

# WINAST 8800

Automatic Winding Test System



**Baker**<sup>®</sup>

For more than 40 years Baker Instrument Company has focused on quality control testing of electrical windings. We manufacture fully programmable automated test systems and insulation test instruments.

- For Stators, Coils, Alternators, Rotors, and More
- HiPot, Resistance, Surge, Rotation Direction Tests
- Fast and Accurate
- Quick Model Changeover
- Menu Driven Operation and Calibration
- Rugged, Field-Proven Hardware
- Self Test Diagnostics
- Plug-In Replacement Boards
- Windows Driven
- Network Interface Capability
- SPC Reports
- Remote Diagnostics

Test systems include winding resistance, high potential, surge, rotation direction and other tests for a wide variety of windings, from fractional horsepower appliance motors up to 1,000 kilowatt traction motors. Our broad range of experience along with a focus on providing the most advanced and practical technology combine to create quality control workhorses for your business. We appreciate your interest in Baker Instrument Company and our fine line of products.

Manufacturers of stators, coils, alternators, rotors, and other kinds of motor windings need the most advanced, dependable and proven test systems. If you're looking for the ability to conduct common in-process electrical tests in one automated test instrument, built to your specifications, look to the Baker WINAST 8800 Automatic Winding Test System.

HiPot, Surge, and Temperature Compensation Resistance test capabilities are standard. A Rotation Direction test is available for testing stators and field coils. Because each tester is a semi-custom instrument, assembled to your specifications, its capabilities are not limited to those described here; other features are available. Please feel free to discuss options based on your needs with a Baker Instrument Company representative.

#### WINAST 8800 Operation

WINAST 8800 systems not only test your product, they also test your process. In other words, trends within the manufacturing process can be monitored allowing you to anticipate problems.

What sets the WINAST 8800 system apart from other winding test systems is its highly sensitive computer controlled testing, analysis, and report generation in a field-proven design. The WINAST 8800 computer makes testing fully automatic.

#### Automation

To test a winding, a Master data file is created. In a manually loaded system, the operator need only start each test from the test fixture. When each test is complete, a pass/fail indication is clearly displayed conveniently on the screen and on the operator's control console. The WINAST 8800 can be integrated into fully automated lines with automatic fixturing and a PLC or host computer communications interface. Quality control with an WINAST 8800 system is quick.

#### No Master Winding

A Master winding need not be connected to the tester during routine production testing. The operator need not set the test voltages or pass/fail limits during model changeover. You save time.

Test parameters are programmed into a Master data file. Programming each winding model takes just a few minutes. The WINAST 8800 program is a simple, pull-down menu driven interface. The user is prompted for all necessary information. Once the Master has been defined, it is permanently stored. Testing is then automatically sequenced according to the Master file. Your tests are accurate. Repeatability is automatic.



# WINAST8800 Testing

## AC & DC Tests

For AC HiPot (High Potential) testing, the WINAST 8800 uses arc detection to sense breakdowns to ground or between windings which would otherwise go undetected using average current measurement techniques. It also has capacitive compensation capability. This measures the resistive portion of the leakage current, rather than the total current.

DC HiPot testing checks the integrity of the insulation system with high DC voltage. Leakage current is then measured in microamps rather than milli-amps.

## Surge Tests

The high voltage surge or impulse test checks for insulation problems between turns, coils, and phases of the winding. Surge tests can also detect other faults which change the inductance of a winding such as improperly annealed lamination steel and reversed coils. The surge test also has the ability to detect corona caused by weak insulation in addition to actual insulation breakdown.

## Resistance Test

The resistance test checks for wrong turn count, poor connections, mislabeled leads, and incorrect wire size. With the use of Kelvin connections, low resistance winding tests are accurate and repeatable. Resistance measurements are corrected for temperature to the equivalent resistance value at 25°C or to a customer specified temperature between 20k and 2 milli-ohm.

## Rotation Direction

The rotation direction test is an option for stator testing. Both induction and Hall-effect type sensors are available. This test is also capable of detecting misconnections in some cases.

## Reports and Statistics

Reports can be displayed on the monitor, printed, stored on floppy or hard disk, or transferred over a computer communications network. Report and plot information includes, but is not limited to average, standard deviation, and failure tallies.

## Field Calibration

Many years of reliable operation have been designed into all WINAST 8800 so calibration is not frequently required. When calibration is required, the WINAST 8800 can be field calibrated by adjusting software coefficients through a simple menu using ISO procedures.

