SOKEN

HOT LINE
COIL RESISTANCE & TEMPERATURE METER
DAC-HRT-1

DAC-HRT-1 is a high-precision resistance measuring instrument designed for evaluating the operating conditions of motors, transformers, coils, and chokes. It can conduct temperature rise tests on coils while applying voltage, allowing for real-time monitoring of performance. Temperature values are automatically calculated and displayed from the measured resistance values. DAC-HRT-1 is an essential tool for ensuring the reliability and efficiency of electrical products.

- **Accurate data can be obtained by directly reading both real resistance and temperature while the winding is in operation.**
- **User-friendly operation by manual or PC software.**
- **Automatically calculates and displays temperature either in Fahrenheit or Celsius.**
- **Resistance-temperature conversion coefficient for copper wire (234.5) is memorized in the CPU. Other coefficient, such as for aluminum, can be input through the numerical keys.**
- **Multi-channel measurement of up to 10 points is available with the optional channel selection box (DAC-SCB-2).**
- **The optional temperature sensor (DAC-PT-100) can automatically input the ambient temperature int the instrument.**
- **IEC 60279 (Normative reference of IEC 60034-1), JIS C 4034-1: Measurement of the winding resistance of an A.C. machine during operation at alternating voltage.**
- **IEC 1007, JIS C5311: Measurement procedures for transformers and inductors for use in electronic and telecommunication equipment.**

SOKEN ELECTRIC CO., LTD.

Importance of Winding Resistance Measurement

The winding resistance of an electric device is a key factor that directly impact its performance and reliability. High winding resistance reduces the efficiency of the device, and results in energy losses. Also, resistance out of a safe range can generate excess heat, which can lead to overheating.
Measuring and monitoring the winding resistance is essential for ensuring efficient, safe, and reliable operation of electric devices.

Measurement Without Operation Stop

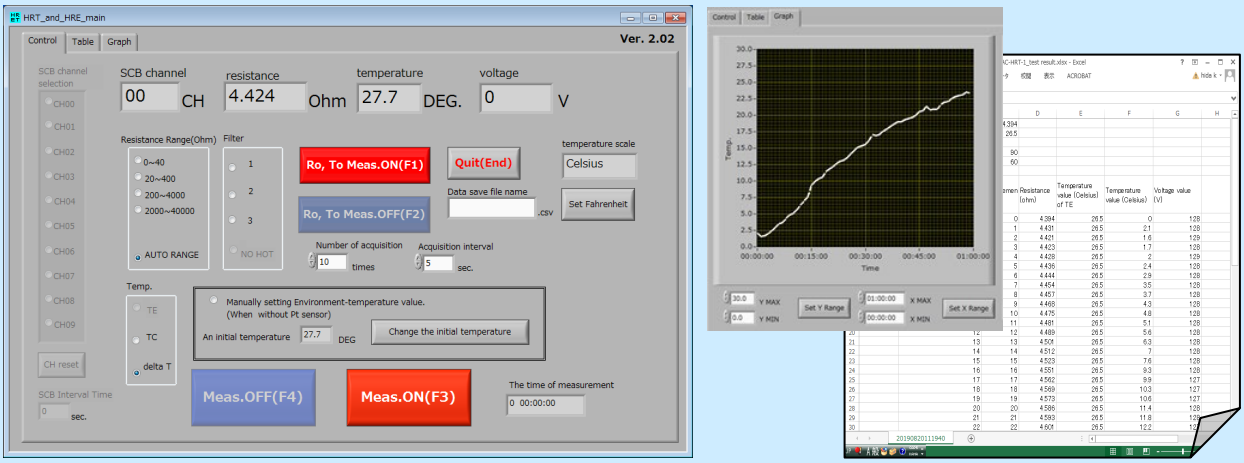
DAC-HRT-1 can measure resistance and temperature of windings without shutting down power. Coil winding resistance is generally measured with the motor turned off. This power-cutting method assumes a natural logarithmic change in resistance after the motor is stopped, which does not always match actual conditions. It also requires much time for reading resistance for many points to plot the complete characteristic curves until the data is saturated.
DAC-HRT-1 can give true data on energized windings easily and quickly, assuring high reliability of test data. Use of DAC-HRT-1 can minimize the testing time and greatly contribute to quality improvement, energy-saving product development, and compliance with safety standards.

