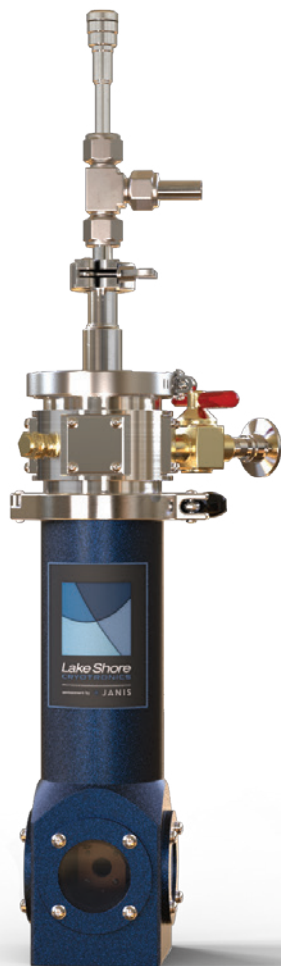


Pour-fill cryostats VPF-100



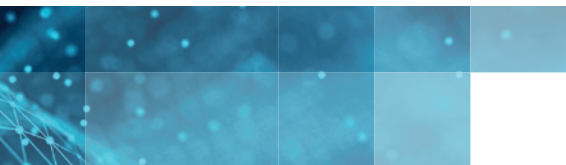
Pour-fill Cryostats

VPF-100 and VPF-800 pour-fill 77 K cryostats

The economical Lake Shore VPF Series are easy-to-use cryostats for performing variable temperature optical and electrical measurements from 77 K (65 K optional) to 500 K or 800 K.

Pour-fill cryostats

VPF-100



VPF-100 and VPF-800 pour-fill 77 K cryostats

Simple and inexpensive, Lake Shore VPF Series cryostats provide a variable temperature sample environment with no valves or adjustments required. Designed with versatility in mind, the VPF cryostat is field-upgradeable with additional feedthroughs, windows, or sample holders as experimental requirements change. Standard models are available for operation to 500 K or 800 K.

Key features

32 mm (1.25 in) diameter copper sample mount

Control heater and sensor

400 mL LN₂ reservoir and fill funnel

Thermal impedance displacer with integrated LN₂ refill port

Temperature range from 77 K (65 K with optional pumping manifold) to 500 K with optional 800 K high temperature

Optical vacuum shroud with four 41 mm (1.63 in) diameter clear aperture o-ring sealed fused silica windows

Optical sample holder

Instrumentation adapter with 10-pin electrical feedthrough, three spare o-ring sealed ports, evacuation valve, and safety pressure relief valve

VPF-100/VPF-800

Featured components

32 mm (1.25 in) diameter copper sample mount

Integrated control heater and calibrated silicon diode control sensor

400 mL LN₂ reservoir and fill funnel

Thermal impedance displacer with integrated LN₂ refill port

Temperature range from 77 K (65 K with optional pumping manifold) 500 K with optional 800 K high temperature

Optical vacuum shroud with four 41 mm (1.63 in) diameter clear aperture o-ring sealed fused silica windows

Optical sample holder

Instrumentation adapter with 10-pin electrical feedthrough, three spare o-ring sealed ports, evacuation valve, and safety pressure relief valve

Selections

Temperature

500 K: standard using silicon diode sensor

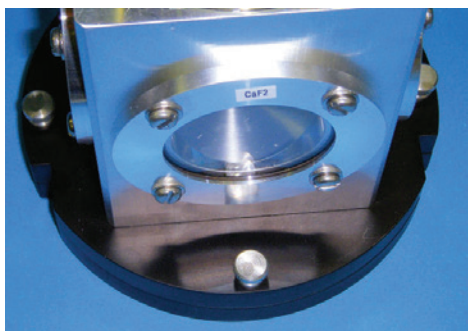
420 K: replaces standard sensor with calibrated field-independent Cernox® sensor

800 K: replaces standard sensor with type E thermocouple

Pour-fill cryostats VPF-100



Optional pumping manifold for <77 K operations



VPF-100 with mounting flange for interface with Jobin Yvon FluoroLog®-3 spectrofluorometer



Fixed-probe sample holder

Easily add DC, AC, and mixed DC+AC measurement capabilities to your cryostat with an M81-SSM

This modular, multichannel system 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. The modules also leverage patent-pending MeasureSync™ real-time sampling technology to ensure synchronous sourcing and measuring across all channels. Plus, by having both DC and AC sourcing and measurement in one instrument, the M81-SSM can eliminate the need for mixed-instrument setups, greatly simplifying the setup of complex characterization configurations.



