✳ Cryo**Complete**™

Spanning the cryogenic ecosystem

77 K to 500 K

Everything you need
to start making
temperature-dependent,
low-level electrical
measurements

Focus your research with ❄CryoComplete

With CryoComplete™, you can start making cryogenic electrical measurements as soon as it lands in your lab. From the simple-to-use, pour-fill LN₂ Dewar to the prewritten I-V (resistance) measurement routines, CryoComplete produces results right out of the box.

While easy to use, the system's performance doesn't disappoint. Its industry-leading measurement electronics promote low-level DC measurements and three full channels of lock-in AC capability—the keys to unlocking difficult measurements. Best of all, our cryogenic experts have designed CryoComplete from top to bottom, using cryogenic best practices, to deliver end-to-end system specifications.

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

LN₂ cryostat
The Environment by Janis VPF-100 sample in vacuum cryostat provides a variable-temperature sample environment from 77 K to 500 K. The pour-fill design allows quick and easy LN₂ refills.

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-6 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.
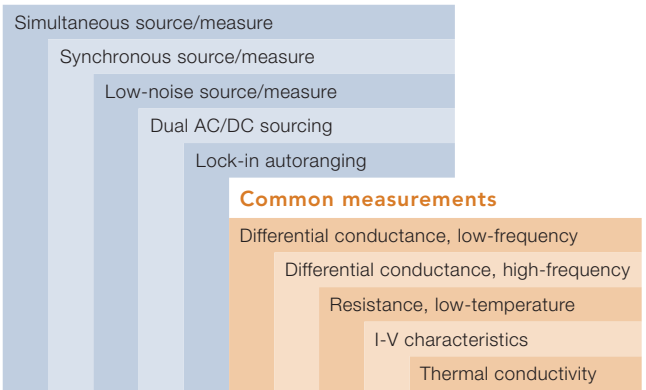
Temperature control
Control temperature within 50 mK with a Lake Shore Model 335 temperature controller, a Lake Shore precision-calibrated silicon diode, and a pre-wired heater. Advanced PID autotuning, pre-programmed sensor calibration, and default cryostat tuning enable fast setup and operation.

Applications and capabilities

From setup to measurement, CryoComplete enhances your cryogenic experimentation.

- Complete measurement system
- Optimized signal path
- Quick lead times

		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
		Measurement benefits					Common measurements				
Thermal transport	1D materials, thermoelectric materials	✓	✓				✓				✓
Materials research	Nanodevices, superconducting devices, nonlinear devices			✓			✓	✓	✓	✓	
Materials development	Linear systems, sensors			✓					✓	✓	

Standard system capabilities

VPF-100 cryostat/335 temperature controller/calibrated silicon diode

Operating temperature range: 77 K to 500 K
Cryogen: Liquid nitrogen
Sample environment: Sample in vacuum
Temperature stability: 50 mK
Pour-fill reservoir capacity: 1.2 L LN_2
Cooldown time: 15 min to 77 K
Working time: 8 h
Optical ports: 4 quartz windows
Electrical sample mount: Pre-wired mounting plate with 8 contact pins

Resistance/I-V measurements

M81-SSM-6 with balanced current source and voltmeter modules

Measurements: 100 µΩ to 1 GΩ*
Source modes: DC, sine, triangle, square
Source ranges: 1 pA to 100 mA
Source frequency: 100 µHz to 100 kHz (square <5 kHz)
Upper impedance range limited to DC
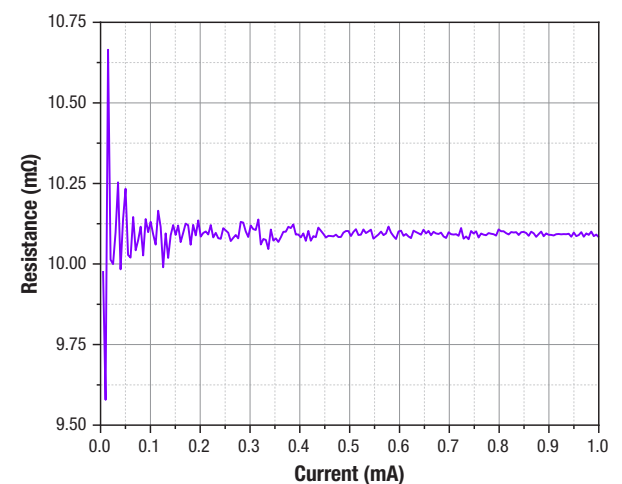
Measurement limit: 10 V maximum
Input impedance: >10 GΩ (differential)

Leakage current at sample: 50 pA at 10 V for coaxial or 50 fA at 10 V for guarded triaxial
Voltage noise at sample: <5 nV/√Hz at 83 Hz
Measure noise at sample (1/f): <100 nV

BCS-10 versus VM-10, 10 mΩ resistor, 4-probe, 2TX and 2CXLIA at 83 Hz, FIR = 3, τ = 200 ms

Ordering information

CryoComplete-LN2-V
CryoComplete 77 K to 500 K cryogenic characterization system

Easily control and monitor your system with **MeasureLINK™** software

◄ *Process view* *shows a representation of the cryostat internals with the appropriate temperatures highlighted for a better understanding of internal temperature variations (shown is an internal view of a VPF-100 application)*
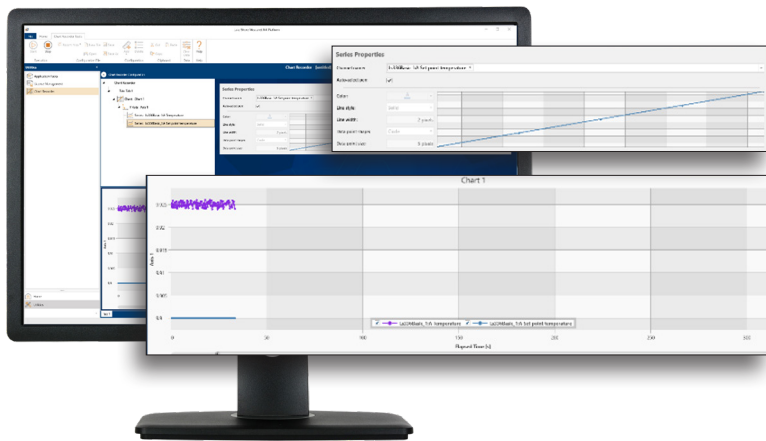
Log all system variables using the chart recorder utility so you can keep a close eye on experiment temperature trends in real-time; it also helps determine when steady-state conditions have been reached

Create multiple measurement configurations

Monitor pane

The monitor pane allows easy access to monitor temperature and change control setpoints

Create nested, multi-level measurement loop sequences with drag-and-drop controls, and coordinate the cryostat environment with electrical source sweeps and multi-channel data collection