



Nebula 3100-P

Portable Infrared Gas Analyser



Modular Design

The 3100-P with its minimal size, degree of accuracy; fast response times; simple, easy to use operation; rechargeable lithium battery power supply, is a perfect gas measurement solution for direct sampling from pipes at industrial installations to gas-bag sample analysis in laboratories

CO% + CO₂% + CH₄% + C_nH_m% + H₂% + O₂% + C₂H₂% + C₂H₄% + Heating Valve Calculation and N₂ Calculation

Main Features & Benefits

- Modular sensor design ensuring easy, cost effective maintenance
- Up to 8 gases measured
- Patented to detect CH₄ in C₄ hydrocarbon presence
- Precise C_nH_m measurement with correction based on CH₄ Measurement
- TCD sensor with linear correction from other background gases
- Patented diffusion sampling structure ensuring stable H₂ reading without influence from gas flow fluctuation
- Online Composition measurement and real time gas heating value calculation
- Constant temperature enclosure to avoid temperature influence
- Auto zeroing with air efficiently controlling zero drift
- Bluetooth module with mobile phone App for mobility
- Compact robust design
- LCD display and tactile keypad
- In-built sampling pump
- External safety filter providing analyser protection
- Internal rechargeable battery - 4 hrs
- Internal data logger for up to 1500 sets of data and RS232 COM port.

Main Applications

Energy Production

- Gasification / Pyrolysis
- Waste to Energy
- Plasma Gasification

Chemical Conversion

- Synthetic Ammonia / Carbamide
- Hydrogen reforming
- Coal to Gasoline/Methanol/DME/Ethylene Glycol

Steel Production

- Laboratories
- Blast Furnaces
- Converter
- Coking
- Direct iron ore smelting reduction processes
- Heat Treatment and Endogas/Exogas



Technical Specification

Criteria	Details
Measurement:	CO , CO ₂ , CH ₄ , C _n H _m , H ₂ , O ₂ , C ₂ H ₂ , C ₂ H ₄ , + Heating Valve and N ₂ calculations
Calculation:	High Heating Value or Low Heating Value in MJ/m ³ or kcal/m ³
Technology:	CO , CO ₂ , CH ₄ , C _n H _m , C ₂ H ₂ , C ₂ H ₄ , Proprietary single beam NDIR detectors O ₂ : long-life Electro Chemical Cell (ECD) H ₂ : Proprietary Thermal Conductivity Detector (TCD)
Ranges:	CO: 0-10% or 20% or 50% or 75% or 100% CO ₂ : 0-5% or 10% or 20% or 50% or 75% or 100% CH ₄ : 0-5% or 10% or 20% or 50% or 75% or 100% H ₂ : 0-5% or 10% or 20% or 50% or 75% or 100% O ₂ : 0-5% or 25% C _n H _m or C ₂ H ₂ or C ₂ H ₄ : 0-5% or 20%
Accuracy:	≥2% FS (NDIR); ≥3% FS (TCD and ECD)
Repeatability:	≥1%
Sampling:	In-built Sampling Pump
Zero:	Auto-zeroing function with fresh air
Gas Conditions at inlet:	Flow: 0.7~1.2L/min, Pressure: 2~50kPa, No dust, moisture, tar
Operating Conditions:	Tamb: 0-50oC / Pamb: 86to 108 kPa / RH: 0-95% non-condensing
Response Time (T90)	≥ 10 sec (NDIR)
Warm-Up time:	800 seconds (auto zeroing during the last 120 seconds)
Communications Interface:	RS232 (real time monitor and memory data download software available)
Power Supply:	External 220VAC 50Hz: In-built rechargeable battery and charger
Data Logging:	Up to 1500 sets of data; Logging rate adjustable from 3 to 98 seconds; Possibility to Identify 10 different sites and up to 100 measuring points
Display:	LCD 320 x 240 display with back lit function. Simultaneous indication of the 6 measures + 2 calculation index
Casing:	Robust carrying case in ABS/PC and shoulder strap (with protective carrying bag)

Standard Accessories

- Nylon carrying bag for analyser and accessories
- Gas IN and Gas OUT tubing
- Power Cable and Adaptor 220VAC/12.6V VDC-3A
- RS232/DB9 Cable

Data Logging Software

Connect PC and analyser with the RS232 cable, Install real time data logging software. Users may download history from analyser memory and read the real time data on their PC



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