

## ZX1 - Comprehensive GCxGC Modulator

### Technical Specifications

#### I. Thermal Modulator

Two-stage thermal modulation using a continuous cold jet flow and a regularly pulsed hot jet to remobilize trapped effluent.

1. Two-stage loop modulation, one cold jet, and one hot jet.
2. NO moving parts
3. Accept capillary column dimensions of 0.32mm ID or smaller
4. Hot jet temperature : Up to 475°C
6. Cold jet temperature : As low as -189°C
7. Modulation period : Interval of 1 sec to 32sec
8. N2 consumption : 13 SLM per jet - Max. [ 6 SLM typical per jet].

#### II. Cryogenic Cooling System

1. Liquid nitrogen heat exchange bath
2. Maximum cooling temperature : Max -189°C at the jet
3. Flexible vacuum insulated cold gas delivery line 36" long (91.4cm). Custom lengths available upon request
4. Bench top heat exchange dewar : 5L, 24"H (61cm), also available in 10L and 15L
5. Automatic liquid level controller with two independent control band setpoints, "A and B". When liquid level drops below the "B" setpoint, a valve is energized until the liquid level rises to the "A" setpoint.
6. Programmable fill time interval – up to 600 minutes
7. 4 digit LED liquid level display in inches, centimeters, or percent
8. Dimensions : 3.8"H x 8.4"W x 11.1"D  
: 97mm H x 213mm W x 282mm D
9. Weight : 3.6 lbs / 1.6 kg
10. Electrical : 100 - 120 or 200 – 240 VAC ±10% 50-60 Hz, 2.2A
11. Operating parameters:
  - Hi and Lo alarms :0% to 100% adjustable
  - Hi/Lo Alarm Relay Contact Ratings :30 VAC or 60 VDC, 10 VA (up to 0.5A max); normally open, closed at alarm
  - A and B Control Setpoints :0% to 100% adjustable
  - Controller Output :AC line voltage @ 2A max current
  - Fill Timer :0.1 to 600 minutes

#### III. Image Analysis Software

GC Image and GC Project: qualitative and quantitative software for GCXGC data.

1. Automatic baseline correction
2. Performs blob (peak) detection automatically

3. Configurable thresholds and other peak detection settings
4. Variety of visualization and colorization schemes for best qualitative analysis
5. Automated processing of image batches using templates
6. Integrate single or multiple selected peaks
7. Supports many data file formats –Agilent, Shimadzu, ThermoFinnigan, JEOL, LECO, Varian
8. Analyze manually selected regions in a chromatogram
9. Advanced analysis of GC x GC x MS data using CLIC facility
10. Generate simple summary reports

#### IV. Secondary Oven -(Optional)

1. Sets secondary column temperature independently of main oven
2. Easy, drop-in column installation
3. Column set using simple press-fit
4. Able to hold two secondary columns of up to 20m each
5. Lead or lag main oven up to  $\pm 40^{\circ}\text{C}$
6. Temperature programming rate up to  $5^{\circ}\text{C}/\text{min}$
7. Dimensions 6"x4"x2" (152mm x 102mm x 51mm)