

CryoAdvance-100®

Fully automated, closed-cycle optical cryostat



Key features

- 3.4 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.

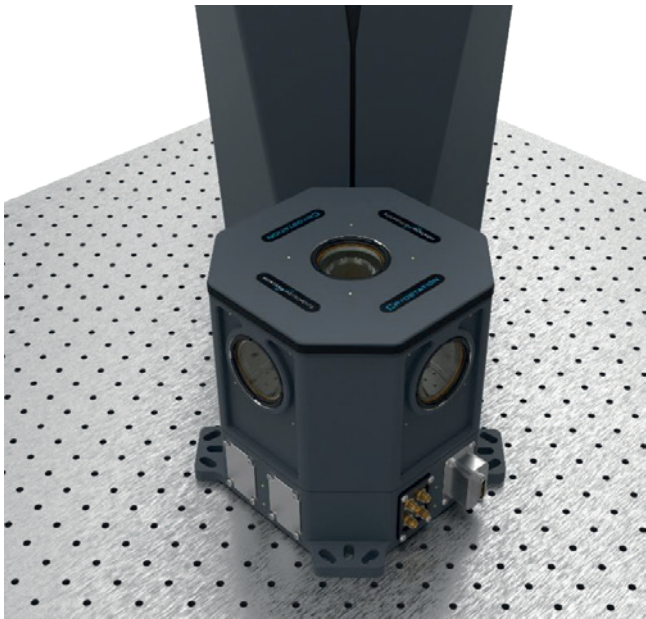
The CryoAdvance® is "plug-and-play," with an interface featuring easy and intuitive control technology that lends itself to right out-of-the-box set-up and cooldown. Unobstructed sample and optical access, push-button cooling, and tabletop mounting with off-table cooling technology, plumbing, and electronics 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.



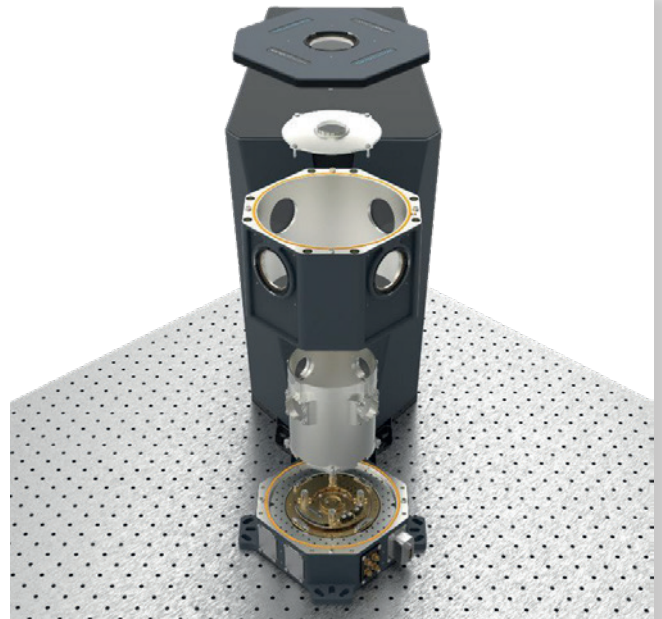
CryoAdvance-100®

Fully automated, closed-cycle optical cryostat



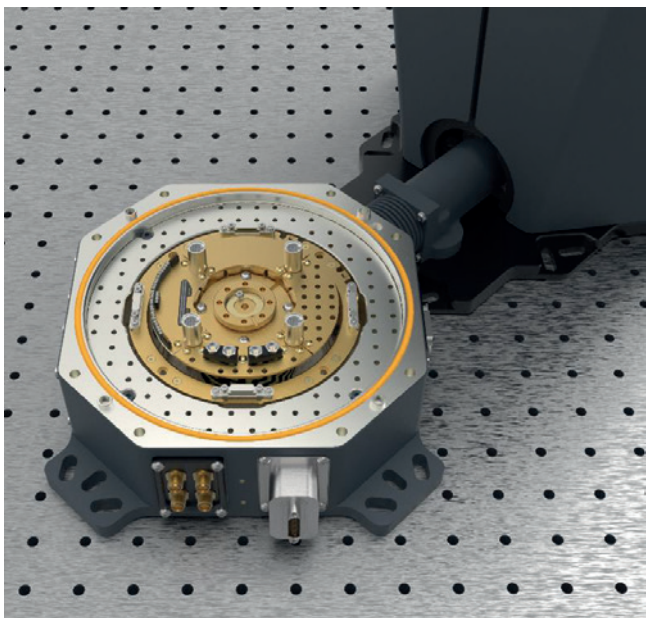
Housing & chamber, assembled

- Standard I/O included: 4x RF, 25x DC
- 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



Touchscreen user interface

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

CryoAdvance-100®

Fully automated, closed-cycle optical cryostat

Specification

| Performance specifications | | |
|--|---|-----------------------------|
| Platform temperature range (with ASTM) | <3.4 K - 350 K | |
| Platform vibrational stability | <15 nm ptp | at base temperature |
| Cool down time | ~3 hours to 4.2 K | |
| Cooling power | 90 mW @ 4.2 K | |
| Sample chamber | | |
| Dimensions | 100 mm diameter x 116 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 | 139.8 mm from table | |
| Sample access | Lift off outer vacuum shroud and bolt-on inner radiation shield | |
| Standard I/O (included) | 25-line DC side panel; 20-line DC cold wedge in sample chamber | |
| | 4x 20 GHz RF channels; semi-rigid lagged 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 | 27.4° full angle | sample at center of chamber |
| Standard working distance | Horizontal axis: >68.4 mm / Vertical axis: >15.2 mm | |
| Low working distance | (Optional) Vertical axis: >3.5 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 | |

CryoAdvance-100[®]

Fully automated, closed-cycle optical cryostat

Dimensions

