



NETEL (INDIA) LTD.



Microprocessor based Gas Chromatograph MICHRO 9100

A new horizon in performance

**NEW
UPGRADED
WITH ADVANCED
FEATURES**



KEY FEATURES

- Modular GC
- Keyboard control of GC
- Storage of ten methods for GC parameters
- Read-a-flow technique
- Keyboard control carrier gas switch over dedicated capillary injector
- Auto cooling by flap
- Five ramps, six plateaus in single method
- Control of 2 external heated zones and 3 programmable relays
- Dual FID amplifier
- Remote flame Ignitor
- Dual path TCD
- Auto zero facility
- Audible ready signal
- Protection circuit for column & TCD filament
- Choice of several detectors (FID, TCD, ECD, NPD, FPD etc.)

MICRO 9100

TECHNICAL SPECIFICATIONS

COLUMN OVEN

- a) Dimensions : 25W x 15D x 35H cms
- b) Volume : 13 Litres
- c) Temperature stability : $\pm 0.1^{\circ}\text{C}$
- d) Operating Temperature Range : Ambient to 400°C in steps of 0.1°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 temp. at the step of 50°C

TEMPERATURE PROGRAMMER

- a) Isothermal Temp. range : Ambient to 400°C in steps of 0.1°C
- b) Max. Ramp Rate Programming : Upto 150°C at $30^{\circ}\text{C}/\text{min}$.
Upto 250°C at $20^{\circ}\text{C}/\text{min}$.
Upto 325°C at $15^{\circ}\text{C}/\text{min}$.
Upto 400°C at $10^{\circ}\text{C}/\text{min}$.
- c) Number of Ramps : 5 max. (Hold the ramp rate at any time)
- d) Max. Programme length : 999 min.

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 in steps of 0.1°C
- c) Dedicated port for capillary columns

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

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
- d) Sensitivity : >0.017 coulombs/g.
- e) Dynamic range : 10^7
- f) FID amplifier : Max. sensitivity
 5×10^{-13} Amp.
Ranges : 1, 10, 100, 1000
Noise: Below 1×10^{-13} Amp.

2) THERMAL CONDUCTIVITY DETECTOR

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

SIGNAL OUTPUTS

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

DISPLAY

16-character 17 segment alpha numeric, for display of set and actual temperatures of Injector, Detectors and Oven, TCD filament current, Temp. programme status, retention times and carrier gas flows

DIMENSION, WEIGHT AND POWER CONSUMPTION

Power requirement : 220V, 50 Hz, 2kw
Size : 76 W x 54D x 58 H cms
Weight : 86 kgs. (approx.)

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) Programable pressure control up to 60 PSI with ramp facility

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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