ELECTROM INSTRUMENTS อิเล็คตรอม อินสตรูเมนท์

A Division of Electrom Power Products LLC, USA

iTIG Surge Tester & Winding Analyser

เครื่องวิเคราะห์ขดลวดและเสิร์จ เทสเตอร์

"Designed and built with reliable digital components. Rugged and dependable. For the electric motor and generator manufacturing and repair environment"

All in One Winding Analyser ! เครื่องมือทดสอบ Winding ที่รวมคุณสมบัติของ Surge Tester และ Insulation Tester (Megohom Tester) ไว้ในเครื่องเดียว ให้การทดสอบที่ครบครันและแม่นยำ !

เทคโนโลยีใหม่กว่า ด้วย Built - in Window XP ใช้งาน Interface ผ่านหน้าจอ Touch Screen ผ่านระบบปฏิบัติการ Window XP ทำให้การใช้งานทดสอบฟังก์ชั่นต่างๆ เป็นเรื่องง่าย !

Features & Capability

ฟังก์ชั่นการทดสอบ

Surge Tester
Hi-Pot Tester
Resistance Tester (Megohom Tester) คำนวณค่า PI และ DAR อัตโนมัติ
Armature Tester (DC Motor)
Rotor Bar Tester (Open or Crack AC Rotor)

สามารถหา Insulation Fault ได้ทุกรูปแบบ

To Ground
Turn to Turn
Coil to Coil
Phase to Phase

Interface

ใช้งานระบบ Interface ผ่าน USB Port สามารถ Copy ผลการทดสอบข้อมูลลูกค้า รวมถึงภาพ Surge Comparison Gragh ได้

Capture Pro

สามารถทำรายงานผลการทดสอบได้อัตโนมัติ และปรับเปลี่ยนแบบฟอร์มรายงานผลการทดสอบได้ด้วยตนเอง

*****สามารถเพิ่มออฟชั่นที่ต้องการเพื่ออัพเกรดในภายหลังได้**

Power Pack - เพิ่มแรงดันทดสอบได้ถึง 30 kV
Unlimited Storage - เพิ่มพื้นที่ Memory บันทึก Surge Test Waveform ได้แบบ Unlimited
Rotor Bar Clamp - หาความผิดปกติของ Rotor Bar ด้วยแคลมป์อ่านค่า Current

บริษัท แอสราส จำกัด
ASRAS CO.,LTD.

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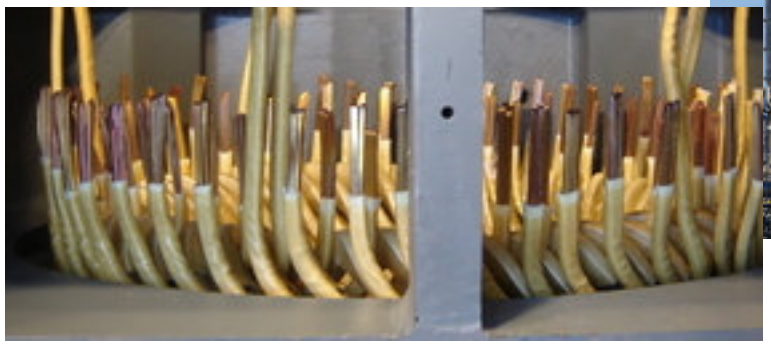
ELECTROM INSTRUMENTS

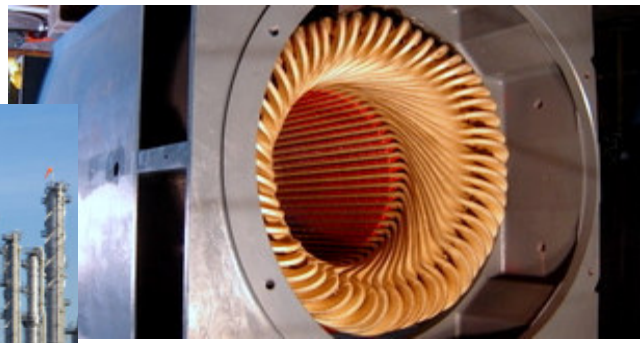
LEADING THE INDUSTRY FOR OVER TWENTY YEARS

INTRODUCING THE

iTIG Surge Tester - Winding Analyzer

Designed and built rugged and dependable. For the electric motor and generator manufacturing and repair environment.





