary winding (L2) when voltage pulses are applied over the primary winding (L1). For a determination of the quality of the **earth** connection the voltage over a small part of the secondary winding is obtained capacitively by means of an extra winding (L3) in the transformer (T). For an evaluation of this voltage it is connected, only for a determined polarity, to a charging circuit for a capacitor (C2), which is discharged over a known **resistor** (R2, R3). The voltage (V21) over this capacitor (C2) is processed for a determination of the quality of the connection to **earth**. Then the time difference can be determined between the time (t0), when the **induction** is a high voltage pulse over the secondary winding (L2) starts, and the time (t1, t2), when a voltage change of the capacitively obtained signal after that starts and when the voltage returns to its stationary value. These time differences are compared to threshold values for determination of the quality of the connection to **earth**. The capacitively obtained voltage can also be

used for other determinations
in the electric fence energizer.

[SS 29]