

# AUTOMEG

*Automatic, high voltage test system for wire & cable harnesses and electrical interconnect assemblies*



# AUTOMEG

*Our harness testing powerhouse - modular, accurate and user-friendly.*

The range of Automeg harness test systems offer powerful, flexible, simple to use and industry-compliant testing capabilities.

The systems ensure the wiring and components are 100% compliant and undamaged. And they record every test measurement, aiding diagnosis of detected faults.

Our wide range of different models mean there's a system suitable for almost every application out there, whatever your test environment.

*"We really value the flexibility of the system and the quality of the results...it delivers exactly what we asked for."*

Zander van der Steege, Project Test Engineer  
Santon Switchgear



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# MODULES

*Automeg is built to your specification from our wide range of standard modules:*

## **CONTINUITY TEST & RESISTANCE**

### **MEASUREMENT IN 2 & 4 WIRE (KELVIN) MODE**

Test for incorrect wiring, mis-wire, loose connections, incorrect wire gauge, failed/incorrect components, bad joints and crimps.

## **SHORT CIRCUIT TEST & RESISTANCE**

### **MEASUREMENT IN 2 & 4 WIRE (KELVIN) MODE**

Test for incorrect wiring, crossed wires, failed or incorrect components, any unwanted connection / conductor path.

## **HV DC INSULATION RESISTANCE TEST**

Test for damaged or faulty insulation by measuring specific insulation resistance value of each conductor or group of conductors.

## **HV DC HI-POT & DIELECTRIC TEST**

Test for damaged or faulty insulation by measuring specific current leakage value of each conductor or group of conductors, using high voltage DC.

## **HV AC HI-POT & DIELECTRIC TEST**

Test for damaged or faulty insulation by measuring specific current leakage value of each conductor or group of conductors, using high voltage AC

## **CAPACITANCE MEASUREMENT**

Test for correct capacitance of Shielded cable, coaxial cable, twisted pairs, and components / capacitors. The Capacitance module also offers Distance to Fault indication for open and short circuit failures.

## **COMPONENT TESTING**

Test for correct location and characteristic of circuit components – diodes, resistors, zener diodes, transformers, inductors, fuses, transistors, sensors etc.

## **ACTIVE COMPONENT & FUNCTION TESTING**

Test for correct function by automatically stimulating the active component and measuring / detecting the function of that component – relays, contactors, motors, actuators, solenoids, sensors etc. This is achieved by adding the MK EEM Stimulus modules and software controlled power supply units to enable required stimuli and measurement to take place simultaneously.



## **TIME BASED FUNCTION TESTING**

Test function of circuit and circuit components where time and measurement trace is especially important using the Oscilloscope module:

**Slip Ring Testing:** Testing for resistance and noise throughout the rotation, and deliver a resistance trace record.

**SSPC (Solid State Contactors):** Measure the function time ( $\mu\text{s}$ ), inrush current, steady state current and deliver trace record

## **THE WIDEST CHOICE OF HIGH VOLTAGE TEST ALGORITHMS**

The MK Test system utilises a true random switching relay format. This means that each test point can be treated independently and offers the widest range of testing options. Specifically this enables a true '1 to ALL' HV test demanded by the most stringent Aerospace and Defence testing specifications.

## **SPECIAL PROJECT TEST OPTIONS**

Fibre Optic Test; Databus Test 1553B, 3910, ARINC, CAN; Digital Logic Test; RF Test; TDR & FDR etc. Integration of External devices and Instruments to enable wider testing capability under single software and data management control.

# APPLICATION

## *examples*

### **AIRCRAFT ENGINE “E-TEST” & FUNCTION TEST OF ELECTRO MECHANICAL ASSEMBLIES**

Automeg is used to test the integrity and health of the engine’s electrical system. The system is used in both original manufacture and maintenance facilities.

The system is connected to the engine’s harnesses via adaptor cables, and the harness is tested for continuity, short circuits, capacitance, and high voltage insulation resistance and hi-pot. Once the harness has been validated, the test system then energises and exercises the active components in on the engine such as relays, igniters, sensors and solenoids. Within minutes the system delivers a full report of the status of the individual harnesses and components.

In this application Automeg offers extreme benefits in reducing turn around time (TAT) and eliminating failures on wing.

### **MAJOR ASSEMBLIES AND FULL AIRCRAFT OR VEHICLE TEST ON FAL (FINAL ASSEMBLY LINE)**

Full vehicle testing is a key application for Automeg. Here the system is supplied in distributed format, with one main control station controlling a number of distributed “satellite” switching units. All Automeg systems can be supplied in distributed format.

The distributed system places the system test points close to the areas of interface and reduces the amount, size, and length of interface cables. The satellite switching units can be in standard rack format, mobile cabinet format, ruggedized housings, and active LRU format.

In Final Assembly applications, Automeg is used to perform a wide range of testing, from point-to-point wiring (continuity), short circuit isolation, high voltage insulation, capacitance and impedance, function testing of passive components, circuit breakers and switches and lights, to function testing of active components such as relays, contactors, and solenoids.

### **CABLE HARNESS TEST**

Automeg can be delivered in static bench-top rack format or mobile cabinet format. This is the base application for Automeg, where the system is used to test the wiring integrity of harnesses.

Tests typically include continuity test, short circuit test, capacitance tests, high voltage insulation and hi-pot test, and test of components built into the harness.

### **ELECTRICAL MANAGEMENT & POWER DISTRIBUTION PANEL TEST**

Automeg is used to test the integrity of the most complex management panels. The internal harness and circuits are tested using continuity tests, short circuit tests, capacitance tests, high voltage insulation resistance and Hi-pot tests, and the components such as circuit breakers, switches, LEDs, diodes, zener diodes, relays and contactors are tested either under automatic operator instruction or via the automatic stimulus supply functions.



