

8233

INTELLIGENT DIGITAL MULTIMETER

**USER MANUAL** 

Thank you for purchasing our products. For better experience, please read this content carefully before using and keep it properly.



GUANGZHOU HANKER ELECTRONICS TECHNOLOGY CO., LTD.

🐞 🌋 🙋 🚳 Keep out of reach of children.

- General electric shock prevention.

- Prevention of misuse of instrument.

the instrument has been damaged.

use any abrasive or solvent.

avoid any damage to the instrument.

OFF position.

2.2 LCD display

-I←→IMkΩnimAVF

T-RMS

6000 Counts

1.1 Preparation

exposed.

1.2 Symbol

GUANGZHOU HANKER ELECTRONICS TECHNOLOGY CO., LTD. ba»)u MADE IN CHINA

1.1.1 When using this instrument, users must observe standard

1.1.2 After receiving the instrument, check whether it is damaged during

1.1.3 After storing and shipping under adverse conditions. check whether

1.1.4 Pens of the instrument must be in good condition. Before use, check

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1.3.4 Use wet cloth and gentle detergent to clean the instrument, and do no

1.3.5 Power off when the instrument is not used, and rotate range switch to

1.3.6 If the instrument is not used for a long time, take out the battery to

~ ==

AUTO

0

V,A

Hz

\*

NCV

Live

• Unit display: Function and electricity quantity unitdisplay.

• Battery under-voltage indication: LCD display 🗖 symbol.

• Temperature coefficient: Less than 0.1xaccuracy/°C.

• Automatic shutdown time: 15 minutes.

• Power supply: 1.5V AAA battery x 2.

• Operating temperature: 18 °C~ 28°C.

• Storage temperature: -10°C ~ 50°C.

Ω, kΩ, ΜΩ

nF uF mF

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Connection/Disconnection indication

Automatic shutdown indication

Volt (voltage), ampere (current)

Centigrade and Fahrenheit

Live line voltage identificati

Non-contact measuring voltage

Ohm kilohm and megohm (resistance)

Automatic range mode

ow battery

Hertz

DIODE

Microfarad

Reading hold state

whether insulation of pens is damaged, and whether metal wire is

 $\triangle$  Note (refer to use manual for important safety information).

Able to be used on dangerous electrified conductors.

1. Safety Information

⚠Warning

Pay special attention to use of this instrument, for improper use may cause electric shock or damage to instrument. During use, observe usual safety regulations and observe safety measures regulated in use

In order to make full use of instrument functions and guarantee safe operation, please carefully read and observe use methods in this manual.

Instrument complies with safety requirements on electronic measuring instrument of,EN-61010-1, EN-61010-2-030 and EN-61010-2-032, level II pollution, and over-voltage standard is CAT III 600V.

Please observe safety operation guide, and guarantee to use instrument in a safe manner.

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 $\square$  Dual-insulation protection (Category II). CAT III Over-voltage according to IEC-61010-1 standard (installation), level III, pollution degree 2 refers to protection level of pulse withstand voltage provided. C € Comply with EU standard.

≟ Grounded

instrument and electric shock danger.

1.3 Maintenance 1.3.1 Do not try to open bottom case to adjust or repair instrument, for such operation could only be conducted by technicians fully understanding the

1.3.2 Before opening instrument bottom case or battery cover, remove the pens from the wire being measured. 1.3.3 In order to avoid electric shock possibly caused by error reading,

when symbol "

displays on instrument, replace battery immediately.

2. Description 2.1 Part name 1.Non-contact voltage detecting & inducing area 2.Data hold and backlight buttons 3.Flashlight and NCV button

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5.Liquid crystal display (LCD) 6.Socket 7.On/off key

4. Function switch button

3. Specification

The instrument specifies one year as a cycle, and shall be re-calibrated under 18°C ~ 28°C, with relative humidity less than 75%. 3.1 Overview

times/second.

· Overload protection throughout the range. • Max. voltage between measurement terminal and ground: 600V DC or 600V AC

• Select measurement function and range automatically.

· Operating height: Max. 2000m. Display: LCD • Max. display value: 6000 digit.

• Polarity indication: Automatic indication, and "-" indicates negative. Over range display: "OL"or "-OL". • Sampling time: About 3 times/second., bargraph 10

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3.2 Technical indexes

3.2.1 AC current Resolution Range

6000mA 1mA  $\pm(1.0\% + 8)$ 0.01A 10A - Min. input current: 20mA AC current. - Max. input current: 10AAC current. - Frequency range: 40 ~ 1000 Hz. 3.2.2 DC current Range Resolution Accuracy 6000mA 1mA  $\pm(1.0\% + 5)$ 

- Min. input current: 20mA DC current. - Max. input current: 10A DC current.

