PPMS®

Physical Measurement Property System

Product Description

The Quantum Design PPMS represents a unique concept in laboratory equipment: an open architecture, variable temperature-field system, designed to perform a variety of automated measurements. Available measurement options include all required hardware and electronics to immediately begin collecting publication-quality data, while the system is also easily adapted to custom user experiments. Sample environment controls include fields up to ±16 T and a temperature range of 1.9 to 400 K. The expandable design enables combining many features in one instrument to make the PPMS the most versatile system of its kind.

Cryogen-Free Option Available as Upgrade: The Quantum Design PPMS EverCool-II® is the cryogen-free upgrade to the industry-leading Physical Property Measurement System (PPMS) product line. Available as an upgrade to existing PPMS installations.

Features

- Compatible with more than 20 Quantum Design Measurement Options which seamlessly integrate with the MultiVu software environment
- Versatile sample mounts couple easily to the 12 electrical leads built into the cryostat insert for consistently reliable electrical access
- Software controls for the temperature and magnetic field readily enable the automation of complex data acquisition procedures
- The included Model 6000, a sophisticated microprocessor-controlled device, eliminates the need to use or purchase external bridges, current sources, or voltage sources for basic system operation
- Sample chamber has 2.6 cm diameter to accommodate custom probes
- Interface with external 3rd party instruments, whether controlling these from within MultiVu or directing the PPMS from external software, such as NI LabVIEW.

PPMS Probe

PPMS with optional liquid nitrogen-jacketed helium dewar

Magnet Configurations

- Select from 9 T, 14 T, or 16 T longitudinal solenoid magnet configurations
- For transverse fields, a 7 T split-coil configuration is available
- Systems may also be ordered without any installed magnet

Available Measurement Options

- **Electrical Transport:**
  AC Resistance (ETO); DC Resistance; Horizontal Rotator; Pressure Cell (Transport)
- **Magnetometry:**
  VSM + Large Bore; VSM Oven; AC Susceptibility (ACMS II); FORC Software; Fiber Optic Sample Holder (FOSH); Pressure Cell (Magnetometry); Torque Magnetometer
- **Thermal Measurements:**
  Heat Capacity; Thermal Transport (TTO); Dilatometer
- **Sub-Kelvin Capabilities:**
  Dilution Refrigerator; Helium-3 Refrigerator; Adiabatic Demagnetization Refrigerator (ADR); Sub-Kelvin Measurement Options (AC Resistance, DC Resistance, Heat Capacity, AC Susceptibility)
- **Multi-Function Probes:**
  User-designed experiments using MFPs; Photoconductivity; CryoFMR; Optical Multi-Function Probe
- **Raman & FMR Spectroscopy:**
  Raman Laser and Spectrograph; CryoFMR and PhaseFMR
- **Optics:**
  Light Sources; Optix Breadboard
- **PPMS Microscopy:**
  SPM for PPMS

Specifications

PPMS

Temperature Range:	1.9 to 400 K
Temperature Stability:	± 0.2% (T < 20 K), ± 0.02% (T > 20 K); (typical)
Temperature Accuracy:	± 1%
Temperature Sweep Rate:	6 K/min. cooling, 10 K/min. warming; (typical)
Cool Down Time:	40 minutes (typical time to stable 1.9 K from 300 K)
Field Range:	± 9 T, ± 14 T, ± 16 T
Field Uniformity*:	9 T: ± 0.01% over 5.5 cm on-axis 14 T: ± 0.1% over 5.5 cm on-axis 16 T: ± 0.1% over 1.0 cm on-axis
Max Field Charging Rate:	9 T: 190 Oe/s (> 1 T/min.) 14 T: 100 Oe/s (≈0.5 T/min.) 16 T: 160 Oe/s (≈1 T/min.)
Min Field Charging Rate:	0.1 Oe/s
High Vacuum (optional)	0.1 mTorr

PPMS EverCool II

Specifications identical to standard PPMS with the following additions:

Field Range:	± 9 T only
He Liquefaction Rate:	8 liquid liters / day; typical without additional heat load (equiv. 5 gaseous liters / minute)
Liquid Helium Capacity:	4 liters maintained under normal operating conditions; 6 liters total

**Uniformity range is centered 4.05 cm above the surface of a standard transport puck; this point represents the center of an installed VSM coil set.*

Specifications subject to change without notice

Installed PPMS systems can be upgraded with cryogen-free EverCool®II option

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