



NETEL (INDIA) LTD.



## Microprocessor based Gas Chromatograph ULTIMA 2100 Series

A new horizon in performance



- Auto Loading of File at Start-up
- Keyboard Control Carrier Gas Switch Over
- Storage of 20 Methods for GC Parameters
- Five-Ramps, Six Plateaus in Single Method
- Six Heated Zones
- Auto Zero Facility
- Dedicated Capillary injector
- Auto cooling by flap
- Control of 2 external heated zones & 3 programable relays
- Read-a-Flow Technique
- Built-in Capillary Injector
- Dual FID Amplifier
- Dual Path TCD
- Built-in Overheat Protection
- Protection circuit for column & TCD filament
- Choice of several detectors (FID, TCD ECD, NPD, FPD, etc.)

# ULTIMA 2100 Series

## TECHNICAL SPECIFICATIONS

### INJECTION SYSTEM

- a) Single or Dual vertical injectors with Split/Splitless converters for 1/4", 1/8" or capillary columns
- b) Operating temp. range : Ambient to 400 °C.
- c) Option : Four injectors
- d) Dedicated Port for capillary column

### PNEUMATIC SYSTEM

- a) Keyboard operated carrier gas change over system
- b) Pressure Switch Cut off Mains Power in case of depletion of carrier gas flow.
- c) Differential flow Controllers (DFC) for carrier gas with digital readout 0 to 100 ml / min

### COLUMN OVEN

- a) Dimensions : 26Wx26Dx26H cms
- b) Volume : 17.5 liters
- c) Temperature stability :  $\pm 0.1^{\circ}\text{C}$
- d) Operating Temp. range : Ambient to 400 °C. In steps of  $0.1^{\circ}\text{C}$ .
- e) Option : Upgradable to 500° C
- f) Cooling Speed : 250° C. to 50° C. In 5 mins. (at 20° C (ambient temp.) including stabilisation time.
- g) Overheat protection : Protection circuit activates at 20 °C. over set temperature.

### TEMPERATURE PROGRAMMER

- a) Isothermal Temp. range : Ambient to 400° C. In steps of  $0.1^{\circ}\text{C}$
- b) Max. Ramp Rate Programming : upto 150 °C. at 30 °C/min upto 250 °C. at 20 °C/min upto 325 °C. at 15 °C/min upto 400 °C. at 10 °C/min

(Higher heating rate option are available)

- c) Number of Ramps : 5 max, 6 plateaus (Hold the ramp rate at any time)
- d) Max. Program time length : 999 min.

### DETECTORS

#### 1. Flame Ionisation Detector

- a) Design : Forced air diffusion
- b) Mode : Single or dual column with dual amplifier
- c) Operating temp. range : Ambient to 400 °C in steps of  $0.1^{\circ}\text{C}$ .
- d) Sensitivity :  $>0.017$  coulombs/g.
- e) Dynamic range :  $10^7$
- f) FID Amplifier : Max. sensitivity  $5 \times 10^{-13}$  Amp  
Range : 1,10,100,1000  
Noise : Below  $1 \times 10^{-13}$  Amp.

#### 2. Thermal Conductivity Detector

- a) Design : Dual path, 4 filaments
- b) Filament : Tungsten - Rhennium
- c) Mode : Dual column
- d) Operating Temp. range : Ambient to 400 °C. in steps of  $0.1^{\circ}\text{C}$ .
- e) Filament current : 0 - 400 mA
- f) Temp. stability :  $\pm 0.1^{\circ}\text{C}$
- g) Sensitivity : 3500 ml.mv/mg at 80° C (10mV/ppm, benzene (v/v) mode, with filament temp. control.
- h) Electronics : Full - bridge (Constant temperature resistance) Mode, with filament temp control.
- l) Filament Temp. : 150° C to 450 °C in steps of 75° C.

#### Optional attachments

- 1) Other Detectors : ECD, NPD, FPD, PID etc.
- 2) Gas sampling valve (Auto/Manual) 6 port 8 port /10 port
- 3) Head Space Sampler
- 4) Column switching~ Back flushing arrangement
- 5) Methanizer
- 6) Programmable pressure control up to 60 PSI with ramp facility

#### 3. OTHER

**DETECTORS** : ECD, NPD, FPD, etc. In place of FID, any two of the above

#### SIGNAL OUTPUTS

- a) Attenuated (Recorder) output channel from one keyboard selected detector, 10 binary steps from 1 to 1024 for 0 - 1v.
- b) Direct output channels, from FID A, FID B, and TCD, 0 - 1volt unattenuated for Digital Integrator.

#### DISPLAY

16-character 2 LINE BACKLIGHT LCD, for display of set and actual temperature of Injector, Detectors, and Oven, TCD filament Current, Temp. programme status, retention time and carrier gas flow, etc.

#### DIMENSION, WEIGHT AND POWER CONSUMPTION

- Power requirement : 220 V, 50Hz, 2Kw
- Size : 60W x 82.5 D x 53H cms
- Weight : 55 Kgs. (approx)

The company's policy is one of continuous development and improvement of its products. Therefore the right is reserved to supply products which may be modified from those illustrated and described in this literature.



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