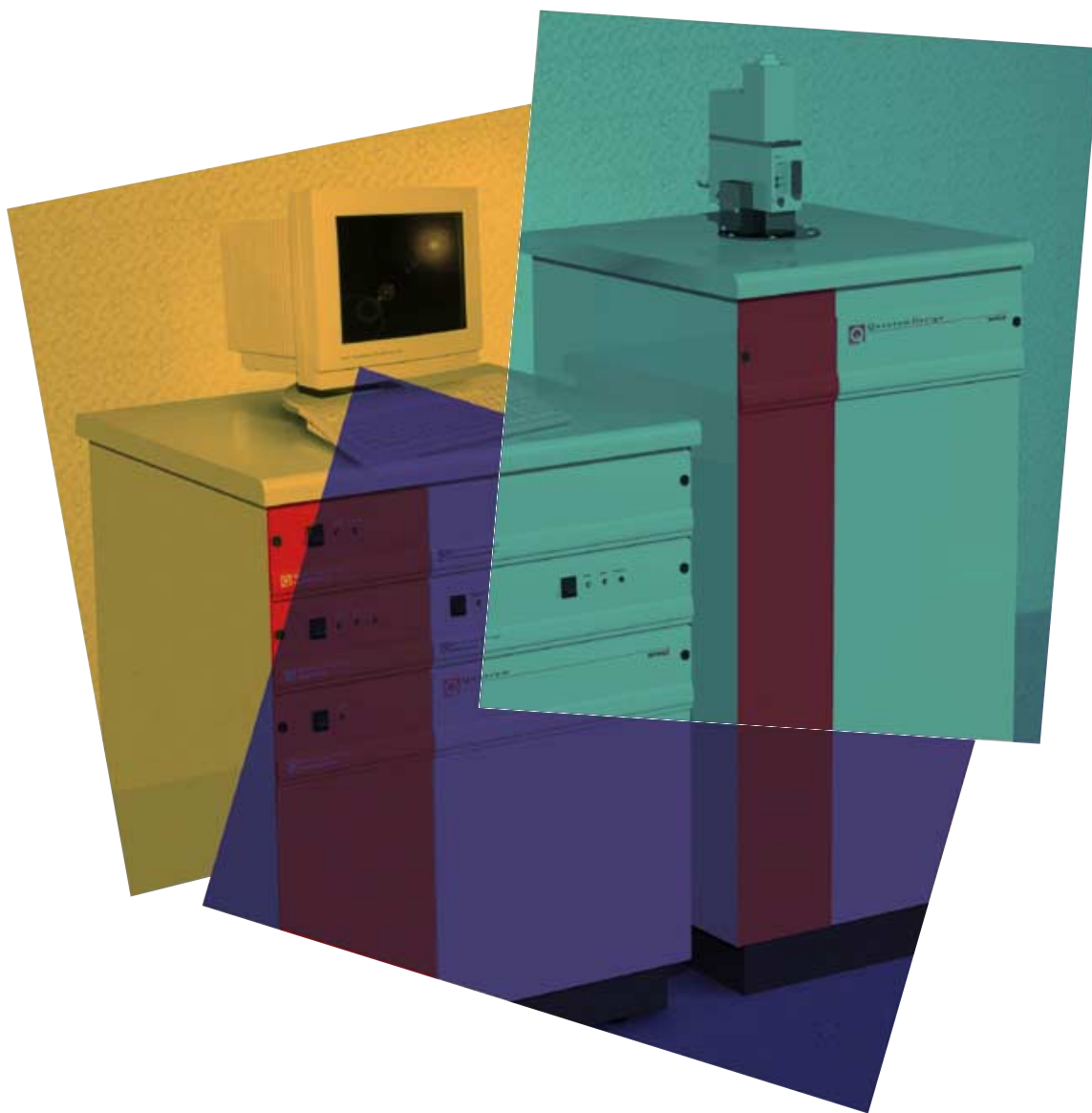


Magnetic Property Measurement Systems

# MPMS XL



Quantum Design





# Specifications

controlled, monotonic change in temperature during a measurement sequence at rates up to 10K/minute. Measurements of temperature dependence over large temperature ranges, which previously required time consuming temperature stabilization, can now be made quickly and precisely using the Temperature Sweep Mode.