0.01A

3.2.4 AC voltage

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Accuracy

3.2.3 DC voltage Resolution Accuracy 0.001V 6V 60V 0.01V  $\pm (0.5\% + 3)$ 600V 0.1V - Min. input voltage 0.5V DC. - Max. input voltage: 600V DC. 3.2.4 AC voltage Resolution Range Accuracy 0.001V  $\pm (0.8\% + 5)$ 60V 0.01V 600V 0.1V - Min. input voltage: 0.5V AC. - Max. input voltage: 600V AC (valid value). - Frequency range: 40 ~ 1000Hz.

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 $\pm (0.8\% + 3)$ 

Testing current: about 1mA; Open circuit voltage: about 2.8V. The display shows an approximation of the diode forward pressure drop.

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## Range Resolution 0.001V 60V $\pm (0.8\% + 5)$ 0.01V 600V 0.1V - Min.input voltage: 0.5V AC. - Max. input voltage: 600V AC (valid value). - Frequency range: 45 ~ 1000Hz. 3.2.5 Line on-off test Resolution Accuracy If resistance of the line being measured is less than $50\Omega$ , buzzer in instrument will make continuous alarming sounds. -1)) - Overload protection: 600V DC or AC (valid value). -11-

Accuracy Range Resolution 0.001nF  $\pm(10\% + 40)$ 600.0nF 0.1nF 0.001μF  $6.000\,\mu\,F$  $0.01 \mu F$ 60.00 μ F  $\pm(2.5\% + 20)$ 0.1μF 600.0 μ F 6.000mF  $1 \, \mu \, F$ 0.01mF 60.00mF - Overload protection: 600V DC or AC (valid value).

- Overload protection: 250V DC or AC (valid value).

3.2.8 Capacitor

3.2.10.2 Via gear V:

Resolution

Range

0.1Hz  $\pm(1\%+5)$ 1000Hz 1Hz - Measurement range: 40Hz ~ 1000Hz. - Input signal range: ≥0.8 AC voltage (valid value). 4. Operation guide 4.1 Reading hold During measurement, if it is required to hold reading, touch 🗓 button,

value on display will be locked, touch 🖪 button again, to cancel reading hold. 4.2 Backlight/Light (1) In the process of measurement, if the ambient light is too dark, which makes the reading difficult, you can press the button and turn on the

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backlight for more than 2 seconds. Then the backlight will automatically

(2) When the instrument is not measured, it will enter the automatic

scanning state. The instrument is shown as follows:

4.5 NCV (Non -contact voltage detection)

close after about 15 minute.

Switch the rotation switch to any gear, hold down the "NCV" key to display EF, and bring the NCV sensor close to the conductor under test, instrument could detect whether the lead being measured is >90V AC voltage. When instrument detects AC voltage, instrument buzzer will alarm and NCV alarm light will flash.

(1) Insert the pen into the 10A current input hole, the automatic identification function is on, and the current test automatically enters. The system measures dc current by default. Pull out the pen in the 10A current input hole, and the system automatically jumps out of current mode and enters AUTO measurement mode. Note: when the meter is in diode gear,

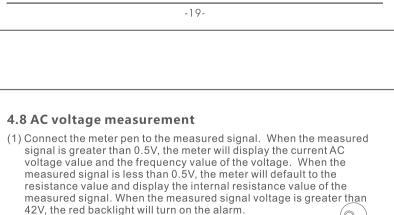
the pen is inserted into the 10A input hole and the meter cannot enter

(2) Connect the measuring pen into the measured signal. When the measured signal >20mA, the meter will display the current measured current value. When the measured ac signal >3000mA,

4.6 AC/DC current measurement

the instrument pair displays the ac current frequency and the measured current, b>800mA is red backlight warning.

4.8 AC voltage measurement



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1. Press "SEL" button to switch to LIVE mode, and the meter shows LIVE.

2. Insert the meter stylus into the power socket. If the instrument detects ac

voltage, it will display the voltage signal strength based on the detected signal strength. The instrument induction LCD segment code will display the voltage signal strength. The red back light is lit up and the buzzer emits an alarm of varying intensity. 4. 11 Capacitance measure 1. Press "SEL" key to switch to capacitance.

