

M91 FastHall™ Analysis Kit

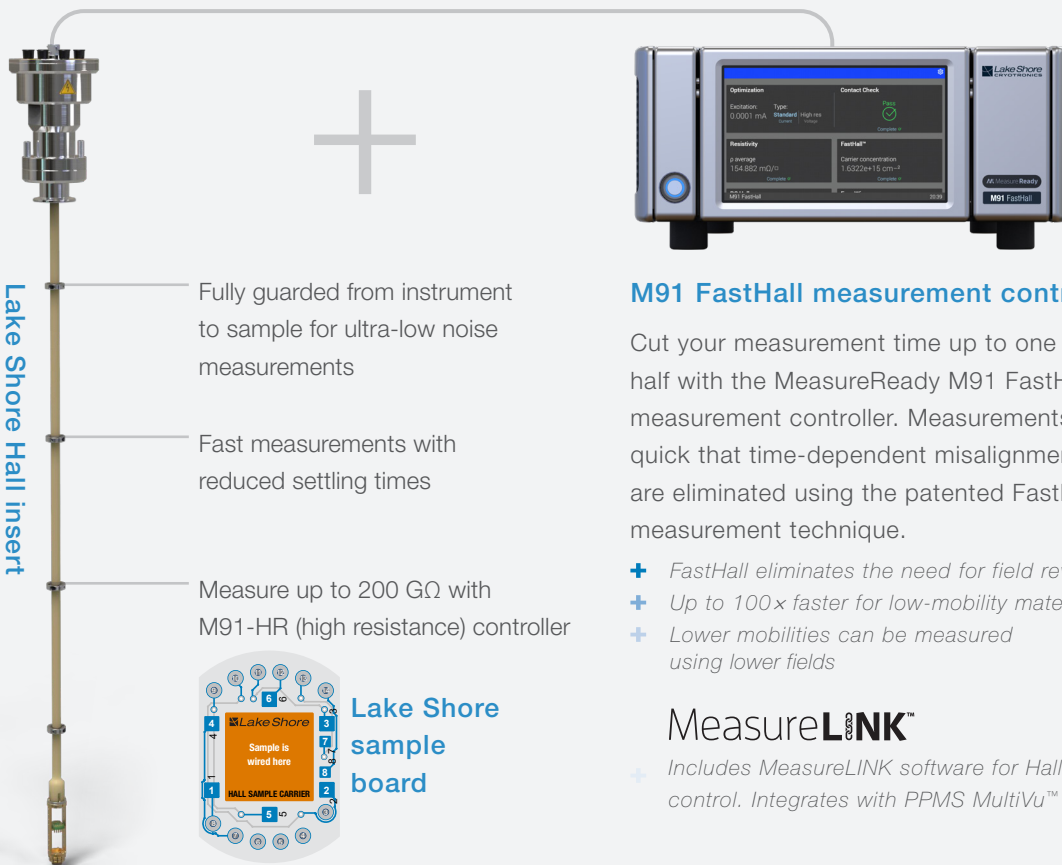
for PPMS®

Combine the measurement power of a Lake Shore MeasureReady® M91 FastHall measurement controller with Quantum Design's Physical Property Measurement System (PPMS).

In collaboration with Quantum Design, Lake Shore has created a measurement kit to offer a complete Hall measurement solution. The M91 and Lake Shore's Hall insert can be seamlessly integrated into Quantum Design's PPMS. Plus, it is optimized for low noise and resistances up to 200 GΩ.



Seamlessly integrate Hall measurements to the PPMS



M91 FastHall measurement controller

Cut your measurement time up to one half with the MeasureReady M91 FastHall measurement controller. Measurements are so quick that time-dependent misalignment errors are eliminated using the patented FastHall measurement technique.

- + FastHall eliminates the need for field reversal
- + Up to 100x faster for low-mobility materials
- + Lower mobilities can be measured using lower fields

MeasureLINK™

- + Includes MeasureLINK software for Hall measurement control. Integrates with PPMS MultiVu™ application software.

SYSTEM SPECIFICATIONS

M91-HR + Lake Shore insert

Benefits

- + Fastest measurement with reduced settling time
- + Best performance for low-noise, low-current measurement
- + Fully guarded from instrument to sample



M91-HR electrical measurement specifications

The M91 FastHall measurement controller integrates all the required source measure and signal switching capabilities to provide a complete start-to-finish Hall analysis.

Resistance (R)

Standard: 10 mΩ to 10 MΩ source current

High resistance*: Up to 200 GΩ source voltage

Mobility (μ)

Mobility range: 10⁶ cm²/(V s) to 0.001 cm²/(V s)

Parameters

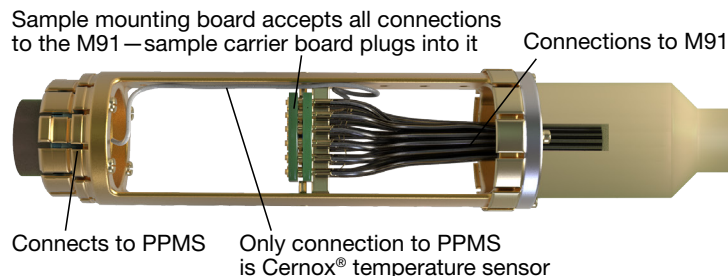
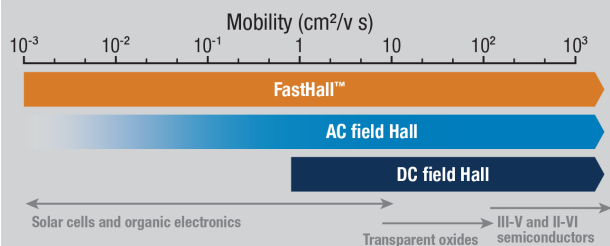
Current source range: 1 μA to 100 mA (lowest usable: 10 nA)

Current measurement range: 100 mA to 10 nA (lowest measurable: 1 pA)

Voltage source range*: 10 mV to 10 V

Voltage measurement range: 1 mV to 10 V

* Only available with M91-HR (high-resistance) model included in kit



This diagram is a close-up of the sample connections on the Hall insert. The M91 supports both van der Pauw (4-connection) and Hall bar (6-connection) geometries. These samples are wired to the Lake Shore sample board, which snaps inside the insert.

When the insert is loaded into the PPMS, these sample connections are fully guarded up to the M91 via triaxial cables (included in the kit). The integrated Cernox[®] sensor connections go to the PPMS, enabling temperature readings directly through MultiVu. For more information, contact Quantum Design at info@qdots.com.

Specifications summary

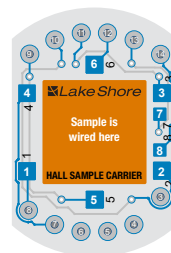
Pin-to-pin leakage current (base temperature): 50 fA

Pin-to-insert body leakage current (base temperature): 50 fA

Maximum current per pin: 100 mA

Maximum voltage between any 2 pins and insert body: 50 V

Operating temperature range: 1.9 K to 400 K



Lake Shore sample board

Samples mount to consumable Lake Shore sample carrier boards (also pin compatible with Quantum Design sample carrier boards); 12 are included in the kit.