## Software Control/Automation

A new software interface completes the flexibility and usability of the MPMS XL. Running under Microsoft Windows the state-of-the-art MPMS MultiVu software interface provides a level of control for system operation, graphics and data analysis previously unavailable. With MultiVu, simultaneously viewing data files in multiple formats is easily accomplished (e.g. a graph and a text file). Similarly, display of multiple graphs allows for easy comparison of results from different experiments. Operationally, MultiVu is a valuable tool in setting up and editing several measurement protocol files simultaneously.

## Reciprocating Sample Measurement System (M130)

Features:

- New servo powered, shaft-encoded transport allows precision oscillating sample motion
- New sample rod with low thermal expansion and radial sample centering features
- New high precision data acquisition electronics, including a digital signal processor
- New MPMS software revision, including support for all Reciprocating Sample Features:
  - SQUID signal analysis phase-locked to sample motion
  - support of longitudinal and transverse measurement axes
  - sample centering methods
  - support of all measurements with new sample transport (AC, DC, Reciprocating Sample)
- 16 measurement ranges from  $10^{-5}$  emu to 5 emu
- Frequency range: 0.5 – 4.0 Hz
- Oscillation amplitude range: 0.5 to 50 mm p-p
- Max. DC scan length: 87mm
- Relative sensitivity: max. of  $<1 \times 10^{-8}$  emu or 0.1% (0 – 2,500 Oe)
- *Upgrade available for all basic MPMS systems*

## Continuous Low Temperature Control and Enhanced Thermometry (M140)

Features:

- New dual impedance design allows *continuous* operation below 4.2K
- New sample space thermometry improves temperature control

- Transition through 4.2K requires no  $^4\text{He}$  reservoir refilling and recycling (no pot fill)
- New MPMS software revision for all Continuous Low Temperature features
- Minimum continuous operating temperature: 1.9K
- Operation below 4.2K: exceeded 45 hours during factory testing at 1.9K
- Temperature stability:  $\pm 0.5\%$  (1.9K – 4.2K)
- Includes Temperature Sweep feature (see below)
- *Upgrade available for all basic MPMS systems*

## Temperature Sweep (M145)

Features:

- Includes new sample space thermometry (Enhanced Thermometry)
- Sweep rate range: 0.001 – 10K/min (data acquisition at slower sweep rates is recommended)

## MPMS MultiVu Software

Features:

- Simultaneous access to all aspects of system operation: sequence setup, data analysis, data display
- Enables multiple documents and view to be visible and useable that the same time
- Simultaneous display of data files in multiple formats (e.g., graphs vs. text)
- MultiVu operates under Windows' with full Windows'-based mouse control for all operations
- Automated Background Subtraction
- Remote system operation and servicing via the internet
- *Upgrade available for all basic MPMS systems*

## Configurations

The MPMS XL is offered in two high homogeneity magnet configurations-MPMS XL-5 (5 Tesla) and MPMS XL-7 (7 Tesla). Each system includes:

- Reciprocating Sample Measurement System
- Continuous Low Temperature Control/Temperature Sweep
- MPMS MultiVu Software Interface

Now MPMS XL-1 (1 Tesla) System also available.

## Options

- Transverse Moment Detection
- Vertical Sample Rotator
- Horizontal Sample Rotator
- Sample Space Oven
- Magnet Reset
- Extended Dynamic Range
- External Device Control
- SQUID AC Susceptibility Measurement
- Ultra Low Field Capability
- Fiber Optic Sample Holder
- Low Field Profiling
- Manual Insertion Utility Probe
- Environmental Magnetic Shield
- Liquid Nitrogen Shielded Dewar