M81-SSM synchronous source measure system

Real-time sampling architecture for synchronous sourcing/measuring

All source and measure channels are capable of DC and AC to 100 kHz signals

100% linear circuitry for the lowest possible source/measure noise

Optimized for fundamental, harmonic, and phase AC plus DC biased measurements

Unique, flexible instrument/distributed module architecture

Provides the absolute precision of DC plus the detection sensitivity performance of AC instrumentation

Uses a clean, simple UI and common programming API for fast setup

Included MeasureLINK software enables full end-to-end measurement and cryostat temperature control

MeasureLINK™



Quantum Design
EUROPE

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environment by JANIS

Pour-fill cryostats VPF-100

Options

Windows

Custom window options are available, including diamond and polypropylene. Contact us for more information.

Sapphire: 3 mm thick [WR-STD-SAPH](#)

UV-grade fused silica: 3 mm thick [WR-STD-FS](#)

ZnSe: 3 mm thick [WR-STD-ZNSE](#)

CaF₂: 3 mm thick [WR-STD-CAF2](#)

KBr: 6 mm thick [WR-6MM-KBR](#)

TPX: 3 mm thick [WR-STD-TPX](#)

Pumping manifold

For operation down to 65 K [VPF-PM](#)

Mounting flanges

Black anodized aluminum flange compatible with a commercial spectrofluorometer [consult Lake Shore](#)

Black anodized base plate for bolting to an optical table, metric threads [BASE-ST-VPF-M](#)

Black anodized base plate for bolting to an optical table, imperial threads [BASE-ST-VPF](#)

Feed Dewar for mounting on inlet port

5 L capacity [FD-LN2-5L](#)

Sample holders

Custom sample holders are available, including special configurations to bring the sample close to one window. Contact Lake Shore for more information.

Optical [SH-OPTICAL-1.25-STD](#)

Blank [SH-BLANK-1.25-STD](#)

Resistivity [SH-RESISTIVITY-1.25-STD](#)

Fixed probe (DLTS) [SH-FIXED-STD](#)

Vacuum shroud configurations

Custom vacuum shroud configurations are available, including compact models for use in an electromagnet, larger windows or special interfacing to other equipment. Contact Lake Shore for more information.

For total control of measurements performed in a cryostat, add our MeasureLINK software

Our optional MeasureLINK software enables a wide range of capabilities including charting and logging, system monitoring with a cryostat-specific process view, and even controlling Lake Shore equipment as well as some third-party instrumentation, in a non-programming environment. You can also create unlimited functionality using the scripting development environment.

Create multiple configurations to support separate measurements

Monitor temperature and change setpoints with the monitor pane

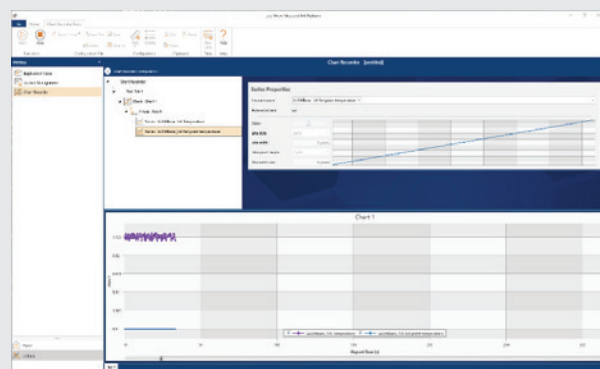
Easily create nested, multi-level measurement loop sequences

See real-time internal cryostat temperatures in Process View

Charts and log all system variables with Chart Recorder

No programming required — drag and drop to create temperature sweeps, access measurements, and add third-party instruments

Custom scripting function allows you to construct new and edit existing measurement scripts



The chart recorder utility enables charting and logging of all system variables, for example, so you can keep a close eye on temperature trends in a cryostat experiment in real-time; it also helps you determine when steady-state conditions have been reached.

