

# Kelvinox|GH

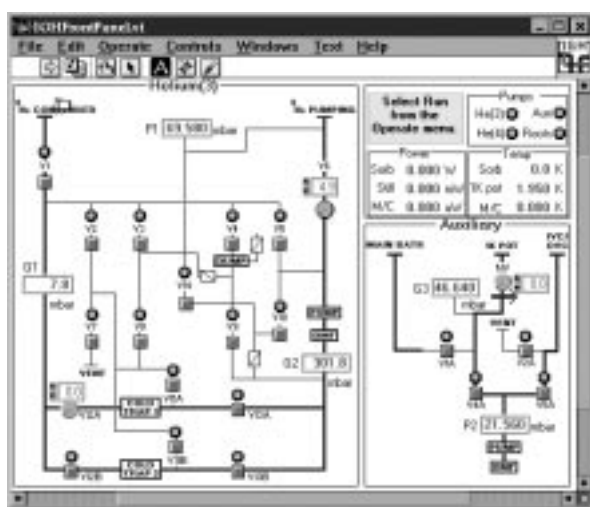
## Intelligent Gas Handling System

### Introduction

The **Kelvinox|GH** is the industry standard gas handling system. It is a fully automated system which is capable of satisfying the needs of the expert or novice dilution refrigerator user. Manual operation is via push button control from the front panel or by "point and click" on a computer screen slave of the front panel. The control system also offers sophisticated software routines which control all the major functions of operation of a dilution refrigerator using virtual instrument drivers for National Instruments LabVIEW. This includes:

- automated cooling to base temperature from 4 K
- mixture condensation
- control to a set temperature
- single shot operation
- leak test mode.

The software will run on a PC and the standard interface is RS232, though IEEE is also available.



### Experiment automation

The virtual instrument drivers may be incorporated in higher level programs to provide full automation of experiments. This feature is exploited in the Oxford Instruments' software which provides complete control of the **B-T** environment when a dilution refrigerator is operated with a superconducting magnet system.

### Remote operation and diagnostics

In some experimental situations human presence is undesirable for safety reasons. In these situations the dilution refrigerator may be remotely operated using extended interface cables between the control computer and the **Kelvinox|GH**. Alternatively, a second computer may control the system using communications software operating across a modem connection or local or wide area network.

The ability to operate a dilution refrigerator remotely also allows Oxford Instruments' staff to conduct a diagnostic check of a user's system on a regular basis or in the event

of a problem, assess the situation prior to sending out an engineer to test a system.



## FemtoPower thermometry system

The FemtoPower thermometry system in the **Kelvinox**IGH electronics now offers the ability to track and display the temperature, in mK, of the mixing chamber down to the base temperature of the dilution refrigerator. The FemtoPower electronics offers:

- match to RuO<sub>2</sub> and other resistance sensors
- very low excitation levels - at femtowatt levels when the resistor is in the hundred's of kohms
- freedom from ground loop problems
- no sensitivity to thermal emf's
- temperature accuracy limited by the calibration of the sensor

The electronics also has an in-built control algorithm and heater driver to enable the user to run to a set temperature.

A Kelvinox dilution refrigerator equipped with a **Kelvinox**IGH intelligent gas handling system is a complete temperature platform for research at ultra-low temperatures.

## Additional thermometry

For users who need additional thermometry on samples or sample holders, the AVS47 resistance bridge and accessories are recommended. If independent temperature control of a sample holder is required we also offer the TS530 temperature controller. LabVIEW virtual instrument drivers are available for the AVS47.

## Further Information

For further information about our **B-T** environment systems product range, please consult the following product guides:

### **Kelvinox**MX

Multiple eXperiment dilution refrigerators

### **Kelvinox**AST

dilution refrigerators using cryogenic circulation

### **Kelvinox**TLM

top loading dilution refrigerator

### **Heliox**VL

vacuum loading <sup>3</sup>He refrigerator

### **Heliox**TL

top loading <sup>3</sup>He refrigerator

### **Superconducting magnets**

### **B-T Environment Family**

Visit our web site at [www.oxford-instruments.com](http://www.oxford-instruments.com)

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