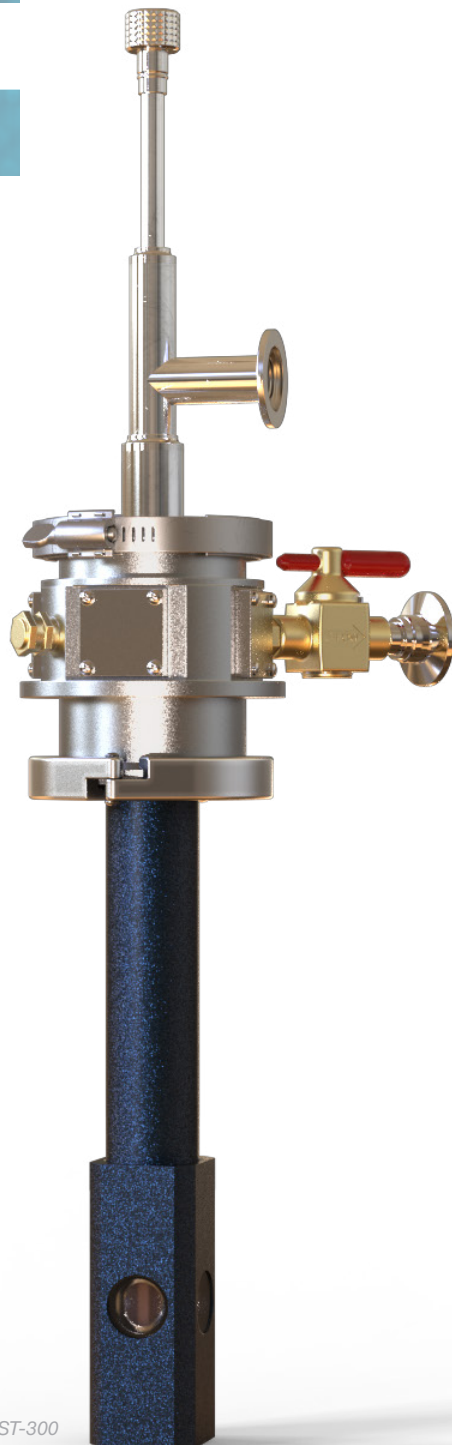


SuperTran cryostats

ST-300 Series



SuperTran Cryostats

ST-300 Series continuous-flow cryostats 2 K to 420 K

ST-300 Series cryostats are continuous flow cryostats with the sample located in vacuum, optimized for use in narrow-gap electromagnets and optical configurations with limited available space. They operate with either liquid helium for operation to 2 K or liquid nitrogen for operation to 77 K and withstand high temperatures up to 420 K. A high-efficiency transfer line delivers liquid cryogen to the cold finger for cooling, and temperatures below 4.2 K can be achieved with a vacuum pump. By utilizing the built-in heater and 335 temperature controller, these cryostats offer precise variable temperature control within 50 mK.

ST-300 Series cryostats can be combined with the RGC recirculating gas cooler for fully cryogen-free operation throughout the entire temperature range. This enables unattended cryostat operation, making it perfect for extended-duration measurements.

Custom configurations are also available to fit restricted spaces, such as magnet systems or spectrometers. The compact ST-300-C is our narrowest window block for use with a microscope.

Key features

2 K to 420 K

Fast cooldown — 15 min to 5 K

Sample in vacuum

Featured components

High-efficiency, flexible LHe/LN₂ transfer line

Integrated control heater and calibrated control sensor

Polished aluminum thermal radiation shield

ST-300 Series variants

ST-300

ST-300-C an ultra-compact ST-300 with adjustable sample holder position to allow varying sample thicknesses

SuperTran cryostats ST-300 Series

Complete your system

Temperature control

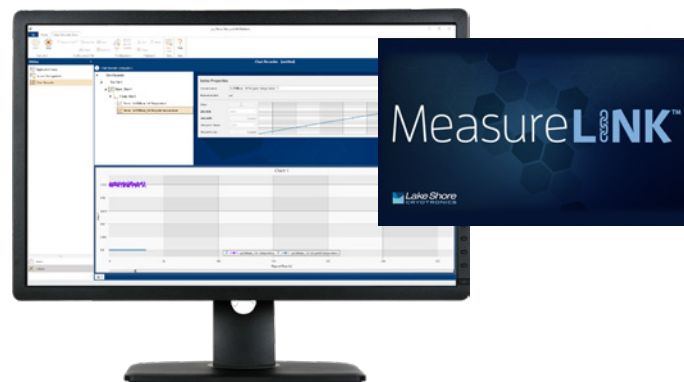
Included



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

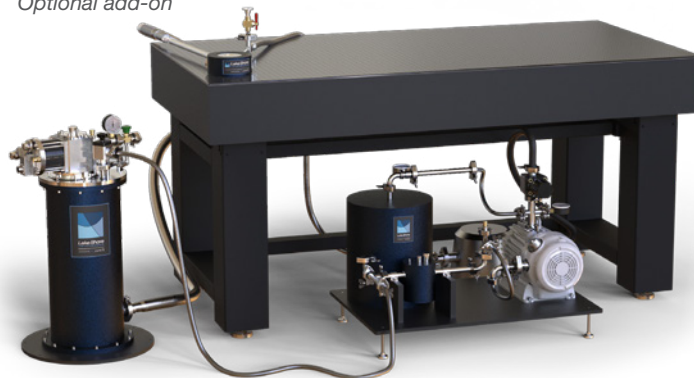
Optional add-on



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.