MeasureLINK
Monitor Pane



MeasureLINK™

Pour-fill cryostats VPF-100

Options

Electrical feedthroughs

(1) BNC grounded	EF-BNC-1-B-AL
(2) BNC grounded	EF-BNC-2-S-AL
(6) BNC grounded	EF-BNC-6-G
(1) BNC insulated	EF-BNC-1-B-NC
(2) BNC insulated	EF-BNC-2-S-NC
(6) BNC insulated	EF-BNC-6-I
(1) triaxial grounded	EF-TRIAx-1-B-AL
(6) triaxial grounded	EF-TRIAx-6-G
(1) triaxial insulated	EF-TRIAx-1-B-NC
(6) triaxial insulated	EF-TRIAx-6-I
(2) SMA grounded	EF-SMA-2-B-AL
(6) SMA grounded	EF-SMA-6-G
(2) SMA insulated	EF-SMA-2-B-NC
(6) SMA insulated	EF-SMA-6-I
10-pin	10P-ASSEMBLY
19-pin	19P-ASSEMBLY
26-pin	26P-ASSEMBLY
32-pin	32P-ASSEMBLY

Additional temperature sensors

One Lake Shore calibrated diode is now included on every cryostat as the control sensor

Silicon diode, calibrated	DT-670-CU-HT-1.4L
Cernox® magnetic field independent, calibrated	CX-1050-CU-HT-1.4M
Thermocouple, Type E	consult Lake Shore

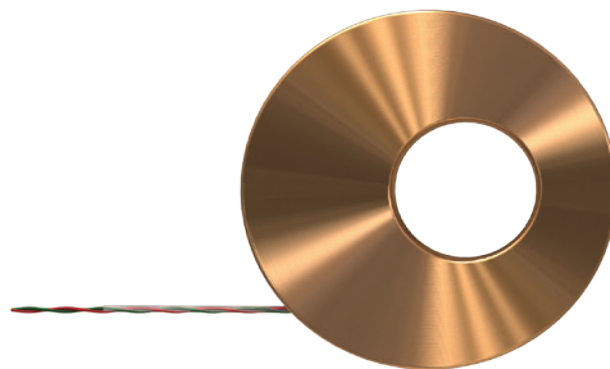
Installed wiring

(1), (2), or (6) coaxial cables, SMA	CABLEASSY-63340
(1), (2), or (6) coaxial cables, BNC	CABLEASSY-63342

Accessories

Available at www.lakeshore.com

LHe storage Dewar	CF-100
LN ₂ storage Dewar	LN-50
Vacuum pumping station	10RVP, 10DDP, or TS-85-D
Temperature controller	325, 335, or 336

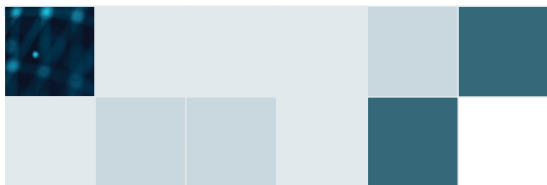


Cernox CU-HT sensor



336 temperature controller

Pour-fill cryostats VPF-100



Specifications

VPF-100

Initial cooldown time (to 77 K)	15 min
Temperature range	77 K to 500 K (800 K optional)
Typical temperature stability ¹	±50 mK
LN ₂ hold time (77 K)	5 h
LN ₂ hold time (100 K)	4.5 h
LN ₂ hold time (200 K)	2.5 h
Initial vacuum level requirement ²	~10 ⁻⁴ Torr

Size

Height	583 mm (23 in)
Inner diameter (at sample region)	VPF-100: 76.2 mm (3 in); VPF-800: 63.5 mm (2.5 in)
Sample mount diameter	31.75 mm (1.25 in)
Weight (approximate)	3.3 kg (7 lb)
Shipping weight (approximate)	9.1 kg (20 lb)
Shipping dimensions (approximate)	610 × 406 × 305 mm (24 × 16 × 12 in)

¹ Measured with temperature controller² Pressure measured at room temperature, prior to adding cryogenics

Pour-fill cryostats

VPF-100

Ordering information

Options

Windows

Custom window options are available, including diamond and polypropylene. Contact Lake Shore for more information.

