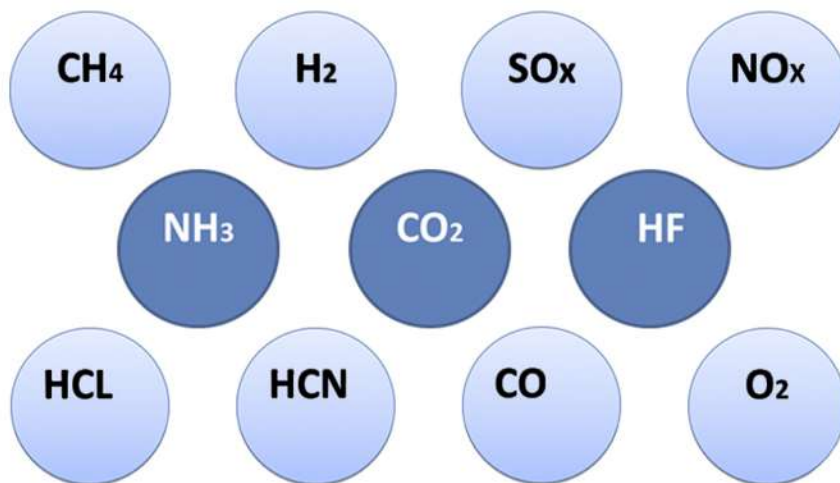


Online Syngas Analyzer

Providing the latest in Combustion Gas & Emission Analyzers for Boiler, Engine, Furnace, and other Application



Online Syngas Analyzer

Gasification is a technological process that can convert any carbonaceous (organic) raw material such as coal into fuel gas, also known as synthesis gas in short syngas. Generally a high temperature/pressure vessel where oxygen or air and steam are directly contacted with the coal or other feedstocks like coal, biomass, and some waste material causing a series of chemical reactions to occur that convert the feed to electricity, syngas and ash/slag (mineral residues)

How Vasthi syngas analyzer works

Vasthi uses heated probe to collect the sample from the sample line, it will maintain constant temperature and removes the dust and mist from the sample gas. This gas sample passes through electrically heated tube to cooler. It will remove the vapour content and cools the gas sample to 5°C dew point range and this sample gas goes through the filter that eliminates the dust particle remaining and finally sensor senses and gives the exact readings in syngas analyzer.

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vasthi has introduced Syngas Analyzer with latest technology and features to measure the composition of syngas.

Gases and its ranges:-

- CO–0-100%, - NDIR SENSOR
- CO₂–0-100%, – NDIR SENSOR
- H₂– 0-50%, – TCD SENSOR
- O₂– 0-21%, – ELECTROCHEMICAL
- CH₄– 0-50% – NDIR SENSOR

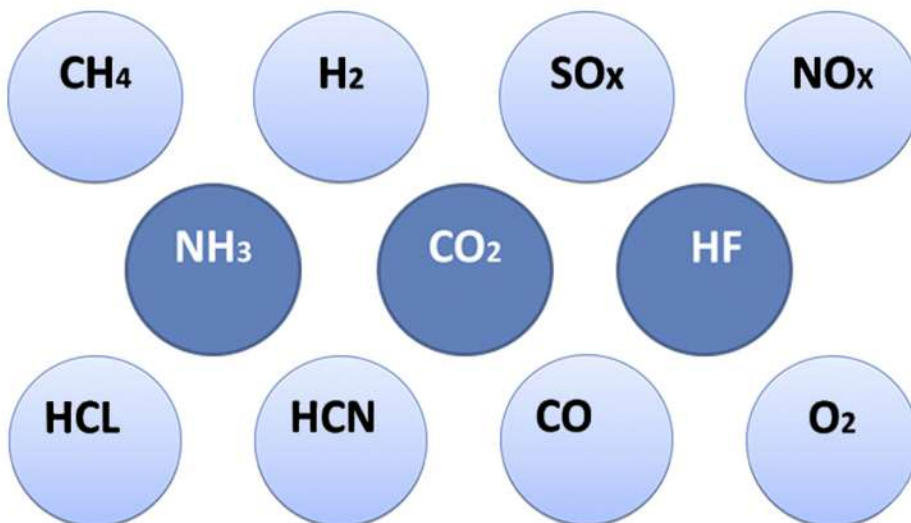
these are user free settable ranges.

