



Polar Bear Plus *Flow*™

Advanced, Compact Heating and Cooling for Flow Chemistry



Polar Bear Plus Flow™

Advanced compact heating & cooling

Polar Bea



- 150°C down to -40°C temperature range in a single compact unit!
- Accommodates all standard Uniqsis coil and chip reactors
- Just plug in, switch on and set the temperature
- Clean & simple no heat transfer fluids, solid CO₂, or solvents

Polar Bear Plus Flow™ is a compact, state of the art temperature control module for both heated and cooled flow-through chemistry applications.

The unit utilises proprietary heating/cooling technology developed by Cambridge Reactor Design in conjunction with the Innovative Technologies Centre (ITC) at the University of Cambridge, UK to deliver temperatures from 150°C. down to - 40°C.

All in a portable unit not much bigger than a shoe box!

Compact & portable: With a footprint not much bigger than a standard hotplate stirrer, unlike conventional -40°C circulators, the Polar Bear Plus *Flow* can be easily relocated in and out of the fume cupboard.

Wide temperature range & rapid equilibration: Advanced cooling technology delivers any set point temperature between - 40°C and 150°C, the lowest temperatures being accessible within approximately 30 minutes. Stable temperatures are maintained even with a throughput of 10 ml/min.

Reactors: The coil reactor module uses standard Uniqsis reactors and can accommodate single coil reactors up to 60 ml in volume, multiple smaller coils (available in a variety of sizes), and glass static mixer chips (with optional adaptor plate—as shown) to deliver maximum flexibility for the flow chemist.

Reagent Pre-tempering: Reagent solutions can be efficiently tempered to the desired temperature prior to mixing by using either a static mixer chip located in the top of the reactor block, or 'stacked' multiple 2.0 ml coils.

No 'lcing-up': A vacuum-jacketed glass cover can be fitted with a nitrogen purge to prevent ice formation under sub-ambient conditions and ensures that the reactor remains clearly visible at all times.

ACCESSORIES:

The Polar Bear Plus *Flow* is supplied as standard with a single layer glass cover and standard temperature probe and can accommodate all Uniqsis coil reactors. For use with glass static mixer chips a separate holder is available. This is supplied with an external temperature probe.

UQ1053-001: Glass Static Mixer Chip Holder and Temperature Probe (shown fitted in the image above). UQ1053-002: Vacuum Jacketed Cover UQ1053-003: Adaptor Plate with nitrogen purge for use with gas-liquid coil reactors and glass static mixer chips.

Remote Control using FlowSyn:

For maximum flexibility the Polar Bear *Plus* Flow can be controlled in a number of different ways:

Standalone control: the embedded control interface is easy to use and quickly allows a setpoint to be entered and heating or cooling to be initiated. The Polar Bear *Plus* Flow automatically equilibrates to the set temperature.

In addition, it is possible to automatically log performance data and to transfer this information to your PC via USB or Ethernet.

Control via Uniqsis FlowSyn or Binary Pump Control Interface: the Polar Bear *Plus* Flow can be combined with either a Uniqsis FlowSyn[™] or Binary Pump[™] to constitute a complete flow chemistry reactor system. The unit is automatically recognised and can be controlled through the system's user interface.

Control using Uniqsis FlowControl Software: the Polar Bear *Plus* Flow is also compatible with the Uniqsis FlowControl[™] system control software package. The software can be used to build a customised flow chemistry system that combines any of Uniqsis' range of reactor modules, pumps, in-line detectors, liquid handlers and fraction collecors. Up to 4 Polar Bear Plus Flow modules may be included.



Polar Bear Plus Flow Specification:

UQ-1052 FlowSyn Polar Bear™ Specification	
Temperature range	-40°C to 150°C
Stability at setpoint	±0.15°C @ over 2 h
Power supply	630W
Dimensions	210 mm (w) x 320 mm (d) x 360 mm (h) (without cover)
Weight	12 kg unpacked
Control accuracy	±0.2°C
Set point resolution	0.01°C
Safety circuit max/min (s/w)	-50/+160 ⁰ C
Protection Class (DIN EN 60529)	IP20
Heating and Cooling Performance	
Heating output	220V 1100VA or 110V 1800VA
Heating rate	5°C/min
Refrigerant	
Cooling time 20°C to 0°C	7 min
Cooling time 20°C to –20°C	14 min
Cooling time 20° C to -40° C	23 min



www.uniqsis.com