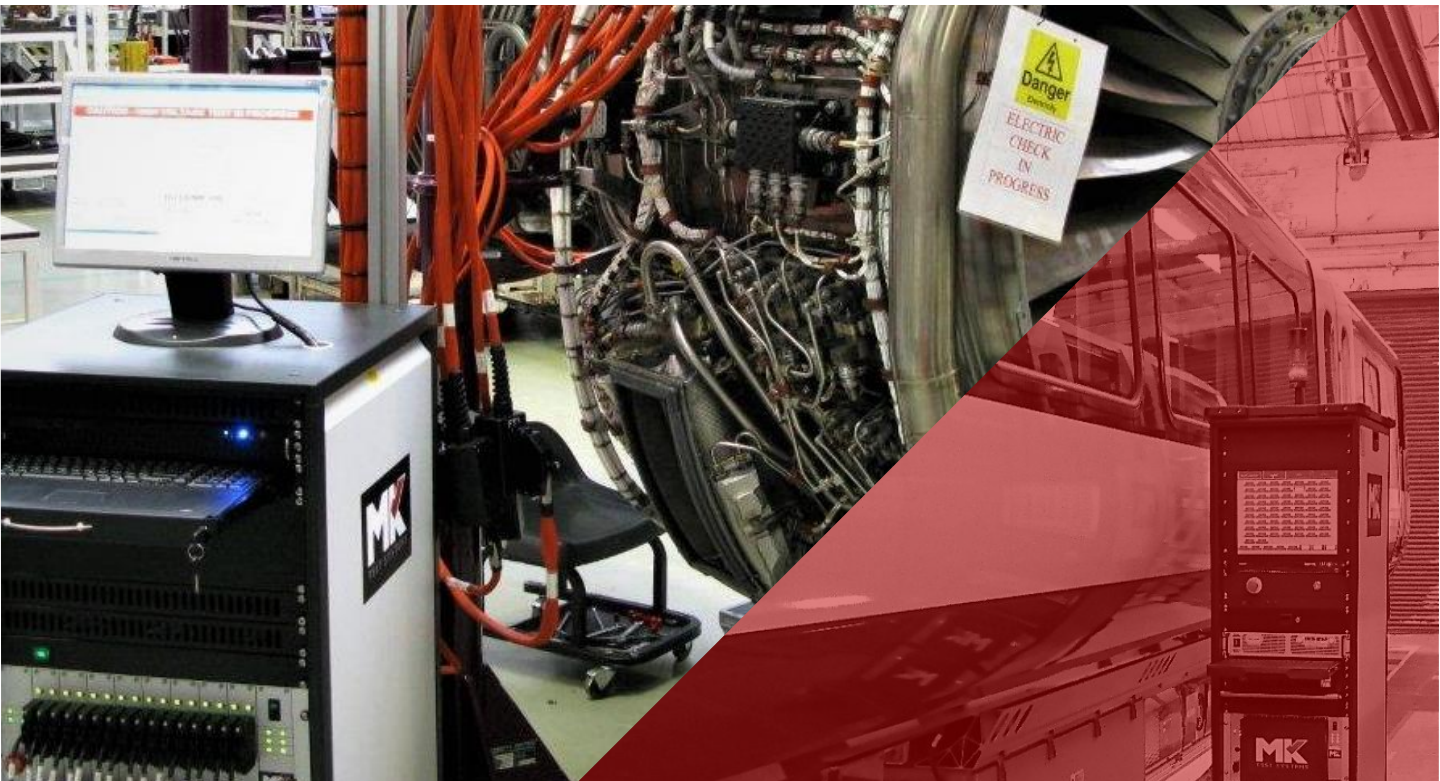


PROVEN AUTOMATIC ELECTRICAL TEST SOLUTIONS

High voltage test systems for cable & electrical interconnect assemblies



MK Test Systems is a world-leading manufacturer of automatic electrical testing systems. Our systems are widely used by OEMs and MROs to ensure electrical wiring is correctly wired and undamaged. Our component testing (Multibus) systems extend these capabilities enabling function testing of active components.

Applications include both OEM and MRO in the following industries:

- ✓ Aerospace
- ✓ Defence
- ✓ Power & Control
- ✓ Rail
- ✓ Subsea
- ✓ Other industrial applications requiring a high degree of accuracy and reporting in electrical testing, high voltage testing, and function testing across a large number of connections.

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/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 (μs), 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.

