

CRYOSTATION



The Cryostation is a Helium-free 3K – 350K optical measurement instrument. With specific attention to making the researcher more effective, the Cryostation is the most advanced cryogenic optical measurement solution available.

APPLICATIONS

Spectroscopy

Microscopy

Nanotechnology

High Pressure Studies

Magnetic Field Studies

Magneto-Optical Spectroscopy

Magneto-Optical Microscopy

MOKE

Spintronics

Mossbauer Spectroscopy

Raman Spectroscopy

IR, FTIR Spectroscopy

Photoluminescence

Neutron Scattering



MORE EFFECTIVE RESEARCH

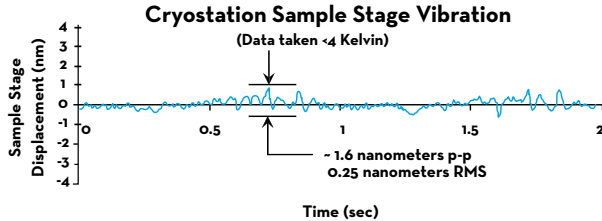
Montana Instruments Corporation has a mission of making the researcher more effective. We recognize the researcher's difficulties because cryogenics pitfalls cause experiments to take days or weeks, rather than hours. Our technology solves the hard problems associated with cryogenic experiments so that researchers can focus more on making discoveries. The Cryostation is a 3K - 350K optical research instrument that takes the costly and time-consuming risk of cryogenic experimental pitfalls out of the equation. Simply remove the lid, insert your sample, set a target temperature and the versatile Cryostation will control at this temperature with sample stability unmatched by other competitive instruments.

SPECIFICATIONS

Temperature Range	3-350 Kelvin (sample in vacuum)
Temperature Stability	less than 10 millikelvins (peak to peak)
Vibration Stability	less than 5 nanometers (peak to peak)
Sample Drift	CTE-cancelling sample platform
Sample Space	53mm diameter by 40mm height
Sample Mounting	Sample in vacuum. Microscopy / Spectroscopy sample mount included
Numerical Aperture	Configurable to 0.87 with sample near window
Electrical Access	9 electrical feedthrough mini-connector terminations near sample
Computer Control	Fully automated cooldown, warmup, temperature control and more
User Interface	Control via Windows® based software on mini-computer
Remote Interface	OLE Automation for scripting and external control
Optical access	Five optical ports (six optional), each with radiation-blocking cold windows
Compressor	Variable Flow Helium Compressor, 1.0 - 1.8 KW, (Air cooled)

EMPOWERED BY TECHNOLOGY

Montana Instruments is raising the bar for optical research instruments. We achieve this by addressing customer needs through the use of new innovation, advanced materials, and well integrated automation. Here are just a few ways that the Cryostation improves productivity and increases effectiveness.



VIBRATIONAL STABILITY

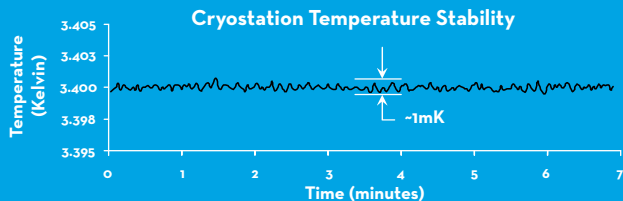
The innovative architecture (patents pending) of the Cryostation isolates cryocooler vibrations from both the sensitive equipment on the optical table and the sample. Typical vibrations are much less than 5 nanometers. No external support structures are needed, and no liquid or gaseous helium is required. Simply set the instrument on your optical table, insert a sample and click "Cooldown".

visit our web site at www.montanainstruments.com to see how we measured vibrations with sub-nanometer accuracy.

THE RULES HAVE CHANGED. WE'VE MADE CRYOGENIC MEASUREMENTS

THERMAL STABILITY

Long term temperature stability of less than 10mK is achieved through the use of active and passive thermal damping technologies (patents pending). Once at the setpoint temperature, the Cryostation automatically applies active thermal stabilization, to achieve greater than a 20X reduction in cryocooler-induced thermal fluctuations at the sample. Sample stage drift has been virtually eliminated by the use of a thermal contraction cancelling cryogenic support. With this kind of stability, there is no need to re-align or refocus optics at each new temperature measurement point. This opens up the door to total experiment automation.



ACCESS AND FLEXIBILITY

The Cryostation is a precision engineered system which separates the cooling, stabilizing, and control functions from the flexible sample space. The modular nature of the Cryostation allows the researcher to configure the sample space for variety of environments and configurations while still enjoying the benefits of a stable, automated and controlled system. Unparalleled access to the sample is provided by simply lifting off the entire window assembly and radiation shield. This allows unobstructed access to the sample which is rigidly mounted to the optical table, just like many of the other optics on the table. Setup and begin your experiment with the sample completely accessible at room temperature. Then, when you're ready to cool, simply attach the radiation shield and window assembly and continue the experiment at low temperatures. The sample alignment and electrical connections to the sample space remain undisturbed.



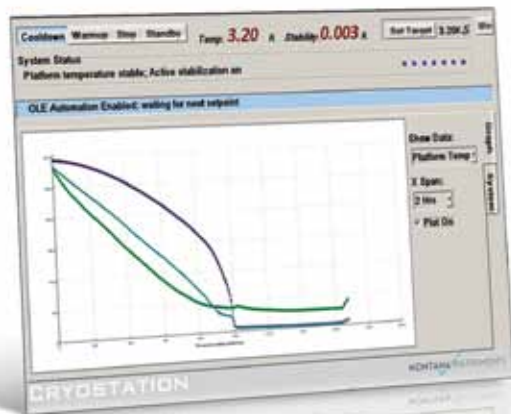
SIMPLE; AND WITH UNMATCHED STABILITY

MONTANA INSTRUMENTS



CONTROL AND AUTOMATION

The Cryostation's automation puts it in a different class from all other available instruments. Automatic pumpout, cooldown, and active temperature stabilization, as well as automatic warmup, vent and clean gas purge save time and complexity. This also protects the system and sample from contamination. These processes are continuously monitored to detect leaks, identify thermometry problems, and perform other critical self-check functions. High-speed cooldown and power-saving standby modes make the instrument more productive and efficient. The control and user interface is conveniently done via Windows® software on a mini-laptop computer. This computer-controlled interface allows you to link the Cryostation to other instruments and software, such as LabView, via OLE automation. Take control or monitor your experiments from your office computer or any other computer with network access.



For more information on Montana Instruments products and technologies, please contact your local representative. For a complete list of distribution, sales and service centers please visit:

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