4.10 Single watch pen wire test

 $2. \ \mbox{Measure the capacitance}$  with both ends of the test pen and read the measurement from the LCD. Notice:

① When measuring large capacitors, it takes time to stabilize the reading.

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② When measuring the capacitance with polarity, pay attention to the corresponding polarity to avoid damaging the instrument.

(4) Place the battery cover.

level. The pen must be in good condition, and level of the pens is: 1000V

Do not reverse battery polarity. 5.2 Change pens When changing the pen, it is required to an identical pen or a pen of the same

If insulation layer of the pen is damaged, or metal wire of the lead exposes, it is required to change the pen. 6. Accessories (1) Pens Level: 1000V 10A One pair

(2) Use Manual One copy (3) Battery 1.5V AAA battery 2PCS Optional function accessories (4) K-Type 1PCS

4.3 Auto Power-Off

3.2.9 Temperature

3.2.10 Frequency

-40°C~ 1000°C

3.2.6 Resiştance

6kΩ

 $60k\Omega$ 

 $6M\Omega$ 

 $60M\Omega$ 

**3.2.7 DIODE** 

Range

Diode test

600kΩ

Resolution

 $0.1\Omega$ 

 $0.001 k\Omega$ 

 $0.01\,\mathrm{k}\Omega$ 

 $0.1\,k\Omega$ 

 $0.001 \text{M}\,\Omega$ 

 $0.01 \mathrm{M}\,\Omega$ 

Resolution

1V

- Overload protection: 600V DC or AC (valid value).

0.001V

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±(1%+3)

±(1%+3)

The precision does not include the error of the thermocouple probe.

- Overload protection: 250V DC or AC (valid value).

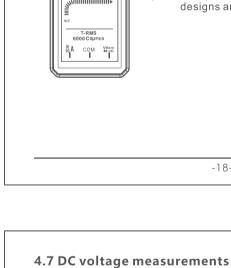
3.2.10.1 Clamp frequency measurement (viagear A):

Accuracy Range Resolution 100.0Hz 0.1Hz  $\pm(1\% + 5)$ 1000Hz 1Hz - Measurement range: 40Hz ~ 1000Hz. - Input signal range: ≥3A Effective value of AC current. -14-

(1) If there's no operation within 15 minutes after start, instrument will enter standby state, and shut down to save energy. (2) After automatic shutdown, Press the " 也 " button, to wake the instrument enter work state (3)Holding NVC to turn on the power will cancel the automatic shutdown After shutdown, restart to restore the automatic shutdown function. 4.4 To measure (1) Touch the electric source button to start the machine. If the battery voltage is insufficient, the display will display a low voltage symbol, at which point the battery should be replaced. Press the power button again to shut down the machine

(2) Hold down the flashlight button for more than 2 seconds to turn on the flasblight lighting function, and turn it off automatically about 1 minute

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greater than 42V, the red backlight will turn on the alarm.

Note:

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Even if there's no alarm indication, voltage may still exist. Do not depend on non-contact voltage detector to judge whether there's voltage in the lead. Detection operation may

beimpacted by factors like different socket

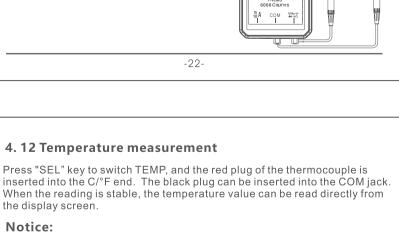
designs and insulation thickness types etc.

(1) Connect the gauge pen to the measured signal. When the measured signal is greater than 0.5V, the meter will display the current DC voltage value. When the measured signal is less than 0.5V, the meter will default to the resistance value and display the internal resistance value of the measured signal. When the measured signal voltage is

4.9 Resistance, on off measurement (1) Pen connection resistance measurement, the instrument shows resistance, when measuring the resistance is greater than 60 M  $\Omega$  instrument will show a "----". When measuring the resistance is less

ששעונו

than 50  $\Omega$ , buzzer alarm lamp, instrument lights flashing.



Before opening battery cover of the instrument, remove the pens from the circuit being measured, to avoid electric shock. (1) If symbol" 🗖 " appears, it indicates to change the battery.

(3) Change the old battery.

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Note:

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inserted into the C/°F end. The black plug can be inserted into the COM jack. When the reading is stable, the temperature value can be read directly from the display screen. The maximum temperature of the randomly packaged K-type thermocouple is 250°C, and the instantaneous measurement can be up to 300°C. 5. Maintenance 5.1 Change battery (2) Unfasten bolts on battery cover of instrument and remove the cover.