Lake Shore CRYOTRONICS

HELIUM3

Cryogen-free

Ultra-high vacuum cryostats <4 K to 325 K

Lake Shore CCR UHV cryostats are fully bakeable for true UHV operation down to pressures of 10^{-11} Torr. They can be paired with an independent cold head support stand for ultra-low vibration performance, or the cold head can be conveniently mounted on the cryostat when vibrations are not a concern. Multiple feedthrough options are available depending on experimental needs, and the cryostat can be configured to fit an existing UHV chamber or supplied with a vacuum shroud to form a complete standalone system.

CCS-XG-UHV shown with optional vacuum shroud

Key features

- <4 K to 325 K
- Cryogen-free
- Sample in vacuum

Featured components

- Choice of cryocooler to match performance and cooling requirements
- Integrated control heater and calibrated control sensor

Specifications

		Bare cold head cooling power[1]	CCS-XG-UHV
Minimum temperature options	204	7 W at 20 K	<9 K
	204N	3 W at 10 K	<8 K
	101	0.2 W at 4.2 K	<5 K
	408	1 W at 4.2 K	<4 K
	412	1.25 W at 4.2 K	<4 K
	415	1.5 W at 4.2 K	<4 K
	418	2 W at 4.2 K	<4 K

Baking temperature (with cold head removed)	200 °C
Maximum operating temperature (with cold head installed)	325 K
Typical temperature stability[2]	±50 mK
Cold head location	Top
Cooldown time	2 h to 3 h, depending on radiation shield configuration
Optical	×
Vibration	40 nm
Height (approximate)	559 mm to 660 mm (22 in to 26 in) with no vacuum shroud, 813 mm to 914 mm (32 in to 36 in) with vacuum shroud
Weight (approximate)	Varies, depending on configuration
Recommended maintenance	10,000 h

[1]Some cold heads have a similar base temperature with no load, but have different cooling powers and are therefore able to handle different heat loads

[2]Measured with temperature controller

Complete your system

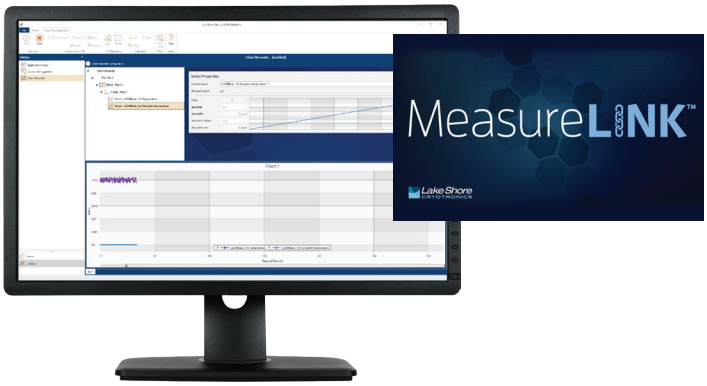
Temperature control

Included

Every cryostat includes a Lake Shore temperature controller and calibrated sensor.

MeasureLINK control software

Optional add-on



MeasureLINK software enables a wide range of capabilities including charting and logging, system monitoring with a cryostat-specific process view, and controlling Lake Shore equipment as well as third-party instrumentation. No programming required—drag-and-drop to create temperature sweeps, access measurements, and see real-time internal cryostat temperatures in process view.

Source + measure + lock-in

Optional add-on

The Lake Shore M81-SSM provides highly synchronized DC, 100 kHz AC, and mixed DC + AC sourcing and measuring—including both voltage and current lock-in measurement capabilities—for low-temperature material research performed in your cryostat. It supports up to three remote-mountable source and three measure modules per a single M81-SSM-6 instrument and, owing to its modularity, allows signal and source amplifiers to be located as close as possible to the sample being characterized. This minimizes the signal wiring to the sample, reduces noise, and increases measurement sensitivity.

Configure your cryostat

1. Select cryostat

CCS-XG-UHV	Ultra-high vacuum, vacuum shroud not included
CUSTOM	Custom configurations are available to fit your experiment needs—contact Sales for details

2. Select cryostat configurations

Consult us to discuss configuration options including cryostat ConFlat size, additional ConFlat ports, cooled windows on the radiation shield, and an optical vacuum shroud.

Cold head

Some cold heads have a similar base temperature with no load, but have different cooling powers and are therefore able to handle different heat loads. Consult us for more information.

204	7 W at 20 K bare head cooling power
204N	3 W at 10 K bare head cooling power
101	0.2 W at 4.2 K bare head cooling power
408	1 W at 4.2 K bare head cooling power
412	1.25 W at 4.2 K bare head cooling power
415	1.5 W at 4.2 K bare head cooling power
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Compressor type

CONSULT	Substitute air-cooled compressor in place of standard water-cooled

3. Select cryostat wiring

Contact us for additional feedthrough information.

10PIN	10-pin UHV feedthrough, mini-ConFlat mounted with mating connector

4. Select support

XG-STAND	Low-vibration support stand with pulley to suspend cold head within helium exchange gas chamber
CONSULT	Elastomeric cold head supports—eliminates need for cold head support stand, but with higher vibration level
CONSULT	Cryostat mounting stand for optical table (included with some models)

5. Select optional system configurations

Measurement instrumentation

Cryostats come standard with one temperature controller.

336	Model 336 temperature controller
335	Model 335 temperature controller

M81-SSM electronic synchronous source measure system

Contact us for cables and adapters for M81-SSM/cryostat integration.

M81-SSM-X	M81-SSM instrument with X = 2, 4, or 6 channels; half the channels are dedicated to sourcing and the other to measurement; see modules below
VM-10	AC/DC voltage measure module + lock-in
BCS-10	AC/DC balanced current source module
CM-10	AC/DC current measure module + lock-in
VS-10	AC/DC voltage source module

6. Select optional control software

ML-MCS	MeasureLINK-MCS software with scripting development license; includes lifetime activation for version purchased and full MeasureLINK capability on up to 5 computers with Lake Shore instrument drivers, chart recorder functionality, and drag-and-drop measurement sequences; some application packs sold separately

7. Select additional accessories

Cryostats come standard with one installed temperature sensor. Other sensors are available—contact us.

CX-1050-CU-HT-1.4M	Cernox® magnetic field independent, calibrated

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