Lake Shore CRYOTRONICS

CryoComplete

Everything you need to make temperature-dependent, low-level electrical measurements from **77 K to 500 K**

- Complete measurement system
- Optimized full signal path
- Quick lead time

PC with MeasureLINK™

A PC with MeasureLINK provides the user interface to control your cryogenic system. MeasureLINK enables a wide range of capabilities, including charting data, controlling instrumentation, and system monitoring with a cryostat-specific process view.

LN_2 Cryostat

An Environment by Janis VPF-100 sample-in-vacuum cryostat with four fused quartz windows provides a variable temperature sample environment with no valves or adjustments.

Source + Measure + Lock-in

Run ultra-low-noise AC/DC measurements with the MeasureReady® M81-SSM synchronous source measure system. In addition to the M81-SSM-4 instrument, it includes a BCS-10 balanced current source module and a VM-10 DC/AC/lock-in voltmeter module with a combined noise performance (differential) of 4.1 nV/√Hz.

Temperature Control

Control temperature within 50 mK with a Lake Shore Model 335 temperature controller, a Lake Shore precision calibrated diode, and a pre-wired heater. Advanced PID autotuning, pre-programmed sensor calibration, and default cryostat tuning enables fast setup and operation.

1+ 614.891.2243

lakeshore.com/cryocomplete

Typical applications

Affordable and ready-to-measure 77 K to 500 K electrical characterization cryostat system for characterizing electro-optical samples while providing low-temperature control and electrical test automation. CryoComplete has everything you need to get started, including all the cables and accessories to start your measurement.

Measurement benefits

- Simultaneous source/measure
- Synchronous source/measure
- Low-noise source/measure
- Dual AC/DC sourcing
- Lock-in autoranging

Common measurements

- Differential conductance, low-frequency
- Differential conductance, high-frequency
- Resistance, low-temperature
- I-V characteristics
- Thermal conductivity

		Simultaneous source/measure	Synchronous source/measure	Low-noise source/measure	Dual AC/DC sourcing	Lock-in autoranging	Differential conductance, low-frequency	Differential conductance, high-frequency	Resistance, low-temperature	I-V characteristics	Thermal conductivity
Thermal transport	1D materials, thermoelectric materials	✓	✓				✓				✓
Materials research	Nanodevices, superconducting devices, nonlinear devices			✓			✓	✓	✓	✓	
Materials development	Linear systems, sensors			✓					✓	✓	

Specifications

Standard system capabilities

- Operating temperature range: 77 K to 500 K
- Sample environment: Sample in vacuum
- Temperature stability: 50 mK
- Pour-fill reservoir capacity: 1.2 L LN_2
- Cooldown time: 30 min
- Working time: 6 to 8 h
- Optical ports: 4 quartz windows
- Electrical sample mount: Pre-wired mounting plate with 8 contact pins

Resistance/I-V measurements

- Source modes: DC, sine, triangle, square
- Source ranges: 1 pA to 100 mA
- Source frequency: 100 µHz to 100 kHz (square <5 kHz)
- Measurement limits: 10 V max
- Input impedance: ≥10 GΩ (differential)

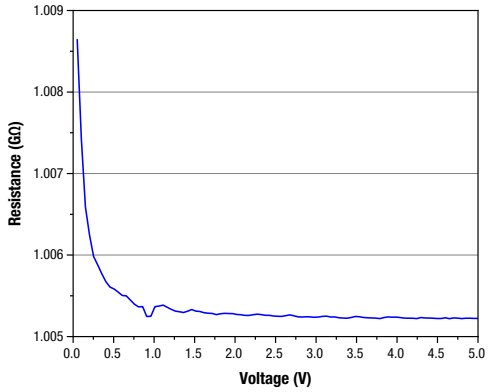

Chart 1: *VM-10 versus CM-10 DC measurement, 1 GΩ resistor NPLC 30.*

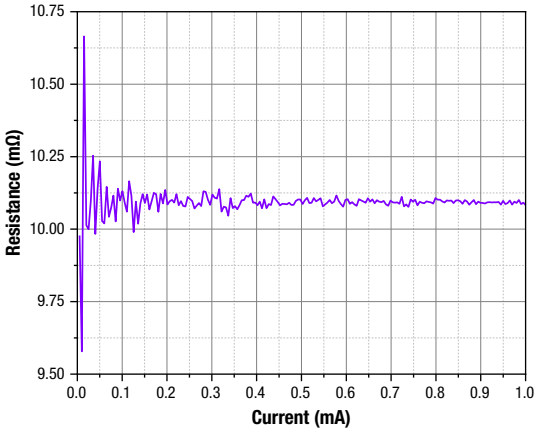

Chart 2: *BCS-10 versus VM-10, 10 mΩ resistor, 4-probe, 2TX and 2CXLIA at 83 Hz, FIR=3, tau=200 ms.*

Available beginning of 2023

What is included: PC with Windows® and MeasureLINK installed, monitor, VPF-100 cryostat, sample holder, 3 BNC cables, 2 triaxial cables, imperial and metric baseplate, M81-SSM-4 synchronous source measure system instrument, BCS-10 balanced (differential) triaxial current source module, VM-10 low-noise single-ended or differential BNC DC/AC/lock-In voltmeter module, 335 temperature controller, 335 temperature controller input cable, and a calibrated silicon diode sensor.

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