

FID Gas System

Flame Ionization Detection (30-sec GC, TG, H2 Gen)



ABS-FID-TINFO
REV 0

While monitoring gas trends is useful for general identification of pay zones, tracking connection gases and reconfirming gas influxes, high precision hydrocarbon concentration measurements provide crucial formation evaluation information through dependable gas ratios.

With many non-FID gas analyzers only able to deliver detection limits of several 100s ppm, trace C4 and C5 are missed leading to wrong zone demarcations and even missed pays. It becomes readily compelling to switch to FID gas equipment having typical detection limits of ≤ 10 ppm.

Data density is another important comparison point amongst chromatographs, many manufacturers claim Cycle Time of 30 seconds but a closer look reveals that it is C5 peak elution time thus making the actual cycle time 35-42 seconds.

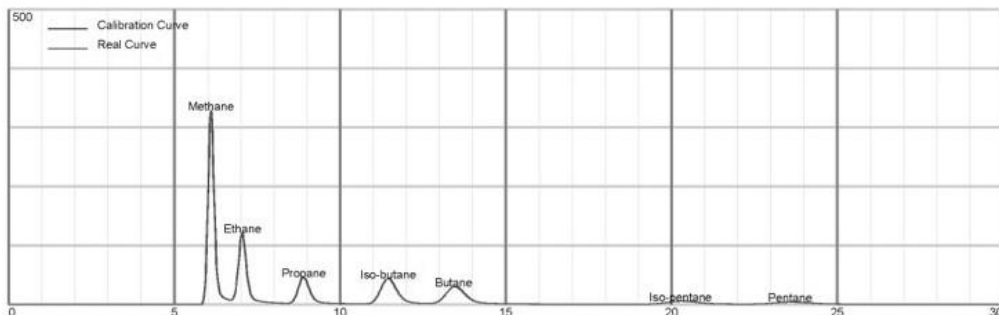
* Cycle Time - time interval between consecutive runs in an automatic resample setup

Method

| Column Temp(°C) | Injector Temp(°C) | Run Time(s) |
|-----------------|-------------------|-------------|
| 65.0 | 100.0 | 30 |

Calibration Gas Sample Concentration

| Methane | Ethane | Propane | Iso-butane | Butane | Iso-pentane | Pentane |
|-----------|----------|----------|------------|----------|-------------|----------|
| 10.000000 | 2.500000 | 1.000000 | 1.000000 | 1.000000 | 0.250000 | 0.250000 |



| No. | Name | Peak Position(s) | Set Area | Set Conc(%) | Real Area | Real Conc(%) |
|-----|-------------|------------------|----------|-------------|-----------|--------------|
| 1 | Methane | 6.10 | 303388 | 10.000 | 301680 | 9.944 |
| 2 | Ethane | 7.05 | 155216 | 2.500 | 153338 | 2.470 |
| 3 | Propane | 8.90 | 84252 | 1.000 | 83514 | 0.991 |
| 4 | Iso-butane | 11.45 | 107483 | 1.000 | 106324 | 0.989 |
| 5 | Butane | 13.48 | 95895 | 1.000 | 93077 | 0.971 |
| 6 | Iso-pentane | 20.32 | 26677 | 0.250 | 25594 | 0.240 |
| 7 | Pentane | 23.63 | 23873 | 0.250 | 22137 | 0.232 |

Specifications

Model

FID 30-sec GC, TG, GDU, H2G

Application

Quantitative measurement of aggregate hydrocarbon gas concentration and chromatographically separated gas components (C1, C2, etc) detection via FID type transducers

Implementation

Flame ionization detection technique - burning minute hydrocarbon gas sample to separate molecules into ions; compressed air and hydrogen serve as carriers and combustible mixture

Fast chromatography - hydrogen as carrier

Chromatogram Components

C1, C2, C3, iC4, nC4, iC5, nC5

Detection Range

GC: 0-100% Vol (1-1,000,000 ppm)

TG: 0-100% Vol (C1 equivalent)

Accuracy & Resolution

GC, TG: 10 ppm (Accuracy), 1 ppm (Resolution)

Low Detection Limit

GC: 5 ppm

TG: 2 ppm

Outputs

GC, TG: WITS Level 0; On-screen log / chart viewer

Power Requirement

100-240 VAC $\pm 10\%$ 50/60 Hz - GC, TG

110 or 220 VAC $\pm 10\%$ 50/60 Hz - GDU, H2G¹

Hydrogen Gas

Purity: 99.999%

H2G Output Pressure: 60 psi (414 kPa)

H2G Flowrate capacity: 300/310 cc/min (ml/min)

TG Hydrogen Pressure: 200 kPa (29 psi)

GC Hydrogen Pressure: 300 kPa (44 psi)

Operating Temperature

H2G: 0 to 60°C (32 to 140°F)

Dimensions²

GC, TG, GDU: 4RU (Rack Units), Panel Height = 7 in.

H2G: 15"L x 7"W x 15"H (38 x 18 x 38 cm)

Weights

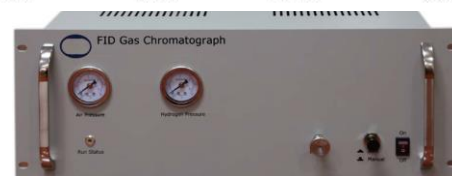
GC: 18 lbs (8 kg)

TG, GDU: 14 lbs (6.5 kg), each

H2G: 22 lbs (10 kg)

Features

- FID sensitivity >10x better than all other non-burning type gas detectors including detection micro-TCD, infrared, laser
- GC and TG FID detector modules are interchangeable (identical parts) delivering best chromatogram and total gas data correlation
- Calibrate or inject sample without turning off sample pump - gas sample to lag depth correlation uninterrupted
- GC and TG software interface can be installed on any Windows® computer; every chromatogram run is stored on computer
- Continuous multiple averaging calibration mode (e.g., >5 cal runs) - to achieve maximally fine-tuned calibration
- Gas peak width elution time adjustment while sampling - on-the-fly calibration adjustment without data collection interruption



NOTES: 1 - Sample pump (GDU) and H2G multistep transformer are not auto-voltage; need to be specified prior to ordering 2 - Thru a special manufacturing order, GC and TG can be combined into one 4RU case

TECHNICAL
INFORMATION