Features:

- 6 gases measurement with combination of NDIR, TCD and ECD gas sensor technology
- Heating value calculation function
- Constant temperature control for gas bench for high stability
- high ranges are available upto 100%
- touch screen display for gas readings
- Recleanable infrared detectors for CO,CO₂ ,CH₄.
- sensors have maximum analytical stability/temperature controled
- Built-in pressure regulator
- removal of moisture will be automatic
- high quality stainless steel probe for high temperature gases

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- ❖ NDIR Sensors available - for CO₂ & C_xH_y , CO,CH₄, Sox and Nox more gases
- ❖ Easy to use menu- to operate and save the setting
- ❖ High Quality Stainless Steel Probe - For high temp gases.
- ❖ Back lit Display
- ❖ Real time clock
- ❖ Logging of 100 Gas Analysis Reports
- ❖ Data Output to Printer or PC



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Measurement Specifications

Parameter	Method	Indication range	Display resolution	Accuracy	Detection limit	Response time(t90)
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Gases to be measured in standard configuration

O2 - oxygen, volumetric concentration	electrochemical gas sensor	0...25 %	0.01%	±0.2%or 2% rel.	0.01%	45 s
CO2 - carbon dioxide, volumetric concentration	calculated from volumetric concentration of O2	0...25 %	0.01%	±0.2%or 2% rel.	0.01%	45 s
CO - carbon monoxide, volumetric concentration	electrochemical gas sensor	0...5,000ppm	0.1 or 1 ppm as set	± 5 ppm or 5 % rel.	5 ppm	45 s
CO - carbon monoxide, volumetric concentration (optional)	electrochemical gas sensor	0...10%	10 ppm or 0.001 %	± 50 ppm or 5 % rel.	10 ppm	45 s
NO / NOx - volumetric concentration of nitrogen oxides.	electrochemical gas sensor	0...5000 ppm	1ppm	± 5 ppm or 5 % rel.	1ppm	45 s
NO2 - volumetric concentration of Nitrogen dioxide.	electrochemical gas sensor	0...1000 ppm	1 ppm	± 5 ppm or 5 % rel	1 ppm	45 s
SO2 / Sox- volumetric concentration of Sulphur dioxide.	electrochemical gas sensor	0...5000 ppm	1ppm	± 5 ppm or 5 % rel.	1ppm	45 s
CxHx	Catalytic polluster	0-100% LEL	0.1%0.01	± 2 % rel	1%	45s
H2S- volumetric concentration of Hydrogen sulfide.	electrochemical gas sensor	0...5000 ppm	1ppm	± 5 ppm or 5 % rel.	1ppm	45 s
H2 - volumetric concentration of Hydrogen	electrochemical gas sensor	0...2000 ppm	1ppm	± 5 ppm or 5 % rel.	1ppm	45 s

Gas Measured with optional IR Sensors

CO2- carbon dioxides volumetric concentration	NDIR sensor	0...25 % 0...100%	0.01% 0.1%	0.5 % from Range or +/- 3 % rel.	0.2 %	45 s
CH ₄ - Methane, volumetric concentration	NDIR sensor	0...5 % 0...100%	0.01% 0.1%	0.5 % from Range or +/- 3 % rel.	0.2 %	45 s
	NDIR sensor	0...5 % 0...100%	0.01% 0.1%	0.5 % from Range or +/- 3 % rel.	0.2 %	45 s

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CO - carbon monoxide, volumetric concentration	NDIR sensor	0...25 % 0...100%	0.01% 0.1%	0.5 % from Range or +/- 3 % rel.	0.2 %	45 s
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Tgas - flue gas temperature	Thermocouple	-10..1000 °C	1 °C	1 °C	±2 °C abs., or 1.5 % rel.	30 s
Tamb - ambient temperature	Thermistor	-10..100 °C	1 °C	1 °C	±1 °C abs., or 1.5 % rel.	30 s
Pressure	DMS bridge	-20...+20 hPa	0.1 Pa	0.1 Pa	±2 Pa abs., or 5 % rel	10 s
Diff. Pressure	DMS bridge	-20...+20 hPa	0.1 Pa	0.1 Pa	±2 Pa abs., or 5 % rel	10 s
TI (CO/CO2 -Toxic Index)	calculated	0... 1 %	0.01 %	5 % rel.	0.01 %	10 s
Lambda - excess air number	calculated	1...10	0.01	0.01	0.01	5 s
qA - combustion losses	calculated	0...100 %	0.1 %	0.1 %	0.1 %	5 s
Eta - efficiency	calculated	0...100 %	0.1 %	0.1 %	0.1 %	5 s

Applications



- Ambient and Emissions Monitoring.
- Stack or Exhaust Gas Analysis in Boilers
- Power & Industrial Plants
- Process Analysis
- Fuel Efficiency
- Internal combustion Engines
- Furnaces
- Quality Control Labs

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Special Features

Calibration: The analyzer comes standard with a complete factory calibration. The analyzer can easily be recalibrated with span gas cylinders. Recalibration is recommended at least once each year to ensure analyzer accuracy.