Specifications

Measuring Range	Resistance	Superimposed current to DUT
20Ω Range	0 – 40.000 Ω	(50mA)
200Ω Range	20.00 – 400.00 Ω	(5mA)
2000Ω Range	200.0 – 4000.0 Ω	(500μA)
20000Ω Range	2000 – 40000 Ω	(50μA)

Testing Voltage	Max AC 450V (50/60Hz)	
Measurement Accuracy	±(0.05% F.S. + 2 digits)	
Resolution	1mΩ (20Ω Range)	
AC Voltmeter	0 – 500V rms	
Measuring input Impedance	>200kΩ	
Display	Resistance	5 digits
	Temperature	5 digits (“999.9”[°C]/”1999.9”[°F])
	Voltage	3 digits
Interface	RS-232C, GP-IB (IEEE488-1987)	
Power Source	AC 100V – 240V ±10% 50/60Hz	
Dimensions and weight	W430 x H 150 x D 385mm, approx. 18kg	
Standard accessories	AC Cord, 4-terminal measuring cable, Ground cable, Software	
Option accessories	Temperature sensor (DAC-PT100) Thermal Printer (Serial Printer) DC Blocking capacitor box (Depends on test current required) Selection Control box (DAC-SCB-2) Voltage adaptor (DAC-HVA-3)	

Software

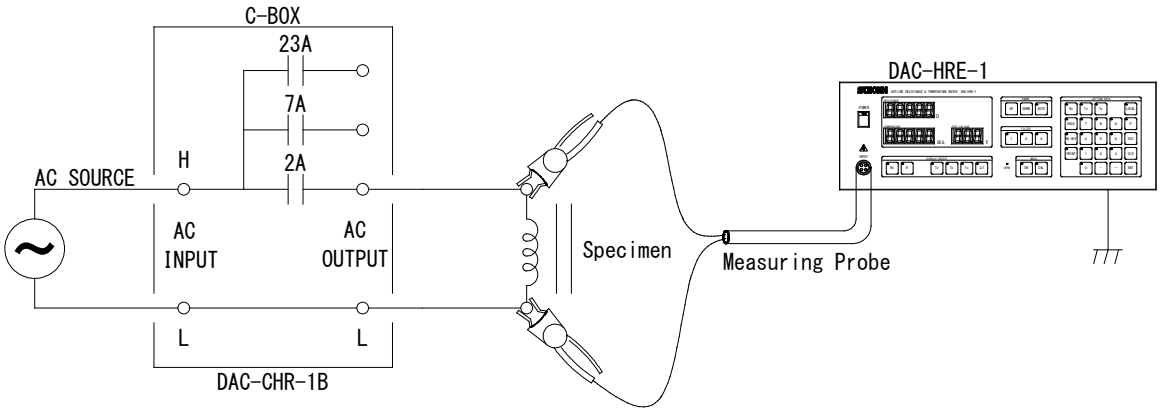


This software is a useful tool for the automation and simplification of the DAC-HRT-1 operation. Included in the standard delivery, the software offers the following features:

- Flexible test count and interval time settings.
- Real-time graph creation
- Automatic temperature acquisition (when with optional PT sensor DAC-PT-100.)
- Automatic channel switching (when with optional Selection control box DAC-SCB-2.)
- CSV format data saving

Measurement Circuit

DAC-HRT-1 performs measurement with a 4-terminal connection to detect voltage drop and measures resistance with high accuracy (Resistance method). Equipped with a specialized filter, it can measure the winding resistance of an AC machine in operation by superimposing D.C. current to the A.C. winding current (IEC 60279).
Since the measurement circuit is connected to the AC power supply, an appropriate capacitor box (optional) is required to block the D.C. current from flowing into the power supply side.
A suitable capacitor box depending on the test current and single-phase/three-phase can be suggested upon request.



Measurement using the capacitor box DAC-CHR-1B

Option Accessories

■DC Cut Capacitor Box DAC-CHR-1B

DAC-CHR-1B is a capacitor box that has 2A, 7A and 23A capacitors inside.
Select an appropriate capacitor range in accordance with testing current.
Built-in Capacitor: Electrolytic Capacitor
Maximum-allowed-current value
: 470μF…2A, 4,700μF…7A, 47,000μF…23A
(one-each built in, with protection diode and arrestor)
Size & weight: W210xH133xD160(mm) Approx. 3kg

Capacitor box that supports larger test current are available upon request.

■Temperature Sensor DAC-PT-100

Ambient temperature is automatically taken in by connecting the sensor with DAC-HRT-1.
Temperature measuring range: - 50 to 150 ℃
Accuracy : ±0.5 ℃
Connector type :R05-P6F

■Thermal Printer

The printer is a useful solution for users who need immediate measurement data or a backup of results that can be accessed without electronic equipment or software.
Dimension: W93 x H 70 x D125 mm
Weight: Approx. 265g

■Selection Control Box DAC-SCB-2

DAC-SCB-2 enables sequential testing on up to 10 different test points.
Testing Power Capacity: AC250V 15A or 450V 10A
Power Source: AC100V/200V ±10% 50/60Hz
Dimension: W430xH200xD385mm
Weight: Approx. 16kg

■Voltage Adaptor DAC-HVA-3

This adaptor can expand the test voltage up to 700VAC.
Max test voltage :700VAC (Sine Wave)
Dimension: W430xH200xD385 (mm)
Weight: Approx. 35kg

ISO9001:2015
HEAD OFFICE/FACTORY

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