First analyzers built 25 years ago are still supported by Electrom and working in the field

Test Equipment Built to Last !

A pioneer in the industry, ***Electrom Instruments*** produced the first ever digital Winding Analyzer in the early '90s, revolutionizing the industry. Today computers and software contribute to a greater level of performance, flexibility and ease of use. Electrom Instruments offers the latest and most durable Winding Analyzer on the market.

The **iTIG** is a complete *"all in one"* Winding Analyzer. Its main function is that of a **non-destructive** insulation tester designed to safely detect weak or unstable insulation and shorts at voltages far below what the apparatus being tested is designed to withstand.

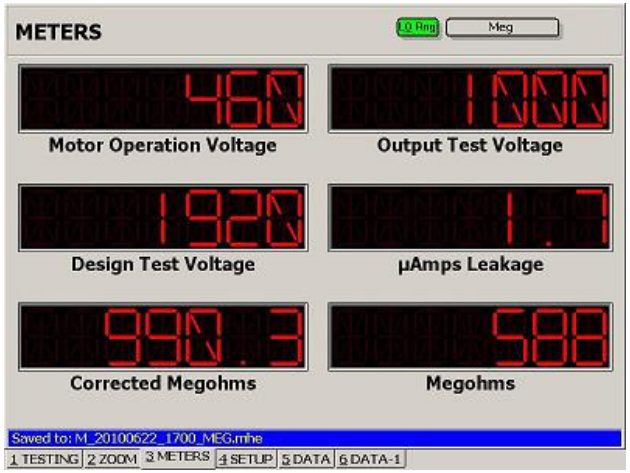
Models can perform a variety of tests on AC and DC motors, generators, transformers and single coils:

- Megohm (resistance) Tests
- Hipot Tests
- Surge Tests
- Rotor Bar Tests (Open or cracked AC Rotors)
- Step Voltage Tests
- Dielectric Absorption Tests
- Polarization Index Tests
- Armature Tests (DC Rotors)
- Form Coil Tests (with up to 2X max rated power)

iTIG shown on top, optional 30kV Power Pack at the bottom

Sold worldwide to companies in a ***vast*** range of industries: To electric motor repair shops, manufacturers of electric motors, generators and transformers, to utilities and various processing and manufacturing plants.

Applications range from diagnosis of problems, quality assurance tests of rewound or new equipment, to preventative and predictive maintenance tests with trend reports.



Screen used in Megohm and Hipot test modes. Meg test shown. Design Test Voltage for Hipot is automatically calculated based on a formula easily changed by the user.

iTIG Advantages:

- **MORE SENSITIVE AND ACCURATE FAULT DETECTION:** Most surge testers have one surge generator or channel. This means one winding is tested and compared to a stored winding test. The Electrom iTIG uses two independent surge generators operating simultaneously to compare two windings or coils. This produces a live comparison with a much higher voltage gradient between the two phases under test. It better simulates what motors are subject to during start-up and operation. Comparing two live waveforms makes it easier to see faults that might go undetected using only one live channel.

- **FINDS FAULTS WHERE OTHER TESTERS DO NOT:** Ionization of the air surrounding the windings is necessary for detection of insulation weaknesses in a surge test. The iTIG generates line frequency Surge Pulse Rates (50 / 60Hz). This produces more ionization around fault locations at lower test voltages than instruments with lower pulse rates, such as commonly used 5Hz units. With two surge channels pulsing at line frequency, motor operating conditions are simulated and faults are found where single channel low pulse rate instruments do not see them.

- **PREVENTS DETECTED SURGE TEST FAULTS FROM WORSENING:** Voltage is the “pressure” causing currents to flow. Voltage (pressure) is necessary to detect weaknesses (current leaks) in the insulation of rotating equipment. Leakage current (the flow of electrons crossing a fault) should be kept small to prevent further deterioration of the insulation. The current is a function of the discharge capacitance of the instrument. The higher the capacitance the higher the current. The iTIG’s discharge capacitance is very low at 0.02uF (20nF) per channel.

