HOPE TECH

High-accuracy portable RESISTANCE METER measures from µΩ to MΩ

OVERVIEW

Portable design ideal for maintenance and testing of large equipment

● CHT3548A DC resistance tester offers a portable solution for measuring resistance with a wide range 0.1µΩ~3.3MΩ at a high level of precision 0.02%. It has a wide application in measurement of ordinary resistors, coil resistance (large motors, transformers, and inductors), cable length and diameter detection, pipe welding and metals detection and electric cars to ground connection detection and so on.

● Its ultra-low-power design makes the instrument continuous work for approximately 7 hours in 0.1µΩ measurement range.
● Due to the strong surge withstand capability, CHT3548A can be used to test winding resistance of devices.
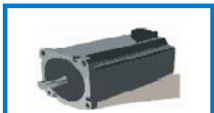
SPECIFICATION

Measurement items	DC resistance
Basic Accuracy	Resistance: 0~3.3MΩ Max reading：33000 Resolution:0.1µΩ
Measurement range	0.1%±10 reading (3mΩ,30mΩ,3MΩ),0.05%±4 reading (300kΩ),0.02%±2 reading (other measurement range)
Range	3mΩ/30mΩ/300mΩ/3Ω/30Ω/300Ω/3kΩ/30kΩ/300kΩ/3.3MΩ
Test speed	5 meas/sec (the average number optional)
Maximum test current	1A DC
Temperature	Range:-10℃ ~60℃ Accuracy:1℃
Correction	Short-circuit reset for all ranges
Comparator	HIGH/IN/LOW sorting
Internal data storage	Store up to 6000 test data
Trigger	Internal/auto trigger
Other	OVC(Offset Voltage Compensation)
	Material temperature compensation function,
	Length conversion function
	Auto trigger, auto save,
	auto hold, auto power
	save (APS)
Interface	USB, external
Maximum rated power consumption	2.5 VA
Power supply	12V/1700 mAh lithium battery, AA (LR6) Alkaline Batteries x 8
Dimensions and weight	208 mm (L) x52mm (W) x120mm (D); Weight: 0.81kg
Temperature sensor	Pt1000
Measurement method	4-terminal measurement

FEATURES

● With strong anti-impact ability, CHT3548A can effectively restrain the counter-electromotive force of coil resistance, making it ideal for online diagnosis of these products.
● Direct test of cable length / diameter / material with the help of various conversion function and temperature compensation.
● Special OVC function effectively restrains the thermoelectric potential interference, ideal for contact resistance and material test.
● Automatic storage, supporting 6000 set of data storage and export.

Ω Range **0-3.3MΩ**	Ω Resolution **0.1µΩ**
Ω Precision **0.02%**	T Precision **1℃**
Power Terms **8Hours**	Display **4.3 Inch LCD**
Tempreature **-10℃ -60℃**	Int-Memory **6000**

APPLICATION

● Fit in detection of cable length, dimension and resistance.
● Ideal for resistance measurement in choke coils, large motors and transformers.
● Suitable for detecting contact resistance of metal contacts.

Motor Resistance   **Cable Resistance**   **Grounding Resistance**   **Material Resistance**

● Suitable for detecting conductive properties of the conductive materials.
● Used in vehicles/ aircraft rivet welding, electric powered cars grounding lines.

Proudly Distributed By: Instruments 4 Engineers Ltd
Tel +44 (0) 161 871 7450
sales@instruments4engineers.com
www.instruments4engineers.com

≡ PARAMETERS

The following data was obtained under the following conditions: Temperature condition: 22 °C ± 5 °C / Humidity condition: 80% R.H. / Zero-adjustment: Zeroed before measurement / Warm-up time: > 15 minutes

Model	Resistance range	Resistance Max reading	Basic accuracy
CHT3548A	0.1 μΩ-3.3MΩ	33,000	0.02%
CHT3548	1μΩ-33kΩ	33,000	0.05%

