

BLRT

Automatic Bond, Loop & Joint Resistance Test System



“The BLRT revolutionises the testing environment offering automated, intelligent earth bond loop and Joint testing.”

Electrical Bond Testing?

The Electrical Bonding on an aircraft protects the aircraft and passengers by limiting the effects from **Lightning Strikes**, **Stray Currents**, **HIRF**, and **EMC**. The integrity of bonding circuits is critical to ensure they perform reliably to ensure normal and safe operation of the aircraft control and communication systems.

Use the MK BLRT to perform simple, rapid and automatic test and measurement of:

Loop Resistance and Integrity of Cable Shields

Loop Resistance and Integrity of Bonding Straps

Resistance of individual Joints within the Loop

Bond Resistance between Structural Elements



Bond Test

Measure the electrical resistance between two metallic elements. Typically between a bracket and structure. The BLRT uses the 4-wire (Kelvin) resistance measurement to ensure micro-ohm accuracy.



Loop Test

Here, a number of metallic elements and equipment are connected together to create a loop of parallel resistance. The loop is typically made up of cable shields and bonding straps. The loop test makes use of a specially developed test method, whereby a current clamp is used to inject a specific current into the loop, while a second clamp detects the current flowing through the loop. The BLRT controls the flowing current and frequency, combines this with the known voltage fed back from the internal high precision power source, and automatically carries out a phase correction to accurately report the loop resistance.



Joint Test

The ground loop is made up of a number of elements such as shield, backshell, connector, equipment, and structure. The joint resistance between these elements is critical in determining the total loop resistance. If a loop resistance is high, it is likely due to a single joint being loose or damaged and hence showing a high resistance. While the BLRT loop clamps are injecting a known current through the ground loop, Joint probes are used to measure the volt drop across specific joints, the volt drop is then phase corrected and the joint resistance reported.



BLRT Features and Benefits

Lightweight and Robust

- Single operator use
- Battery powered and truly portable
- Weight <7Kg
- Size 35cm x 30cm x 15cm

Automatic

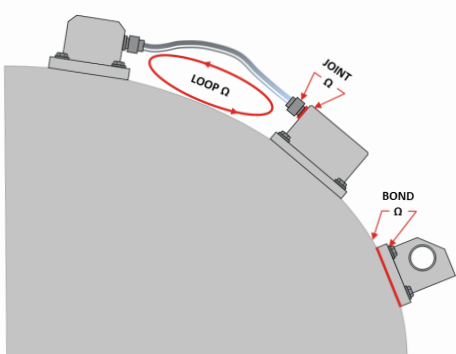
- Integrated Computer complete with MK BLRT Software
- Automate the test process, saving time and gaining efficiency
- Paperless process
- On screen graphical Operator guidance
- Simple Touchscreen control
- User Login and Access control
- Automatic Pass and Fail of measured value
- Automatic logging and upload of test results
- Guarantees Traceability by User, UUT, Measured result

Active Probes and Clamps

- Push button control enables full test control from the probes
- LED pass fail indication on probes improves test efficiency
- Integrated lights on probes for testing in dark areas
- Various probe and clamp formats and sizes available

Reliable and Accurate

- Integrated Self Test and Validation toolset
- Automatically validates system performance during test and after clamp or probe change



BLRT - Bond, Loop & Joint Resistance Tester

PROVEN AUTOMATIC ELECTRICAL TESTING SOLUTIONS



MAIN FEATURES

- Tough polypropylene enclosure
- Flip-off protective lid, with self-test fixture
- LCD 10.4" Touchscreen integrated monitor
- Smart Li-Ion batteries 'hot-swappable'
- Lightweight
- Carrying handle and optional harness
- Soft-start current source prevents arcing
- On-screen instructions
- Auto and manual modes
- Wireless data upload & download
- USB port (when data adapter fitted)
- Network Port (when data adapter fitted)
- Active Probes and Clamps - no need to touch the screen
- Pass/Fail Status indication on Probes and Clamps
- Wide range of custom probes available

BOND TEST MEASUREMENT (DC) - OPTION - only applies when fitted

Current (DC)	up to 10A (10% accuracy)
Resistance Range	0.2mΩ to 2Ω
Resistance resolution	0.1mΩ
Resistance Accuracy	±(1% of reading + 0.2mΩ) @ 10A

LOOP TEST MEASUREMENT

	Range 1	Range 2	Range 3	Range 4
Mode	1 Arms (constant current)	1 Arms (constant current)	0.2 Vrms (constant voltage)	0.2 Vrms (constant voltage)
Frequency	1kHz	1kHz	1kHz	1kHz
Loop Resistance Range	1mΩ to 50mΩ	51mΩ to 200mΩ	201mΩ to 2000mΩ	2001mΩ to 4000mΩ
Resistance Resolution	0.1mΩ	0.1mΩ	0.1mΩ	0.1m
Resistance Accuracy	±(2% of reading + 0.5mΩ)	±(2% of reading + 0.5mΩ)	±(5% of reading + 0.5mΩ)	±(10% of reading + 0.5mΩ)

JOINT TEST MEASUREMENT

	Range 1	Range 2	Range 3	Range 4
Mode	1 Arms (constant current)	1 Arms (constant current)	0.2 Vrms (constant voltage)	0.2 Vrms (constant voltage)
Frequency	1kHz	1kHz	1kHz	1kHz
Applied Loop Resistance Range	1mΩ to 50mΩ	51mΩ to 200mΩ	201mΩ to 2000mΩ	2001mΩ to 4000mΩ
Joint Resistance Range	0.05mΩ to 50mΩ	0.05mΩ*(@51mΩ Loop) to 200mΩ	0.50mΩ*(@201mΩ Loop) to 2000mΩ	5.00mΩ*(@2001mΩ Loop) to 4000mΩ
Resistance Resolution	0.01mΩ	0.01mΩ	0.01mΩ	0.01mΩ
Resistance Accuracy	±(5% of reading + 0.05mΩ)	±(5% of reading + 0.1% of Loop)	±(5% of reading + 0.25% of Loop)	±(10% of reading + 0.25% of Loop)

*To determine lowest measurable joint resistance for a given loop use: $Joint(low) = Loop\ resistance \times Percentage$

Application and Benefit example

A leading Aircraft Engine manufacturer had the following test process issues:

Situation

- Engineers testing in different ways – impacting test result conformity
- Testing taking too long
- Manual (pen and paper) data capture introducing test data errors
- Full traceability not in place

Solution

- Ensured all engineers test in the same way, through on-screen test guide
- Reduced a 2 engineer process to a single engineer and reduce testing times by 80%
- Automate test result data capture and uploads test results on completion
- Ensure full traceability and test data integrity

Tests required

- 171 Loop Resistance measurements
- 692 Joint Resistance measurements
- 82 Bond Resistance measurements

Result: 32 man hour testing time reduced to 4 hours



Contact our sales team to discover how the BLRT can save you time and improve your testing process.

For local Sales and Support contacts worldwide

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