Optical Cryostat - Economy LHe/LN_2

The **LT4-DMX-1AL** is our lowest cost liquid flow cryostat, for optical and electrical experiments. The LT4 works with either Liquid Helium or Liquid Nitrogen. The LT4 utilizes a standard transfer line and cold tip. In order to upgrade to our coaxial shield flow transfer line and angstrom level vibrations, the high performance LT3-WMX-1SS will achieve those specifications.

Applications

- Optical - UV, Vis, IR
- Electro-Optical
- Magneto-Optical
- Resistivity/Hall Effect
- High Frequency Electrical
- Diamond Anvil Cell
- DIP
- Liquid Samples
- Non-Optical
- Thermal
- Electrical
- Magnetic Susceptibility
- Matrix Isolation
- Mossbauer

Features

- Liquid Helium Flow
- Low cost aluminum construction
- Large clear view optical windows (1.25 in)
- Large sample viewing angle for optical collection (F/1)
- 4.2K Liquid Helium Operation
- Liquid Nitrogen Comparable (77K Operation)

Typical Configuration

- Cold Head (LT4-DMX-1AL)
- Liquid Helium Transfer Line
- Bolt on Aluminum Instrumentation Skirt
- Dewar Adapater
- Aluminum vacuum shroud with 4 window ports for optical and electrical measures (DMX-1AL)
- Aluminum radiation shield (RSD-1AL)
- 2 High purity quartz windows
- Instrumentation for temperature measurement and control:
  - 10 pin hermetic feed through
  - 36 ohm thermofoil heater
  - Silicon diode sensor curve matched to (±0.5K) for control
  - Calibrated silicon diode sensor (±12 mk) with 4 in. free length for accurate sample measurement.
- Wiring for electrical experiments:
  - 10 pin hermetic feed through
  - 4 copper wires
- Sample holder for optical and electrical experiments
- Temperature Controller

Options and Upgrades

- 450K High Temperature Interface
- 800K High Temperature Interface
- Custom temperature sensor configuration (please contact our sales staff
- Custom wiring configurations (please contact our sales staff)
- Window material upgrades (custom materials available)
- Sample holder upgrades (custom sample holders available)

The above picture shows a cryocooler with a vacuum shroud, radiation shield, and sample holder installed.

The above picture shows a complete system with the radiation shield mount and vacuum shroud. The transfer line, temperature controller and vacuum pump are not shown.

Optical Cryostat - Economy LHe/LN_2

Cooling Technology

LT4	Open Cycle Cryocooler
Refrigeration Type	Liquid Helium/Nitrogen Flow
Liquid Cryogen Usage	Helium, Nitrogen Compatible

Temperature*

LT4	<4.2K—350K
With 800K Interface	(Base Temp + 2K) - 800K
With 450K Interface	(Base Temp + 2K) - 450K
Stability	< 100 mK

*Based on bare cold head with a closed radiation shield, and no additional sources of experimental or parasitic heat load

Sample Space

Diameter	36 mm (1.43 in.)
Height	39 mm (1.53 in.)
Sample Holder Attachment	1/4 - 28 screw
Sample Holder	www.arscryo.com/Products/SampleHolders.html

Optical Access

Window Ports	4 - 90° Apart
Diameter	41 mm (1.63 in)
Clear View	32 mm (1.25 in)
#/F	1
Window Material	www.arscryo.com/Products/WindowMaterials.html

Temperature Instrumentation and Control (Standard)

Heater	36 ohm Thermofoil Heater anchored to the coldtip
Control Sensor	Curve Matched Silicon Diode installed on the cold tip
Sample Sensor	Calibrated Silicon Diode with free length wires

Contact ARS for other options

Instrumentation Access

Instrumentation Skirt	Bolt-On, Aluminum
Pump out Port	1 - NW 25
Instrumentation Ports	2
Instrumentation Wiring	Contact ARS for options

Vacuum Shroud

Material	Stainless steel
Length	338 mm (13.3 in)
Diameter	76 mm (3.0 in) at the sample space
Width	76 mm (3.0 in) at the sample space

Radiation Shield

Material	Aluminum
Attachment	Threaded
Optical Access	0, 2, or 4 (customer specified)

Cryostat Footprint

Overall Length	438 mm (17.23 in)

Optical Cryostat - Economy LHe/LN_2

LT4-DMX-1AL Outline Drawing