WR-STD-SAPH	Sapphire, 3 mm thick
WR-STD-FS	UV-grade fused silica, 3 mm thick
WR-STD-ZNSE	ZnSe, 3 mm thick
WR-STD-CAF2	CaF ₂ , 3 mm thick
WR-6MM-KBR	KBr, 6 mm thick
WR-STD-TPX	TPX, 3 mm thick

Pumping manifold

VPF-PM	For operation down to 65 K
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Mounting flanges

VPF-XX	Black anodized aluminum flange compatible with a commercial spectrofluorometer
BASE-ST-VPF-M	Black anodized base plate for bolting to an optical table, metric threads
BASE-ST-VPF	Black anodized base plate for bolting to an optical table, imperial threads

Feed Dewar

FD-LN2-5L	5 L, for mounting on inlet port
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Sample holders

Custom sample holders are available, including special configurations to bring the sample close to one window. Contact Lake Shore for more information.

SH-OPTICAL-1.25-STD	Optical
SH-BLANK-1.25-STD	Blank
SH-RESISTIVITY-1.25-STD	Resistivity
SH-FIXED-STD	Fixed probe (DLTS)

Vacuum shroud configurations

Custom vacuum shroud configurations are available, including compact models for use in an electromagnet, larger windows or special interfacing to other equipment. Contact Lake Shore for more information.

Electrical feedthroughs

EF-BNC-1-B-AL	(1) BNC grounded
EF-BNC-2-S-AL	(2) BNC grounded
EF-BNC-6-G	(6) BNC grounded
EF-BNC-1-B-NC	(1) BNC insulated
EF-BNC-2-S-NC	(2) BNC insulated
EF-BNC-6-I	(6) BNC insulated
EF-TRIAx-1-B-AL	(1) triaxial grounded
EF-TRIAx-6-G	(6) triaxial grounded
EF-TRIAx-1-B-NC	(1) triaxial insulated
EF-TRIAx-6-I	(6) triaxial insulated
EF-SMA-2-B-AL	(2) SMA grounded
EF-SMA-6-G	(6) SMA grounded
EF-SMA-2-B-NC	(2) SMA insulated
EF-SMA-6-I	(6) SMA insulated
10P-ASSEMBLY	10-pin
19P-ASSEMBLY	19-pin
26P-ASSEMBLY	26-pin
32P-ASSEMBLY	32-pin

Additional temperature sensors

DT-670-CU-HT-1.4L	Silicon diode, calibrated (one included with cryostat)
CX-1050-CU-HT-1.4M	Cernox® magnetic field independent, calibrated
CONSULT	Thermocouple, Type E

Installed wiring

CABLEASSY-63340	(1), (2), or (6) coaxial cables, SMA
CABLEASSY-63342	(1), (2), or (6) coaxial cables, BNC
CABLEASSY-63341	(1) or (6) triaxial cables
WIRE-PHBR	(10), (19), (26), or (32) PhBr wires

Accessories

M81-SSM electronic synchronous source measure system

Contact us for standard/optical sample mounts or for interface cables/adapters for M81-SSM system/cryostat integration.

Also available: specially priced preconfigured M81-SSM/cryostat packages for certain cryostat models—contact Sales for details.

M81-SSM-2	M81-SSM instrument with 1 source and 1 measure channel, including M81-SSM accessory kit (USB-A to USB-C adapter, USB-A male to USB-B male cable, terminal connectors for digital I/O, terminal connectors for chassis ground, quick-start guide) and a 2 m (6.6 ft) LEMO to BNC adapter cable
M81-SSM-4	M81-SSM instrument with 2 source and 2 measure channels, including M81-SSM accessory kit (USB-A to USB-C adapter, USB-A male to USB-B male cable, terminal connectors for digital I/O, terminal connectors for chassis ground, quick-start guide) and a 2 m (6.6 ft) LEMO to BNC adapter cable
M81-SSM-6	M81-SSM instrument with 3 source and 3 measure channels, including M81-SSM accessory kit (USB-A to USB-C adapter, USB-A male to USB-B male cable, terminal connectors for digital I/O, terminal connectors for chassis ground, quick-start guide) and a 2 m (6.6 ft) LEMO to BNC adapter cable
ML-MCS	MeasureLINK-MCS software with scripting development license. Includes complete MeasureLINK installation with Lake Shore instrument drivers, chart recorder functionality and drag-and-drop measurement sequences. Some application packs sold separately.

