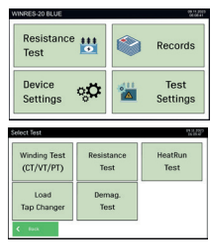
HIGHTEST TECHNOLOGY CATALOGUE

WINRES-20 SERIES 20A WINDING RESISTANCE TESTER





WINRES-20 has been designed to measure the resistance of current, voltage and power transformer windings as well as shunt resistors. It is able to apply up to 20 Amps of direct current allowing the instrument to measure the resistance of a transformer winding quickly and accurately.

The instrument also has two measurement channels allowing simultaneous resistance measurement of two windings in any configuration such as, two primary or two secondary or one primary and one secondary winding, the choice will depend on the configuration of transformer/s. Starting from 0.1 μΩ, the WINRES-20 instrument series can measure up to 100,000 Ω of resistance. To avoid residual core magnetization or remanence of a transformer the WINRES-20 series of instruments will de-magnetise the transformer after each test. The instrument also has a separate temperature sense input which allows the operator to automatically correct for temperature variation. An optional sensor is available for this input.

The instrument tests resistance based on Intelligent Decision Criteria (IDC) where the device analyse the results for a period of time and if the measurement is stable under a specified value, the device decides to STOP the test and produce results. As a result, the operator doesn't need to inspect the measurement values continuously on the display or stop the test manually (manual operation is also availble). In the case of a failure in the current circuit, the WINRES-20's intelligent software control's the flow of current to mitigate damage and provide added safety for users. Device discharges through its voltage channels in case High Voltage is present in the transformer under test.

Heat run test/Temperature Rise Test

Heat run test or temperature rise test reproduces conditions of continuous rated load and the temperature rise occurring during the load. WINRES-20 is capable of measuring the winding resistance of transformers and the full load resistance Ro during heat run test by applying up to 20A DC.

A 7-inch colour touch display allows WINRES-20 to show all measurement results on a single screen. Field test results may be stored and recorded in the WINRES-20's internal memory, (up to 100 Test Records) or many more on an external USB flash.

Alternatively the operator may choose to employ the Data Management Platform (DMP Software) which allows PC based control of WINRES-20 via a USB cable or the optional Bluetooth interface. This software platform allows the operators to analyze, edit and store measured results on a PC or laptop. If an immediate hard copy of the results is required the WINRES-20 also allows for this via an embedded 2.28-inch printer. An internal battery option is also offered for operators who feel that they may be in situations where a mains supply source isn't always available .

With its single-phase cable configuration, users can measure winding resistance of single-phase transformers as well as three-phase transfomers. For three-phase transformers, each phase needed to be measured separately as WINRES has a single-phase cable configuration.



DEVICE HIGHLIGHTS

Single-phase & three-phase measurement

With WINRES-20's single-phase cable configuration, users can measure winding resistance of both single-phase and three-phase transformers.

Optional Rechargeable Li-Ion Smart Battery

WINRES-20 comes with a 14.4V Li-Ion smart battery option which enables you to make tests while on field. WINRES works on both main power and consuming battery power.

Heat run test/ Temperature Rise Test

WINRES-20 is capable of measuring the full load resistance 'Ro' during heat run test by applying up to 20A DC.

2.28-inch Built-in Thermal printer

WINRES's built-in thermal printer let you print the results immediately during field test.

FEATURES

- 2-channel resistance measurement
- Measurements from 0.1 µΩ to 100,000 Ω
- 0.001 A to 20 A DC adjustable current output
- High accuracy (0.1%)
- Test Voltage 50 V
- Demagnetisation feature
- On-Load Tap Changer (OLTC) Control
- Heat-Run Test
- 7-inch TFT touch display
- Built-in printer (2.28-inch)
- Battery & Bluetooth Options
- PC control / analysis via USB cable & DMP Software



TECHNICAL SPECIFICATIONS

Measurement Parameters	2-channel resistance (Single-phase and Three-Phase Resistance Measurement with single-phase cable configuration)			
Test Voltage	50 V			
Current output	From 0.001 A to 20 A DC (User-selectable)			
Resistance Measurement	From 0.1 µΩ to 100,000 Ω			
Accuracy	Current Value	Resistance Value	Accuracy	Resolution
	1 mA - 10 mA	Up to 100 kΩ	0.1 % rdg 0.1 % of Fs	100 µΩ
	10 mA - 100 mA	Up to 5 kΩ	0.1 % rdg 0.1 % of Fs	10 µΩ
	100 mA - 1 A	Up to 500 Ω	0.1 % rdg 0.1 % of Fs	10 µΩ
	1 A	Up to 50 Ω	0.1 % rdg 0.1 % of Fs	1 µΩ
	20 A	Up to 2.5 Ω	0.1 % rdg 0.1 % of Fs	0.1 µΩ
Demagnetisation	Yes			
Power Supply	100-240V AC, 47/63 Hz			
Built-in Battery	Optional as Models: WINRES-20B, WINRES-20B BLUE. Type 14.4 V / 6.9Ah			
Memory	Up to 100 records (include up to 25 tap results), Unlimited Storage using a USB			
Printer	2.28-inch built-in printer			
Communication	USB 2.0/1.1 Standard-A, USB 2.0/1.1 Standard-B, Bluetooth (Models: WINRES-20 BLUE & WINRES-20B BLUE)			
PC Software	DMP Software			
Display	7-inch Colour touch display			
Dimensions	16.7" x 13.4" x 6.8" (424 mm x 340 mm x 173 mm)			
Weight	7 kg (models with battery)			
Temperature	Working: -10 °C to + 60 °C ; Storage: -30 °C to + 70 °C			
Humidity	95% RH Non-condensing			
Protection Class	IP67 (case closed)			
Included in the package	Power Cable, Ground Cable , 1x 5m Current Cable Set, 2 x 5m Voltage Cable Set, USB Cable, Tap Changer Cable Set, Jumper Cable, Printer Paper (x2), USB flash drive, Instruction Manual (Soft Copy), DMP Software, Cable Bag			
Options	Hard carry case, Battery, Bluetooth (factory install), Temperature Sensor, 10m Long Cable Sets for Current and Voltage channels			

*Specifications are valid at/under 25 °C temperature. *Content subject to change without notice.*

ORDERING INFORMATION

WINRES-20	20A Transformer Winding Resistance Tester with Built-in Printer
WINRES-20 BLUE	20A Transformer Winding Resistance Tester with Built-in Printer & Bluetooth
WINRES-20B	20A Transformer Winding Resistance Tester with Built-in Printer & Battery
WINRES-20B BLUE	20A Transformer Winding Resistance Tester with Built-in Printer, Battery & Bluetooth