- **EASY TO USE AND READ:**
  - Computer-controlled automatic scope settings; scope settings can be stored by motor s/n for easy re-testing
  - Assembled motors can be fully tested without turning the rotor (iTIG AMT option)
  - Unlimited storage of data available; customer info, motor specs, test data and more (iTIG D)
  - Easy retrieval of data and reports from database software with multiple report printing options
  - Large color LCD *touch screen* display
  - Large displays of test and output voltage, resistance (Megohms) and leakage current
  - Communicate with iTIG through touch screen, remote mini keyboard included, or standard mouse/keyboard
  - Status messages update the user about the test as it is performed to avoid mistakes
  - % wave difference is displayed for surge comparison tests (comparison of 2 windings or coils)
  - Screen pictures stored with test data when wanted - use for training, application support and reports

- **ONLY PURCHASE WHAT YOU NEED NOW, UPGRADE LATER:** The iTIG is upgradeable in the field from a basic non-reporting winding analyzer to one with unlimited data storage and full reporting capability through simple software upgrades.

- **PORTABLE ALL IN ONE INSTRUMENT:** All tests, including the AC Rotor Bar test, are done with one instrument, no extras other than simple accessories (Page 5) . Optional accessories fit in the cover of the rugged moisture-proof case which is designed for harsh environments. Portable 30kV Power Pack in same size case can be added.

- **BUILT IN SAFETY FEATURES:** Improper power line ground and polarity prevents the iTIG from turning on. Limits on leakage current prevent insulation damage and shuts the test down. Tests are non-destructive.

iTIG Models:

• **iTIG A:** Basic Winding Analyzer with no storage or reporting capability.

• **iTIG B:** Stores one Surge Test. Can do AC rotor tests. Faster when testing DC motors.

• **iTIG C:** Same as B but stores 10 surge test sets. Surge test waveforms can be transferred to Excel. JPG pictures of the LCD screen can be stored.

• **iTIG D:** Stores unlimited amounts of customer, motor and test data. Comes with **Capture Pro** database and reporting software.

iTIG A, B, & C are upgradable in the field to any higher level model.

Data is stored in the iTIG computer's flash drive memory and/or on memory sticks.

The computer automatically chooses scope settings and calculates the % Wave Difference between surge waves. It provides status messages about mistakes and performance issues.

