VNF-100

Sample in Flowing Vapor Cryostats

VNF-100 Series
nitrogen-cooled cryostats
65 K to 500 K

VNF-100 Series cryostats are ideal for experiments with liquid or powder samples that are difficult to thermally anchor. The cryostat is cooled with liquid nitrogen and the sample is in flowing vapor. They feature a top-loading sample chamber that allows for rapid sample exchange. With a sample space that is independent of the LN_2 reservoir, no warmup is required for sample changes. The sample is easily accessed by removing the top-loading sample positioner, saving time and effort. Optimized for two-loop temperature control, LN_2 is vaporized and temperature controlled with a calibrated temperature sensor as it enters the sample chamber. Additionally, a second heater and sensor on the sample mount are used for rapid temperature sweeps and precise sample temperature control.

Key features

Rapid sample change <10 min

30 min cooldown to 77 K

Sample in flowing vapor for uniform sample cooling

Easy sample access with top-loading sample chamber

Dual-loop heater configuration for temperature control

Featured components

Integrated LN_2 reservoir

Adjustable cooling power using integrated needle valve

Built-in heater for variable temperature control

VNF-100 Series variants

VNF-100 optical, maximum temperature = 325 K

VNF-100-TH non-optical, maximum temperature = 500 K

Specifications

	VNF-100	VNF-100-TH
Initial cooldown time (to 65 K)	~30 min	
Temperature range[1]	65 K to 325 K	65 K to 500 K
Typical temperature stability[2]	±50 mK	
LN$_2$ capacity (nominal)	1.2 L	
Working time (typical)	6 to 8 h	
Sample exchange time (typical)	10 min	

Size

	VNF-100	VNF-100-TH
Height	583 mm (23 in)	812.8 mm (32 in)
Inner diameter (at sample region)	30 mm (1.18 in)	22.35 mm (0.88 in)
Sample mount diameter	25.4 mm (1 in)	16 mm (0.62 in)
Weight (approximate)	11.5 kg (25.4 lb)	
Shipping weight (approximate)	15.9 kg (35 lb)	
Shipping dimensions (approximate)	762 × 508 × 431.8 mm (30 × 20 × 17 in)	

[1] *Operation below 77 K requires pumping manifold*

[2] *Measured with temperature controller*

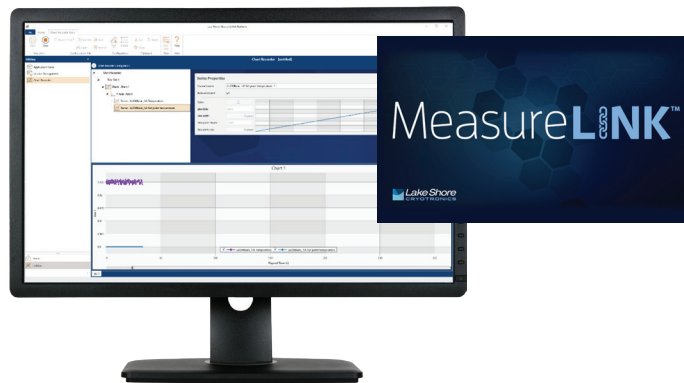# Complete your setup

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 variant

VNF-100	Optical, 65 K to 325 K, two calibrated temperature sensors
VNF-100-TH	Non-optical, 65 K to 500 K, calibrated Cernox®
CUSTOM	Custom configurations are available to fit your experiment needs — contact Sales for details

2. Select cryostat configurations

Sample holders

CONSULT	Optical
CONSULT	Blank
CONSULT	Resistivity
CONSULT	LCC
CONSULT	DIP
CONSULT	Cuvette

Windows

Contact us for VNF-100 Series window options. See our cryostat window selection guide for additional information.

Mounting flange

BASE-VNF-2	Two-piece baseplate for mounting VNF-100 Series

Pumping manifold

CONSULT	Pumping manifold (for operation to 65 K)

3. Select pump (optional)

Each cryostat requires a pump to operate. If you do not have an existing pump to use, select one of the pumps below.

10RVP	General-purpose mechanical pumping station
10DDP	General-purpose mechanical pumping station with LN$_2$ cold trap and isolation valve
TS-85-D	Turbopumping station

4. Select cryostat wiring

We offer a variety of both unwired and wired feedthroughs to complete your measurement setup. Please refer to the cryostat feedthroughs and wiring guide for more information.

5. Select optional setup configurations

Measurement instrumentation
Cryostats come standard with one temperature controller.

336	Model 336 temperature controller
335	Model 335 temperature controller
325	Model 325 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 two installed temperature sensors. Other sensors are available—contact us.

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

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