ExLRT

Intrinsically safe loop & joint resistance tester

Part Number XLR-9703-01

Approved by Boeing and the FAA as an alternative to the LRT

Certified as Intrinsically Safe for Class 1 Div 1 (Zone 0) use

MK TEST SYSTEMS

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ExLRT

Intrinsically safe loop & joint resistance tester

Safe for use on fuelled aircraft, the ExLRT is designed with MROs in mind. It's also specified in The Boeing Company maintenance manuals (part number XLR-9703-01).

> *"Faster testing, easier to use, and can be performed by one person."*
>
> **ExLRT user, Lufthansa Technik**

What's in this guide

ExLRT Features & Benefits

Designed for MRO environments

- Wearable, lightweight harness and belt clip options to keep hands free
- Push button controls & scrolling for minimal operator input
- Simple to use interface
- Large backlit screen for easier distance reading
- LED indicators on the unit, probes and clamps for 'in-hand' control
- Record Mode - improve test times and documentation accuracy with automated data collection and transfer to any PC

Safe to use in industrial environments

- Certified as Intrinsically Safe for Class 1 Div 1 (Zone 0) applications (an explosive atmosphere is continuously present.)
- Guaranteed measurement range -10°C to +40°C (14°F to 104°F)
- Safe useage range -20°C to +60°C (-4°F to +140°F)
- Main unit IP54 rated (IP20 for cables)

Superior design, verified by Boeing

- Designed in partnership with Boeing's EME (Electro Magnetic Effects) team.
- Resistance measurements verified as equivalent or better than the LRT.

Maintenance made simple

- Integrated self test capability
- Return-to-base calibration takes just 1 week
- 12-month comprehensive warranty
- Removable, rechargeable batteries

Size matters

- Weighs just over 3kg (6lbs)
- 82% lighter than the LRT
- Small footprint minimises health and safety risk.
- Suitable for single operator use.

ExLRT vs LRT Comparison

Feature	ExLRT	LRT
Intrinsic Safety (IS) Classification	Class 1 Division 1 (Explosive atmosphere continuously present)	Class 1 Division 2 (Explosive atmosphere not likely to occur)
Operators	Single operator	2 operators required
Calibration	Convenient global calibration locations. Return-to-base turnaround time is 1 week. Qualified users may be able to perform calibration in-house.	Return-to-base turnaround time is 2 months
Weight	6.6lbs / 3kg	37.5lbs / 17kg
Batteries	Replaceable batteries with external charger - system always available	Internal battery means tool can't be used whilst charging. Low power affects accuracy of results.
Typical order leadtime	From stock in 2 weeks	16-20 weeks
Connectivity	USB for direct connection to a PC	No connectivity

What's in the box?

Standard toolkit (Part No. XLR-9703-01)

- ExLRT loop and joint tester
- 1 set of MK52 (52mm diameter) loop couplers
- 1 set of joint probes
- Power kit: 1 x battery, 1 x charger, 1 x PSU with USA mains lead (suitable for 110V and 230V mains)
- Belt clip

Optional accessories

- Loop adjustment jumper kit – 1 x 12ft cable, 1 x 42ft cable
- Additional battery
- Additional battery charger
- Additional PSU
- Regional mains power lead
- Custom formed equipment carry case

Warranty & support

- 12 month comprehensive warranty
- Global repair and calibration service
- Local spares holding & support contracts available

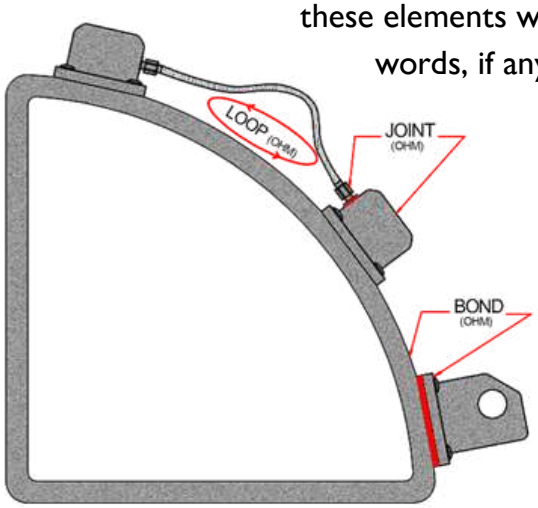
THIS PAGE CONTAINS USEFUL INFORMATION ON RESISTANCE TESTING AND INTRINSIC SAFETY. OUR SALES TEAM ARE HAPPY TO EXPLAIN THESE TOPICS IN MORE DETAIL IF REQUIRED.

What is resistance testing?

The electrical bonding on an aircraft protects the aircraft and passengers by limiting the effects of 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.

Loop and joint tests explained

A "loop" is a complex structure comprising of series and parallel resistive elements. However, it's the joint connections within this complex structure that is ultimately tested, as it's the resistance between these elements which is critical in determining the total loop resistance. In other words, if any joint within the loop fails, it can cause the loop test to fail as well.



The ExLRT's loop test makes use of a specially designed test method which uses clamps to inject and detect current flowing through the loop. For joint testing, while the ExLRT 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.

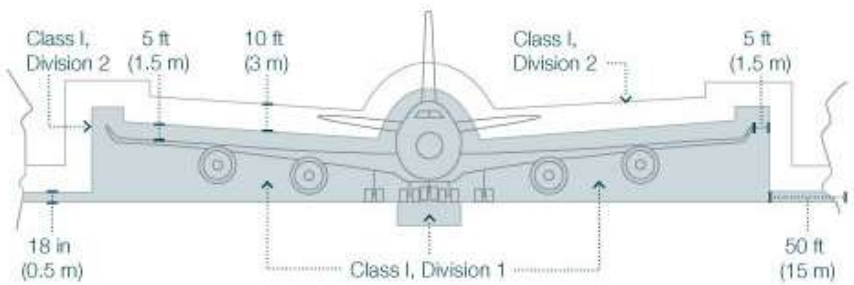
What does 'intrinsically safe' mean?

Intrinsically Safe describes equipment which is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions which may cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration.

The FAA and The Boeing Company specify the use of Intrinsically Safe equipment within the fuel vapor zones around airplanes and on fuelled aircraft. All equipment must be suitably certified for use within these zones to avoid the risk of spark ignition and the potential for catastrophic damage to personnel and property.

The ExLRT is specifically certified for safe use in the Division 1 Class 1 (Zone 0) fueled environment and is therefore suitable for use on fueled aircraft in accordance with Boeing's requirements.

Figure 2: Hazardous locations: open fuel tanks — before the airplane is purged and unfueled
Only explosion-proof equipment can be used within these flammability zones, which extend to a 50-foot (15-meter) radius around the airplane.



About us

We've been designing and manufacturing automatic electrical test equipment for 30 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 wherever you are in the world.

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Brochure issue date: December 2022