# Test management SOFTWARE

MKAT is our 3rd generation test management software offering our renowned ease of use with highly advanced technology. It's all driven by our goal of simplifying the testing process for our customers.

## SIMPLIFYING THE TESTING PROCESS AT EVERY STAGE

Whilst we pride ourselves on the robustness and reliability of our hardware, it is our software which makes our systems stand out from our competitors.

We've spent years developing and refining our software to make it simple to use yet powerful.

## CREATING THE TEST PROGRAM

Create a test program without having to learn a programming language. We use standard wiring input of Netlist, connection tables and interface adaptor tables to create test programs. Test parameters such as current, voltage, resistance and dwell can be set by test, group or connection. Tests are enabled or disabled by simple click of a button.

## APG

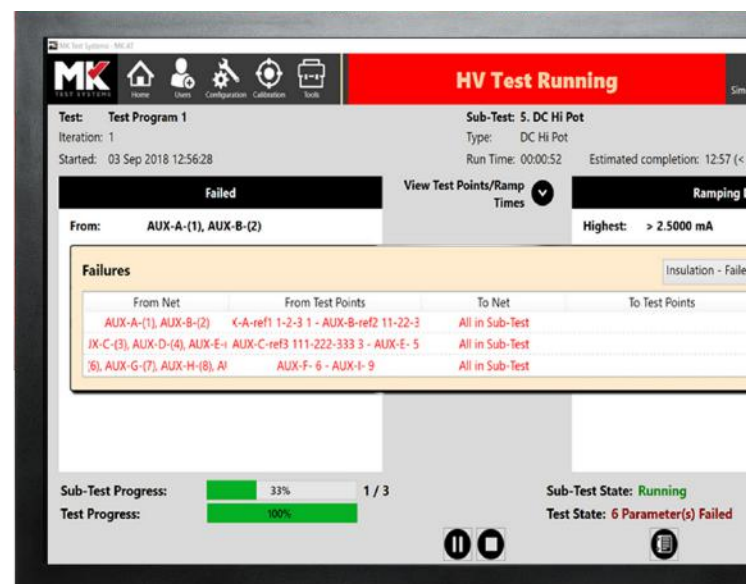
Automatic Program Generation (APG) is included in the MKAT test management software as standard. Our APG toolset allows the user to re-map fields and use their existing data formats.

## EASE OF USE

Creation of the test program is only the start – our software makes the test process simple. Operator instructions and prompts can be easily added to any program, and automatic test reports and fault diagnosis tools inform the operator of the nature of the failure and how to fix or retest the fault.

*"From creation of test programs through to fault diagnostics, MKAT supports your business needs whilst giving engineers control over testing."*

*In our 2020 survey, 90% of our customers said MKAT software was easy to use.*



# SPECIFICATIONS

Our sales team can help you configure the perfect spec for your needs. In the first instance though, this quick guide to selecting an electrical wire harness test system is a useful starting point.

As an overview, all Automeg models offer the following features:

- Continuity resistance measurement, low voltage isolation test (short circuit), and high voltage DC insulation resistance testing as standard.
- Optional high voltage AC HiPot testing, capacitance measurement LCR modules
- Optional function test stimulus switching modules and power supplies to enable actuation and function test. Note: This option is suitable for testing a small number of active components in the assembly under test. For testing larger amounts of active components, we recommend a full function test system from our E or M series.
- Integration with a range of third party sources, scopes and measurement modules.
- All systems can be configured to suit your operation and application. From static rack cabinets to heavy duty mobile cabinets suitable for shop floor and hangar environments; from distributed switching which spreads the system around large assemblies such as aircraft or vehicles; and portables built into a robust field deployment suitcase or rack format.
- MKAT, our powerful test management software; see page p4 for more information.

TESTS & FEATURES	AutoMeg												MultiBus	
	D1500	D2500	F1500	F2500	F3500	T1000	T1500	T2500	T3000	T3500	T6000	T8000	M1500	M2500
<b>Test &amp; Measurement</b>														
Continuity: Dual-wire	Y	Y												
Continuity: 4-wire			Y	Y	Y								Y	Y
Continuity: 2-wire						Y	Y	Y	Y	Y	Y	Y	Y	Y
Shorts	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Insulation and Hi-Pot	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Capacitance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Inductance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Temperature & Humidity	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Function testing													Y	Y
<b>Layout options</b>														
Rack housing	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Single or distributed satellite switching	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Static desktop	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Portable & ruggedised	Y													
<b>Features</b>														
Maximum insulation test voltage	1500Vdc	2500Vdc	1500Vdc	2500Vdc	3500Vdc	1000Vdc	1500Vdc	2500Vdc	3000Vdc	3500Vdc	6000Vdc	8000Vdc	1500Vdc	2500Vdc

## *About us*

We've been designing and manufacturing automatic electrical test equipment for over 29 years. In that time, we've provided systems to customers around the world, in the following industries:

- Aerospace
- Defence
- Rail
- Industrial, Power & Control
- Subsea
- Automotive

Our range of products enable rapid, automatic testing of engines, wiring harnesses, slip rings and other vital components.

We can work with you wherever testing is undertaken, at any stage of the product lifecycle. This may be at component manufacture stage - providing quality assurance to subcontractors - or at the final assembly stage, ensuring complete confidence in the final product. Beyond this, we also provide testing solutions for MRO and servicing.

## *Talk to us*

Our UK head office is supported by satellite locations in the US and Hong Kong. With our large global network of reps and distributors, you can be assured of local support, sales and training.

For your local contact details, please visit our website, [www.mktest.com](http://www.mktest.com).

## *Follow us*

