CryoAdvance-50®
Fully automated, closed-cycle optical cryostat

Key features

- 3.2 K base temperature
- Configurable modular design
- Standard RF & DC I/O included
- Sample-in-vacuum, cryogen-free
- Automated temperature & vacuum control
- Touchscreen system controller
- Remote operation and monitoring

The CryoAdvance® is the latest evolution of Montana Instruments' Cryostation® best-in-class system to accelerate quantum discovery. Utilizing a purposeful modular design strategy, CryoAdvance® is a high-performance product built to serve our customers and their needs to reach and maintain low and stable temperatures quickly.

The CryoAdvance® is "plug-and-play," with an interface featuring easy and intuitive control technology that lends itself to right out-of-the-box set-up and cooldown. Unobstructed sample and optical access, push-button cooling, and tabletop mounting with off-table cooling technology, plumbing, and electronics add to its versatility.
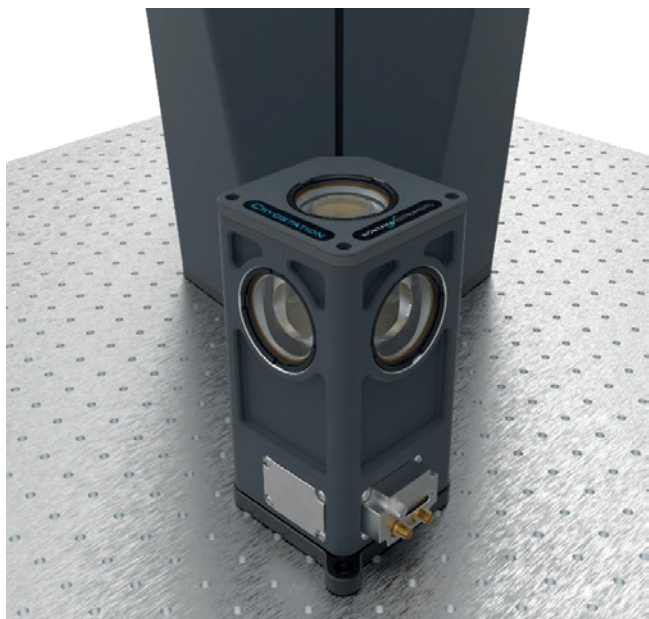
As partners in your journey, Montana Instruments will come alongside with accessible and helpful customer support to ensure that you experience the same tried and trusted results Montana Instruments customers have come to expect.
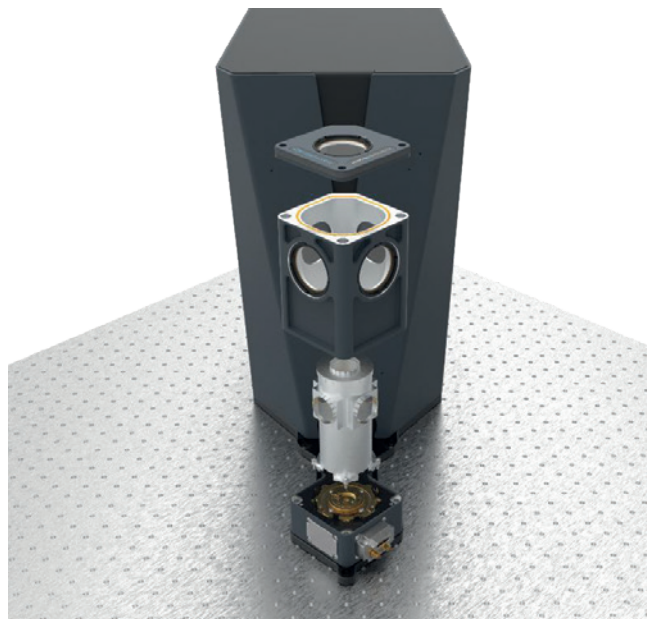
Cold science made simple