MK TEST MANAGEMENT SOFTWARE

- ✓ User friendly intuitive GUI Graphical User Interface.
- ✓ Engineer and Operator modes, configurable Password protection
- ✓ Multi-language user interface.
- ✓ Highly visual use of graphics to simplify operation and test result diagnostics.
- ✓ APG Automatic Programme Generation tool.
- ✓ No programming language = minimal training required.
- ✓ Test programmes created in tabular drop down menu based connection lists.
- ✓ Interface and connector library.
- ✓ Create test programmes via AutoLearn, Manual input, Import from external databases. and text files .
- ✓ Import and translation from other test systems.
- ✓ User configurable test instructions and Input options to guide operator through the test process.
- ✓ Single Point Test and Automatic mode.
- ✓ Sub-test format enables logical management of the test process and logical sub-test branching (If/then scenario).
- ✓ Test results held in database for future review,.
- ✓ Wide range of report options as hard copy and in electronic format.



APPLICATION EXAMPLES

Cable Harness Test

The system can be delivered in static bench-top rack format or mobile cabinet format. This is the base application for the MK Test System, 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

Here the system 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.

Aircraft Engine “E-Test” & Function Test of Electro Mechanical assemblies

The MK system 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 the MK system offers extreme benefit in reducing turn-around-time TAT and eliminating failures on wing.

Major Assemblies and Full Aircraft or Vehicle Test

Final Assembly Line (FAL) Testing is a key application for the MK test system. Here the system is supplied in Distributed format, with one main control station controlling a number of distributed “satellite” switching units. All MK 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.

The Active LRU switching units are inserted into the LRU chassis cabinets inside the aircraft and eliminate the need for interface cables and adaptors.

In Final Assembly applications, the MK system 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.

The MK active Xref feature allocates a signature to every Interface cable, enabling the test system to recognise the cables and allowing random positioning of the cables on the test system during hook up. In addition the ICM toolset uses this signature to manage the storage and logistics of the cables during hook up. Active Xref and ICM dramatically reduce the overall testing time of large assemblies.

| MODEL | TEST POINT RANGE | CONTINUITY & SHORT CIRCUIT | HV INSULATION TEST | HV HI-POT TEST | CAPICITANCE TEST | COMPONENT TEST | ACTIVE COMPONENT TEST |
|-------|------------------|--|------------------------------|------------------------------|---|--|--|
| T500 | 128 to 524,224 | 2 Wire 0.1Ω to 100kΩ | to 500VDC 5kΩ to 10000MΩ | to 250Vrms 1μA to 5000μA | option 1: to 30μF option 2: to 99999μF | Diodes Resistors Capacitors Zener Diode Transformers Inductors Fuses Transistors Sensors etc. | LEDs Lamps Relays Contactors Motors Actuators Solenoids Sensors etc. |
| T1000 | 128 to 524,224 | 2 Wire 0.1Ω to 100kΩ | to 1000VDC 5kΩ to 10000MΩ | to 500Vrms 1μA to 5000μA | | | |
| D1500 | 64 to 524,224 | 2 Wire 0.1Ω to 100kΩ 4 Wire 0.002Ω to 100kΩ | to 1500VDC 5kΩ to 10000MΩ | to 1000Vrms 1μA to 5000μA | | | |
| F1500 | 32 to 262,080 | 4 Wire 0.002Ω to 100kΩ | to 1500VDC 5kΩ to 10000MΩ | to 1000Vrms 1μA to 5000μA | | | |
| D2121 | 64 to 524,224 | 2 Wire 0.1Ω to 100kΩ 4 Wire 0.002Ω to 100kΩ | to 2121VDC 5kΩ to 10000MΩ | to 1500Vrms 1μA to 5000μA | | | |
| F2500 | 32 to 262,080 | 4 Wire 0.002Ω to 100kΩ | to 2500VDC 5kΩ to 15000MΩ | to 1500Vrms 1μA to 5000μA | | | |
| T3500 | 32 to 262,080 | 2 Wire 0.1Ω to 100kΩ | to 3500VDC 5kΩ to 20000MΩ | to 2500Vrms 1μA to 2000μA | | | |
| T8000 | 16 to 65,472 | 2 Wire 0.1Ω to 100kΩ | to 8000VDC 5kΩ to 50000MΩ | to 3500Vrms 1μA to 2000μA | | | |


Additional models, options and extended ranges available. Specifications subject to change. For further details and full specification please contact MK Test Systems or visit www.mktest.com.

Support and further information

MK Test System solutions combine powerful and flexible capability with a global sales and support network to provide our customers with the most complete solution available in the testing industry.



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