CHT3548A/CHT3548 resistance measurement

Range	3548A	3mΩ	30mΩ	300mΩ	3Ω	30Ω	300Ω	3kΩ	30kΩ	300kΩ	3MkΩ
	3548	/	30mΩ	300mΩ	3Ω	30Ω	300Ω	3kΩ	30kΩ	/	/
Resolution	3548A	0.1μΩ	1μΩ	10μΩ	100μΩ	100μΩ	10mΩ	100mΩ	1Ω	10Ω	100Ω
	3548	/	1μΩ	10μΩ	100μΩ	100μΩ	10mΩ	100mΩ	1Ω	/	/
Measurement current	3548A /3548	1A		100mA		10mA	1mA		0.1mA	10μA	5μA
Accuracy	3548A	0.1% ± 10 readings(30mΩ,30mΩ,3MΩ), 0.05%± 4 readings(300kΩ), 0.02%± 2 readings(other measurement range)									
	3548	0.1%± 5 readings(30mΩ),0.05%± 2 readings(other measurement range)									
Temperature coefficient	3548A /3548	(20 ppm ± 1 reading)/ °C									
Port voltage	3548A/3548	5 MAX									

CHT3548A/3548 temperature measurement

Range	–10~60 °C
Resolution	0.1 °C
Accuracy	±1 °C

CHT3548A/3548 measurement speed

Speed	5 meas/sec

⊡ FUNCTIONS

Temperature Correction

The CHT3548A provides a temperature correction function to convert the observed resistance value Rt at the current temperature t to the resistance value Rto at the reference temperature t0.
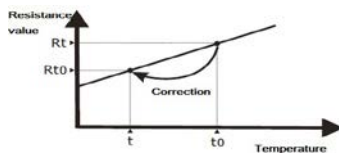
Offset Voltage Compensation (OVC)

CHT3548A provides offset voltage compensation (OVC) function. Thermal EMF occurs at the contact point of different metals. This voltage affects measurements, and if large enough, can cause measurement errors. The OVC function minimizes the effect of thermal EMF to maintain measurement accuracy.
In each measurement, after loading current to the resistance, CHT3548A gets Vo first. Then it gets VEM after powering off the constant power source. The actual voltage of the resistance will get through Vo- VEM. The OVC function is ideal for measuring low resistance (μΩ-grade resistance) and contact resistance.

$$Rx = \frac{V_0 - V_{EM1} - V_{EM2}}{I_c}$$
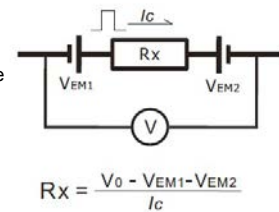
Length/diameter Conversion Function

This function is used to measure the line resistance. By setting a resistance value per meter, it is possible to convert resistance values into lengths.
With the temperature correction function, by inputting line diameter, CHT3548A can detect the resistance vale per meter, and then the user can tell the line material.
When detecting the line length, by measuring the resistance value per meter first and measuring the overall resistance vale of whole lines, the instrument is able to convert the resistance values into lengths.
This capability is useful when managing cable inventory or estimating PCB pattern lengths.
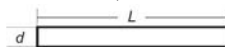
$$R = \frac{4L\rho}{d^2\pi}$$

### Temperature conversion function and interval measurement: Useful in temperature-rise testing

Temperature increase (Δt) is obtained and displayed by converting resistance measurements and ambient temperature. The maximum temperature increase needs to be determined when current is applied especially for verifying motor windings or transformers. The interval measurement function can be used to take measurements at a user-specified interval from the start of measurement. Since measured values can be recorded in the instrument's memory, the maximum temperature can be easily estimated.

Multi-bin Judgement
CHT3548A offers over 200 set judgement conditions, making it possible to sort. There are 3 types of judgement states: HIGH/IN/LOW

Measurement Save and PC Software
Up to 6000 set measurement results can be saved in the CHT3548A. By connecting the instrument to a PC through a USB cable, the measurement results can be exported. You can do the settings directly in CHT3548A while it connecting with a PC with a USB cable.
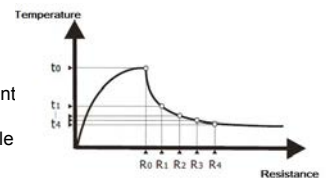
▣ Standard software

The standard software of CHT3554A supports remote control, excel data export, data storage and printing functions.

♀ Standard accessories

CHT9363-B	CHT9365	CHT8302	CHT9363-A	CHT9366	CHT9367

CHT3548 options: CHT9365/CHT9363-B/CHT9367/CHT9366
CHT3548A options: CHT9365/CHT9363-A/CHT9363-B/CHT9367/CHT9366/CHT8302(1mΩ)