Cryogen-free operation

Optional add-on



Cryostats can be combined with the RGC recirculating gas cooler for fully cryogen-free operation throughout the entire temperature range. This enables unattended cryostat operation, ideal for extended duration measurements.

SuperTran cryostats

ST-300 Series

Configure your cryostat

1. Select cryostat variant

| | |
|-----------------|--|
| ST-300 | Optical, 2 K to 420 K, calibrated temperature sensor |
| ST-300-C | Compact optical, 2 K to 420 K, calibrated temperature sensor |
| CUSTOM | Custom configurations are available to fit your experiment needs—contact Sales for details |

2. Select cryostat configurations

Sample holders (ST-300 only)

| | |
|--------------------------------|-------------|
| SH-OPTICAL-0.88-STD | Optical |
| SH-BLANK-0.88-STD | Blank |
| SH-RESISTIVITY-0.88-STD | Resistivity |
| CONSULT | DIP |

Windows

Windows are for optical variants only. See our cryostat window selection guide for additional information. Contact us for custom window options.

| | |
|--------------------|-----------------------|
| WR-CM-UV-FS | UV-grade fused silica |
| WR-CM-SAPH | Sapphire |
| WR-CM-ZNSE | ZnSe |
| WR-CM-CAF2 | CaF ₂ |

Mounting flange (ST-300 only)

| | |
|----------------------|---|
| BASE-ST-VPF-M | Baseplate for ST-100, ST-300, and VPF-100 Series cryostats—metric threads |
| BASE-ST-VPF | Baseplate for ST-100, ST-300, and VPF-100 Series cryostats—imperial threads |

3. Select pump (optional)

Each cryostat required 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 system configurations

Cryogen-free operation

| | |
|----------------|---|
| RGC4-10 | Recirculating cooler with base temperature <4.3 K |
| RGC4-12 | Recirculating cooler with base temperature <3.9 K |
| RGC4-15 | Recirculating cooler with base temperature <3.5 K |
| RGC4-20 | Recirculating cooler with base temperature <3.3 K |

Measurement instrumentation

Cryostats come standard with one temperature controller.

| | |
|-----------------|---|
| 336 | Model 336 temperature controller |
| 335 | Model 335 temperature controller |
| 335-3060 | Model 335 temperature controller with installed 3060 thermocouple option card |
| 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 one installed temperature sensor. Other sensors are available—contact us.

| | |
|---------------------------|---|
| CX-1050-CU-HT-1.4M | Cernox® magnetic field independent, calibrated LHe storage Dewar |
| CF-100 | LN ₂ storage Dewar configured for use with SuperTran cryostats |
| LN-50 | LN ₂ storage Dewar configured for use with SuperTran cryostats |

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SuperTran cryostats

ST-300 Series

Specifications

| | ST-300 | ST-300-C |
|---|------------------------|----------|
| Initial cooldown time (LHe to 5 K) | 15 min | |
| Temperature range | ~2 K to 420 K | |
| Typical temperature stability ¹ | ±50 mK | |
| Orientation ² | Any | |
| Cryogen consumption (LHe room to base temp) | 0.4 L | |
| Cryogen consumption (LHe at 5 K) | 0.6 L/h | |
| Cryogen consumption (LN ₂ at 80 K) | 0.1 L/h | |
| Initial vacuum level requirement ³ | ~10 ⁻³ Torr | |
| Typical base pressure during operation | ~10 ⁻⁵ Torr | |

Size

| | | |
|-------------------------------------|--|--|
| Height | 583 mm (23 in) | |
| Inner space (at sample region) | 29 mm (1.13 in) diameter | 28.6 mm × 12.7 mm (1.125 in × 0.5 in) |
| Sample mount diameter | 22.4 mm (0.88 in) | 31.8 mm (1.25 in) |
| Window block | 44.5 mm (1.75 in) square ⁴ | 31.8 mm × 15.9 mm (1.25 in × 0.625 in) rectangular |
| Weight (excluding transfer line) | 4.6 kg (10 lb) | |
| Shipping weight (cryostat only) | 8.6 kg (19 lb) | |
| Shipping weight (transfer line) | 9.1 kg (20 lb) | |
| Shipping dimensions (cryostat only) | 762 × 508 × 508 mm (30 × 20 × 20 in) | |
| Shipping dimensions (transfer line) | 2057.4 × 660.4 × 127 mm (81 × 26 × 5 in) | |

¹ Measured with temperature controller

² Cryogen consumption may be higher during non-vertical operation

³ Pressure measured at room temperature prior to adding cryogen

⁴ Window block size may vary with window choice; contact us for details

