

Testing Instrumentation for exhaust gases from diesel, petrol or LPG engines



GASBOARD 5020 is an analyser for the control of exhaust gases from gasoline or LPG engines; it integrates non dispersive infrared (NDIR) detectors for the measure of CO, CO₂, HC and electrochemical sensors (ECD) for O₂ and NO.

General Features

- Simultaneous measure and display of CO, CO₂, NO, HC, O₂, Oil temperature and engine rotation speed (RPM)
- Calculation and display of air/fuel ratio (Lambda)
- Automatic leak test of the sampling line
- Selection of fuel: petrol, LPG, Natural Gas, PET (C3/C6), user specific fuel
- Interface for connecting an external oil temperature measuring probe
- Automatic calibration of the oil temperature measuring probe
- Interface for connecting a tachometer (engine rotation speed); measure based on the analysis of vibration and noise.
- 6-button keypad for configuration and calibration of the analyser

- Automatic zero calibration with ambient air (recommended through external in-line HC filter)
- Water/dust filter on the rear plate of the analyser
- Integrated printer, Data logger by RS232
- Ambient temperature: 0-40 ° C
- Ambient pressure : 86-108 kPa
- Relative humidity : 5-85% RH
- Power supply: 220 VAC ± 20% - 50 Hz ± 2%



Measurement range and accuracy

Measurement range

Gas	measuring range	resolution
CO	0.00 – 10.00% vol	0.01% vol
HC	0 –9999 ppm vol	1ppm vol
CO2	0.00 – 20.00% vol	0.01% vol
O2	0.00 – 25.00% vol	0.01% vol
NO(optional)	0-5000ppm	1ppm vol
Lambda display	0.50 – 2.50	0.01

Accuracy

component	relative error	absolute error
CO	±5%	±0.06%
HC	±5%	±12ppm
CO2	±5%	±0.5%
O2	±5%	±0.1%
repeatability error	repeatability error is RSD(relative standard deviation),no more than 2%	

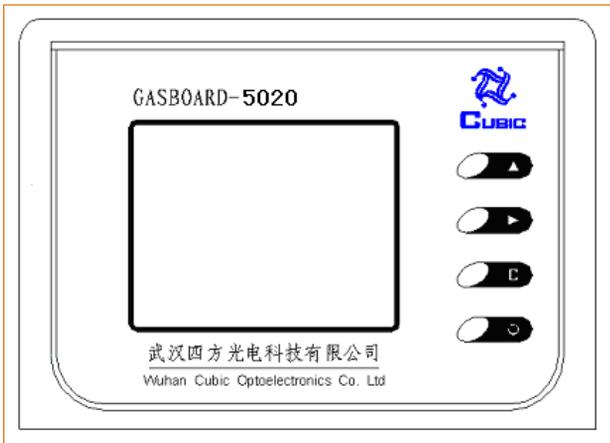
stability (zero and span drift)

component	CO	HC	CO2	O2	NO
absolute error	±0.06%	±12ppm	±0.5%	±0.1%	±25ppm
Relative error	±5%	±5%	±5%	±5%	±5%

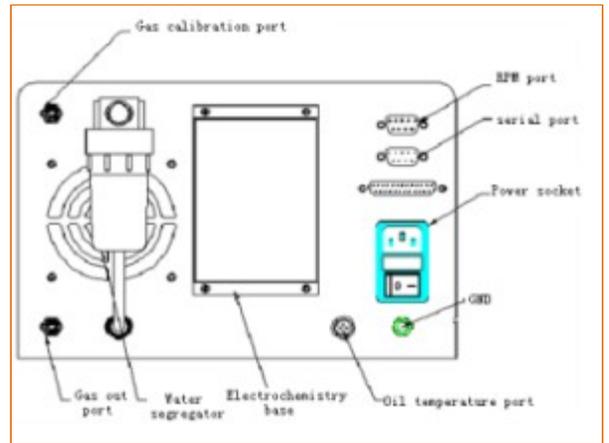
others

response time	TD+T90:10 seconds (NDIR) ; ECD :30 seconds	
warm-up time	10 minutes	
ambient	atmospheric pressure	86-108kpa
	temperature	0
	humidity	5%-85%
Working power	AC220V±20% , 50Hz±2%	
dimension	width×height×length	260×180×360mm
weight	Approximately 8kg	