Other accessories

CF-100	100 L LHe storage Dewar
LN-50	50 L LN ₂ storage Dewar
10RVP	Vacuum pumping station
10DDP	Vacuum pumping station
TS-85-D	Turbomolecular pumping station
336	Model 336 temperature controller
335	Model 335 temperature controller
325	Model 325 temperature controller



Quantum Design
EUROPE

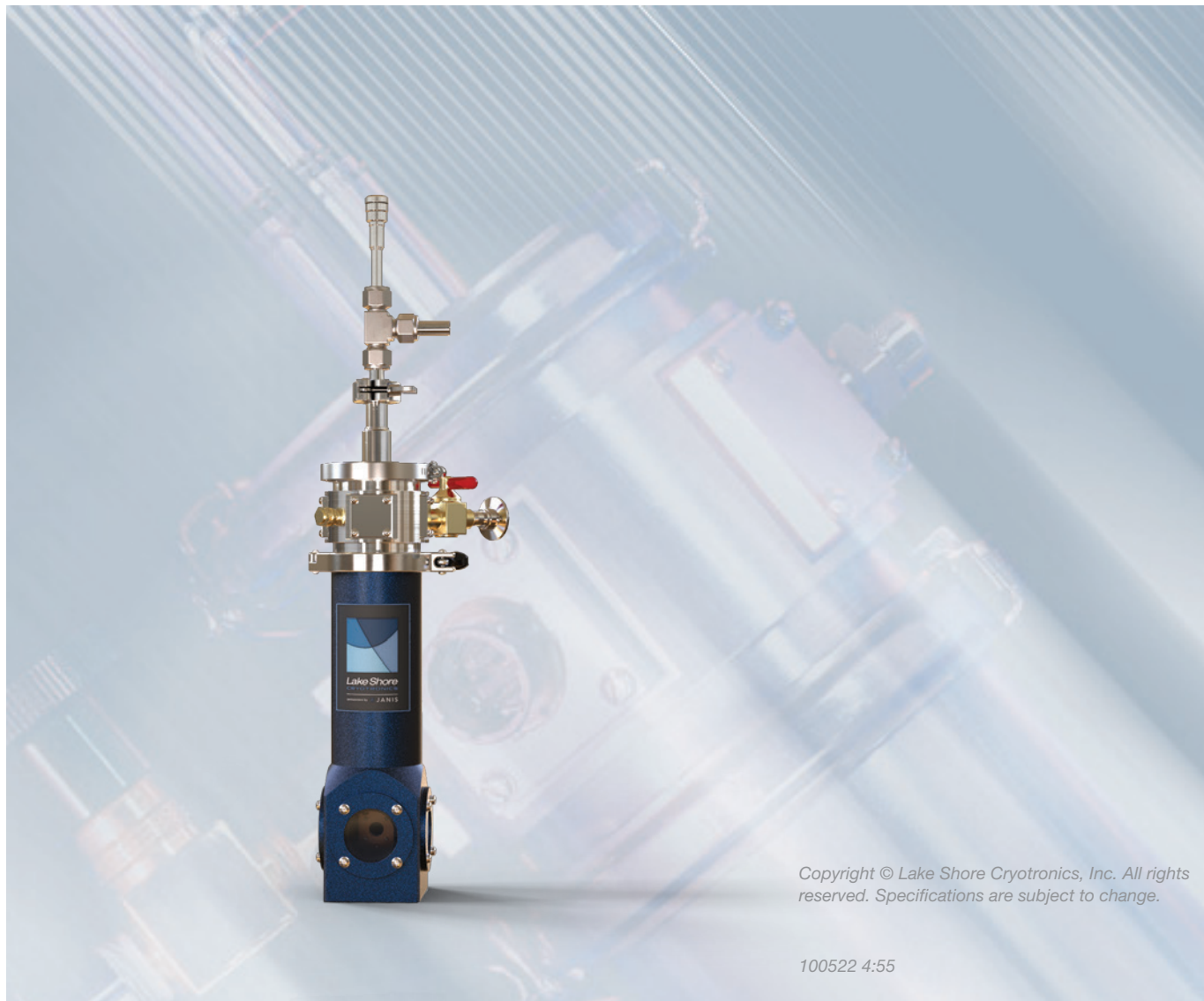
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development by JANIS

Pour-fill cryostats VPF-100



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