## Repair

The electronics in the WINAST 8800 are rugged, reliable, solid-state circuitry. Modular design uses plug-in PC boards for quick replacement should repair be necessary.

## Fixturing

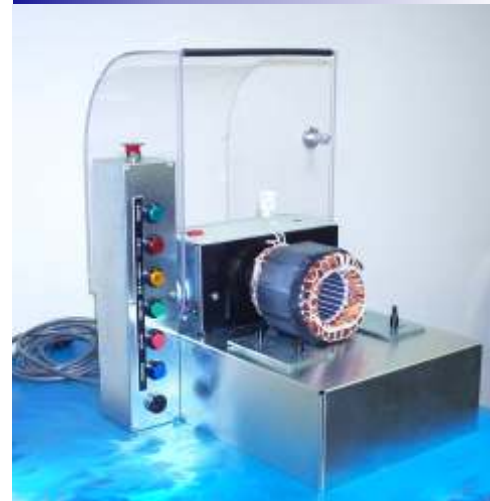
All WINAST 8800 testers have a standard control console, safety interlock switch, and alligator clip terminations (unless optional fixturing is requested). A wide variety of single and dual station fixtures are available. In addition, test fixtures can be custom built to specifications for any size of winding.

## Customized Testing

Please contact Baker Instrument Company, Automated Systems Division, for more detailed information or specifications. We'll be happy to discuss your applications or give you a customized proposal tailored to your testing needs.

## High Voltage WINAST 8800 Option

A high voltage version of the WINAST 8800 is available for testing low inductance form coils and motor stators of greater than 500 kilowatts or greater than 575 VAC. See the specifications for details about this system.



# Technical Specifications

## Computer:

Processor: Pentium MMXb or better  
Architecture: Industrial PC Packaging

## Peripherals

Display: High resolution LCD Screen  
Printer: Optional  
Floppy Disk Drive: 3.5 inch, 1.44 MB  
Hard Disk Drive: IDE  
CDRW: Optional

Communications: Network interfaces are available.

## DC HiPot:

Voltage: Programmable 100 to 5000 VDC in 50 VDC increments, +/- 3 percent accuracy  
Current: 100µA maximum, 1µA resolution, programmable pass/fail limit in 1µA increments, +/- 1µA second increments.  
Duration: Programmable in 1 second increments.

## AC HiPot:

Voltage: Programmable 100 to 3500 VAC in 50 VAC increments, 50/60 Hz, 60VA or 300 VA, +/- 5 percent accuracy.  
Current: 5, 13, 40 or 100mA max., arc detection for improved fault detection, +/- 5 percent accuracy.  
Duration: Programmable in 1 second increments.  
Leakage Current Method Installed: "Total or Capacitively Compensated Leakage Current".

## Resistance

Autoranging  
3.5 digit resolution  
0.4% of full scale accuracy in each range  
0.2% of full scale repeatability  
Kelvin Leads and Contacts  
Ambient temperature normally compensated 25°C or user defined  
Infrared temperature sensing (Optional)

Resistance Range	Current
< - 20 m	2A
20 m - 200 m	2A
200 m - 2	200 mA
2 - 20	200 mA
20 - 200	20 mA
200 - 2 k	2 mA
2 k - 20 k (optional)	2 mA

## High Voltage Impulse (Surge)

Voltage: Programmable 500 to 5000 volts peak in 50 volt increments, +/- 3 percent accuracy  
Pulse Energy: 0.5 Joules maximum  
Discharge Capacitor: 0.4 µF  
Load: Greater than 100 µH  
Digitizing Rate: 5, 10, or 20 Msample/second  
Programmable pass/fail percentage limit based on Baker Instrument Company's patented Error Area Ratio.

## Rotation Direction

Senses clockwise or counter-clockwise rotation direction in windings.  
"Hall Sensor Effect" method  
Single and multi phase motor options

## Fixtures

The WinAST 8800 Automatic Winding System can be configured with standard or customized fixturing for testing of all windings.

## Power Requirements

Input Voltage: 115 VAC maximum (230 VAC is available) at 46 to 67 Hz  
Power Consumption: 600VA maximum  
Overcurrent Protection: Two pole magnetic circuit breaker

## Temperature Compensation

Ambient - Standard  
Infrared - Optional

## Options

PLC Interface Package  
Bar Code Scan  
Multi-Lead configurations