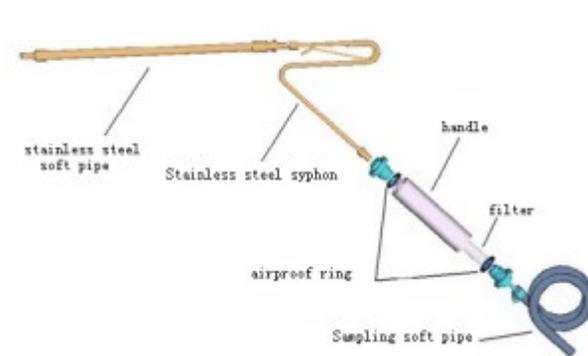
Panel Structure and accessories



1. Front panel



2. Back panel



3. Sampling probe



4. Sampling pipe



5. RS232 cable



6. PT 100 (optional)



7. Cigar lighter RPM (optional)



8. Vibration RPM(optional)

Opacity Meter Gasboard 6010



General Features:

- ↘ Free accelerative and transient state measurement of opacity for diesel engine.
- ↘ Display of Smoke opacity degree and Light absorption coefficient.
- ↘ Partial flow technology to keep optic system from pollution,
- ↘ constant temperature control for detection cell.
- ↘ Auto-zero calibration with fresh air
- ↘ Apparatus performance accord with requirement of ISO11614 and GB3847-2005.
- ↘ RS232 interface
- ↘ Oil temperature and RPM interface(optional)

GASBOARD 6010 opacity meter is used to measure the diesel exhaust smoke by the introduction of a proportion of the vehicle exhaust gasses into the smoke check chamber via a sample probe. It is equipped with a gas temperature, pressure valve and distribution control cell in order to ensure accuracy and repeatability. It can measure the complete opacity spectrum from 0-100% in either continuous or free acceleration test.

Specifications:

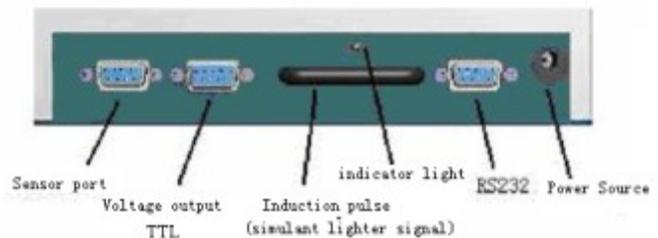
- ↘ Measurement range:
Opacity degree N: 0 ~ 100% ,
Light absorption coefficient k: 0 ~ 30m-1
- ↘ Resolution: N: 0.1%, K: 0.01% ,
- ↘ Error: $\pm 2.0\%$
- ↘ Power: AC220V $\pm 10\%$ 50Hz ± 1 Hz
- ↘ weight: display: 5kg , detection: 7kg
- ↘ Dimension:
Display: 260mm(W) \times 450mm(L) \times 180mm(H)
Opacity meter:
460mm(L) \times 230mm(W) \times 465mm(H)

Engine RPM Sensor Based on Vibration and Noise Gasboard 8110

Engine type	4-stroke—diesel/gasoline
Measuring range	gasoline : 450 ~ 8000 rpm
	diesel : 450 ~ 6000 rpm
Signal output	serial output, analog voltage signal output TTL signal pulse output ; induced pulse -analog ignition signal
Power supply	9 ~ 28 V DC ; <350mA
Working temperature	5°C ~ 45°C
Operating humidity	30 % ~ 90 % RH
Dimension	200*40*140 mm
Weight	< 2Kg



**Gasboard-8110 RPM
Equipment**



I/O ports



Magnetic Sensor

Engine RPM Sensor Based on Cigar Lighter Gasboard 8010



Specifications:

Power source: Cigar lighter or battery 9-15 VDC

Measure Target: 2,4 stroke,1-12 cylinder

Measurement range :400- 9,999 RPM

Maximal error:< 20 RPM or relative 1 %

Response time: < 1 second

Dimension:144 x 98 x 40 mm

Weight:350 g



Optional accessories: RS232 cable

General Features:

Used for engine's RPM measurement of gasoline, diesel, and natural gas.

Directly connected to Cigar lighter or battery to measure its RPM without any sensor.

RS-232 interface and LCD display.

Universal, connective to any exhaust gas analyzer and Opacity meter.

Standard signal interface Such as TTL or RS23

Products including: Gasboard-8010, Cigar lighter connection cable 5m, clamp(battery), RS232 cable, user manual.



clamp, cigar lighter power supply cable

Applications



* Pictures are provided by CUBIC distributors