Capture Pro

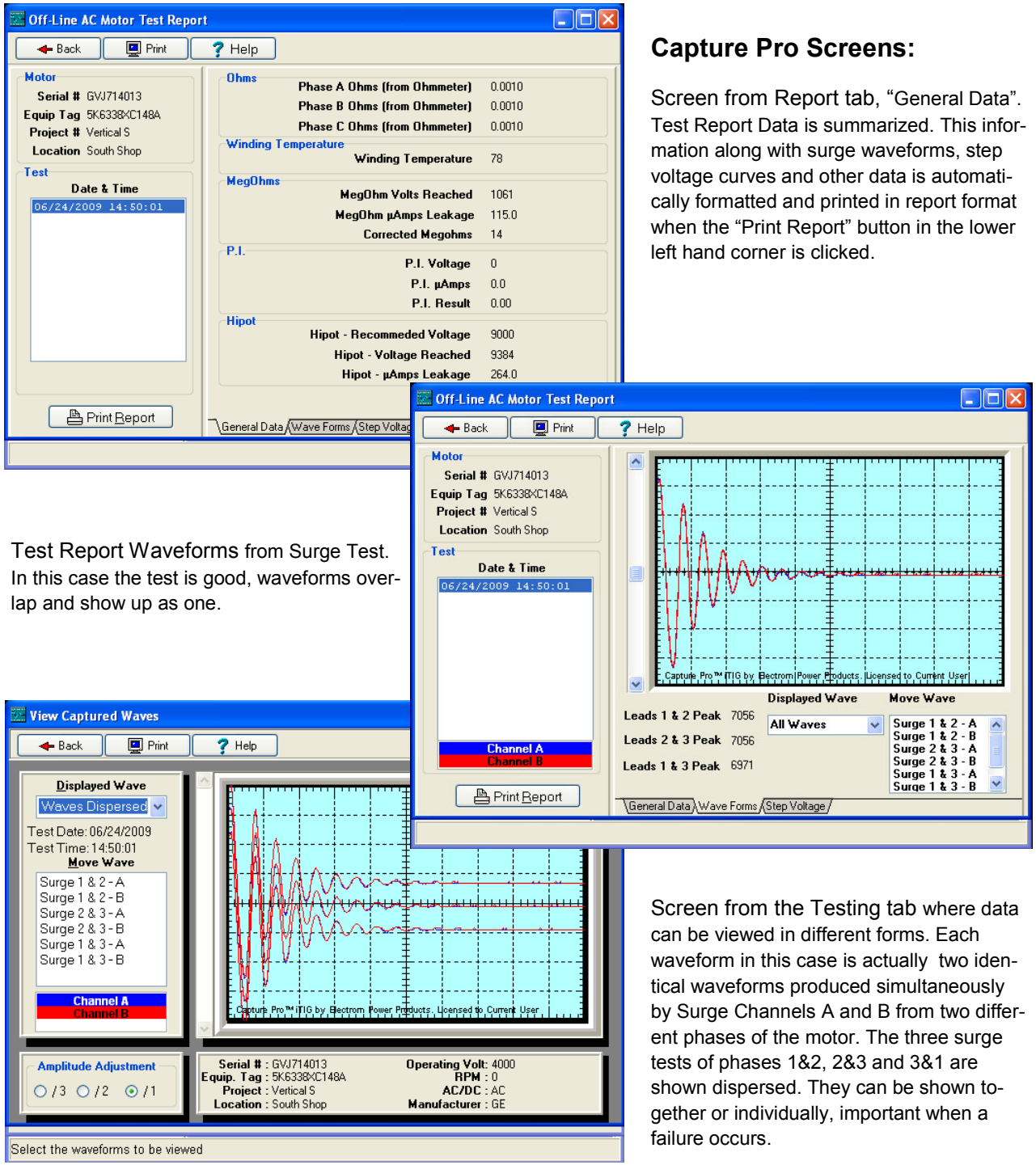
Capture Pro V3 is a database and reporting software specifically designed to work with the iTIG. It is used to store and organize data for easy retrieval and to generate reports.

It is a valuable tool for predictive and preventative maintenance, and generates trend reports.

Capture Pro is installed on a separate desk or lap top PC. Data is transferred from the iTIG to Capture Pro using a memory stick.

Data stored can include customer information, equipment data, test data for all tests performed, analysis, notes and more.

Reports are automatically generated, and can be customized or modified to suit individual users.



Test Report Waveforms from Surge Test. In this case the test is good, waveforms overlap and show up as one.

Capture Pro Screens:

Screen from Report tab, "General Data". Test Report Data is summarized. This information along with surge waveforms, step voltage curves and other data is automatically formatted and printed in report format when the "Print Report" button in the lower left hand corner is clicked.

Screen from the Testing tab where data can be viewed in different forms. Each waveform in this case is actually two identical waveforms produced simultaneously by Surge Channels A and B from two different phases of the motor. The three surge tests of phases 1&2, 2&3 and 3&1 are shown dispersed. They can be shown together or individually, important when a failure occurs.

Accessories

Power Pack

- The Power Pack is used to test large and high voltage rotating machines such as slow speed 4,160V to 13,800V electric motors and large power generators.
- Most tests available with the iTIG are standard in Power Packs when used together with an iTIG.
- The iTIG captures and displays hipot data and surge waveforms from the Power Pack.
- Power Packs may be used for Stand Alone DC Hi-Pot Testing.
- The surge test is a load dependant test. Load characteristics are influenced by operating voltage, horse power, rotating speed, frame size, coil type etc. Greater loads may necessitate a Power Pack.
- Assembled motors may limit output voltage because of the magnetic influence of the rotor thus requiring a Power Pack.
- The Power Pack is portable and has the same rugged case as the iTIG.

Standard Power Pack PP30 Specifications: See next page.