Quantum Design

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CryoAdvance-50®
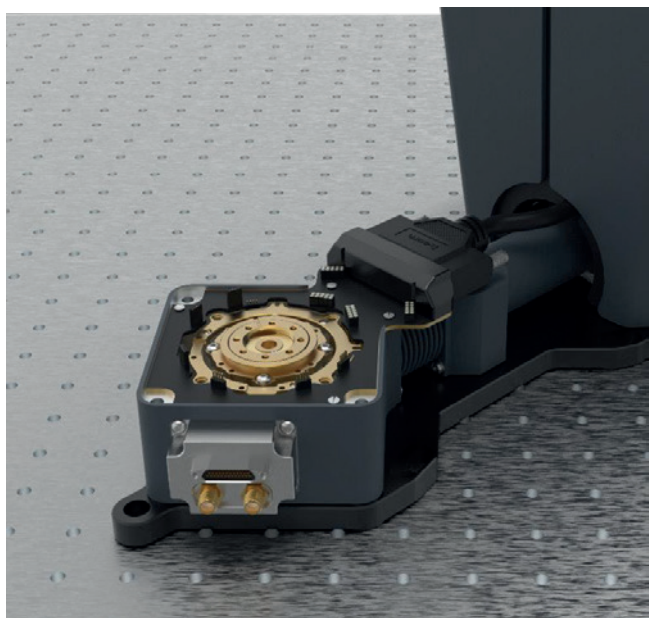## Fully automated, closed-cycle optical cryostat

Housing & chamber, assembled
- Standard I/O included: 2x RF
- 20x DC channels in vacuum chamber

Housing & chamber, detail
- Lift-off housing simplifies sample access and maximizes ease-of-use

Sample platform
- Configurable using our standard modules to support a wide variety of applications

Touchscree user interface
- Galaxy software suite for comprehensive & intuitive equipment control
- On-board user documentation with scripting examples

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Specification

Performance specifications		
Platform temperature range (with ATSM)	<3.2 K - 350 K	
Platform vibrational stability	<5 nm ptp	at base temperature
Cool down time	~2 hours to 4.2 K	
Cooling power	130 mW @ 4.2 K	
Sample chamber		
Dimensions	53 mm diameter x 63 mm height (inside radiation shield)	
Environment	Sample-in-vacuum	
Positioning modules	Manually adjustable positioner, XYZ nanopositioners	
Adapter modules	Exchange boss; agile temperature assembly (both include right-angle plate)	
Sample mount modules	Transmission, reflection, DC & RF electrical	
Temperature sensors	1 platform + 1 sample sensor included, 1 available user-channel	
Thermal lagging	Four 30 K lagging points	
Sample platform		
Platform style	Circular mounting plate with 1-inch M3 bolt pattern	
Beam height	137.1 mm from table	
Sample access	Lift off outer vacuum shroud and bolt-on inner radiation shield	
Standard I/O (included)	20-line DC on PCB in vacuum chamber	
	2x 20 GHz RF channels with lagged flex-coax routed to sample chamber	
Optical ports	5x 50 mm vacuum windows (4 radial + 1 top) with corresponding 30 mm internal "cold windows" on radiation shield	
Window material	Standard: AR-coated fused silica	
	User-replaceable module with alternate materials available	
Acceptance angle	60° full angle	sample at center of chamber
Standard working distance	Horizontal axis: >25.3 mm / Vertical axis: >8.8 mm	
Low working distance	(Optional) Vertical axis: >3.3 mm	
Control technology		
User interface	Touchscreen with Montana Instruments 'Galaxy' software	
Remote control	Remote operation via VNC. Programmatic control using REST API	
Vacuum control module	Integrated roughing pump and valves, 6U 19-inch rack unit	
System control module	Integrated system control electronics, 4U 19-inch rack unit	
Platform power requirements		
Line voltage	100 – 240 VAC	
Frequency	50 Hz or 60 Hz (region specific)	
Wall outlet / receptacle	Region-specific power cables included	

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Dimensions

[259.6]
10.22

[187.5]
7.38

[16.3]
.64

[599.3]
23.59

[676.3]
26.63

[485.6]
19.12

[141.5]
5.57

[76.3]
3.00

HELIUM HOSES, VACUUM HOSE, AND ELECTRICAL CONNECTIONS EXIT HERE

[91.4]
3.60