Power Packs with other output specifications are available on request.

iTIG and Power Pack with Armature Test Fixture. ATF can be used for large and small armatures.

Rotor Bar Clamp

The RTR-03 is a clamp-on current transformer specifically designed to monitor the 50/60Hz signal on one phase of an induction motor. Its purpose is to find an open or broken bar in the rotor. This is done by detecting a fluctuation in the sine wave produced by a rotating motor when compared to another phase. The RTR-03 works with the iTIG B, C and D.

iTIG shown with Rotor Bar Clamp

Armature Test Fixture (ATF)

The ATF is a one size fits all fixture used to test large and small DC Armatures. The test spans several bars and is therefore faster than a bar to bar test. It has a one step set-up and allows one hand operation so the other hand can be used to operate the iTIG. It should be used together with the Foot Switch.

If the Armature can sit on the floor or a bench with the commutator up, no other fixture is required to hold it. This almost eliminates set-up time.

Foot Switch

The FS-01 is a Foot Switch used to energize the iTIG hands free in Surge Mode instead of using the Function Switch on the front panel of the iTIG.

Foot Switch and Armature Test Fixture

Functions & Specifications, iTIG Series Winding Analyzers

iTIG FUNCTIONALITY:

- Surge test
  - Two Surge Generators
  - Line frequency (50/60Hz) Surge Pulse Rate
  - AMT option eliminates need to turn rotor for assembled motors
  - Computer controlled and automated scope functions
  - Displays % Wave Difference between Surge waves
- Rotor Bar Test - Open or cracked AC rotors
- DC Megohm Test - High and Low range
- DC HiPot Test
- DC Step Voltage Test
- Polarization Index Test
- Dielectric Absorption Test
- Form Coil Test
- Some models produce test and trending reports as well as screen pictures.
- Multiple screens for various tests, settings and data entry

Functionality varies by Model. Contact us for more information.

SPECIFICATIONS:

	iTIG A-D	iTIG/PP30
Surge Test		
Output Voltage	0 - 12 kV	0 - 30 kV
Maximum Current	800 A	2000 A
Maximum Energy	2.8 J	18 J
Pulse rate	50/60 Hz	5 Hz
Discharge Capacitance	0.02 µF	0.02 µF
DC Hi-Pot / Megohm		
Output Voltage	0 - 12 kV	0 - 30 kV
Maximum Current	5 mA	5 mA
Micro-Amp Display	0.1 - 2,000 µA	0.1 - 2,000 µA
Max Over-Current Trip	5 mA	5 mA
Max Resistance	100,000 MΩ	100,000 MΩ
Input Voltage	120 or 220-240 V AC ±10%, 50 or 60Hz	
Max Power	600 W	1000W
Weight	52 lbs - 24kg	70 lbs - 32kg
Dimensions	~20" x 8" x 20 or 51x22x50 cm	

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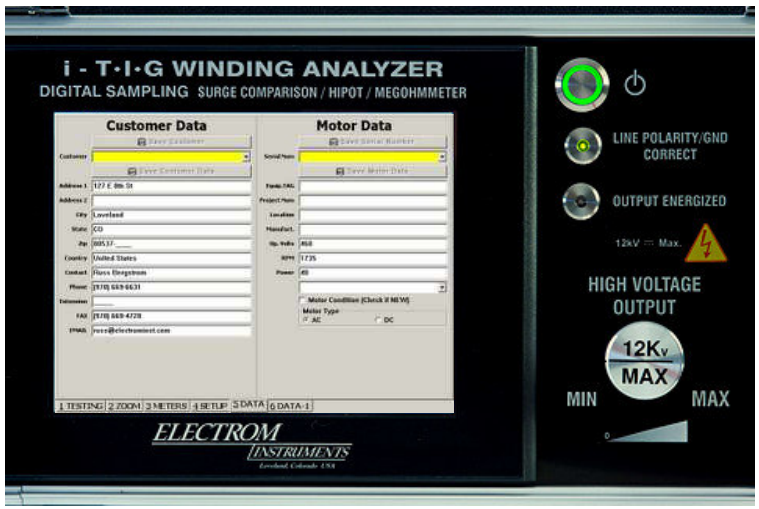

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