Flue gas & ambient temperature: The analyzer takes a direct thermocouple temperature measurement of the flue gas, and has an ambient temperature sensor fitted. These are required for making accurate combustion efficiency calculations.

Setup and measure within minutes: Simply switch on, an automatic zero calibration is performed by the analyzer. Plug in the sample probe and take real-time gas readings in a matter of minutes.

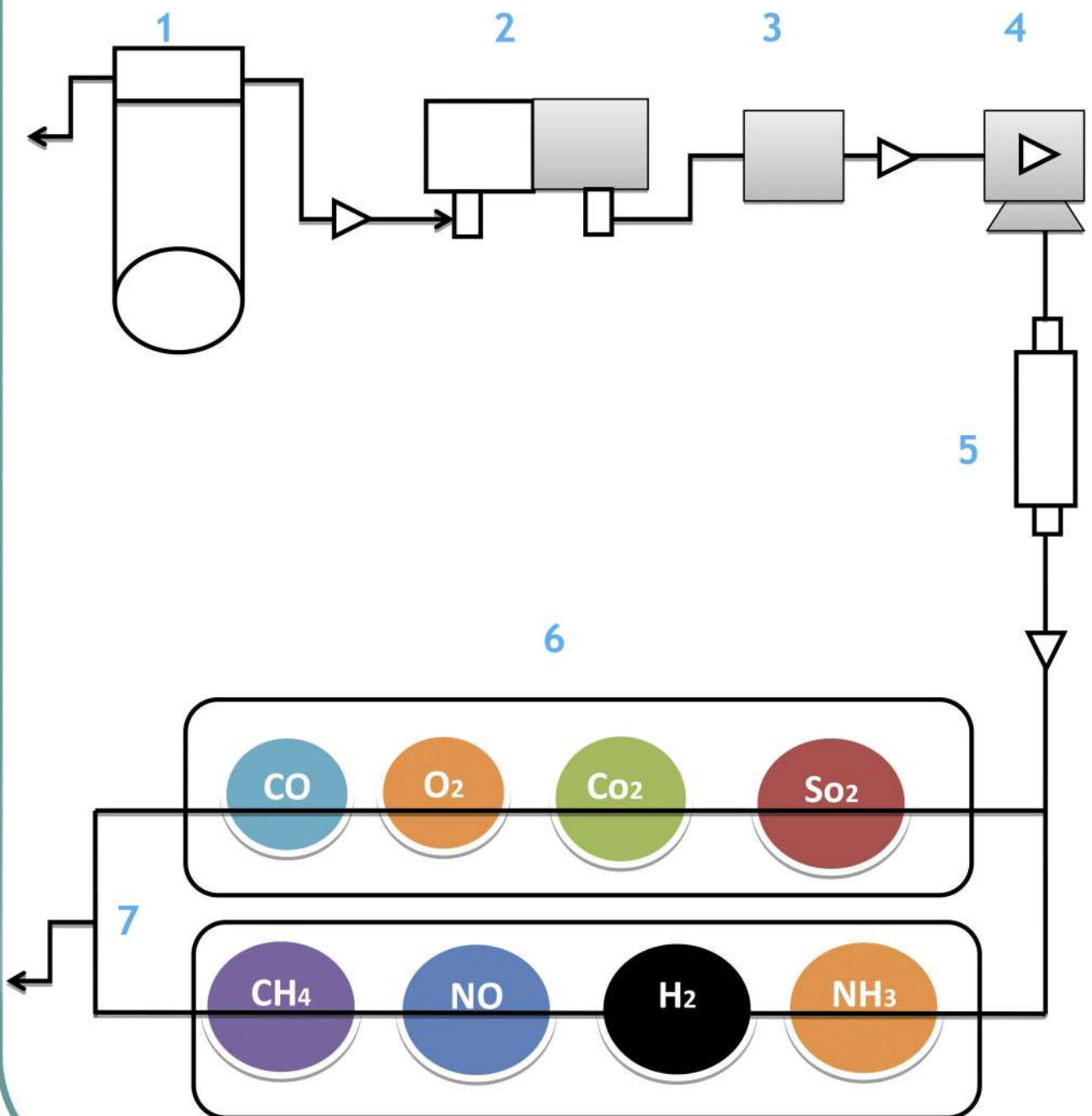
Sample Collecting or treatment: A condensate & Dust trap & a low porosity in line filter to condition the sample. Time tested, Sturdy, High suction inbuilt pump.

Proven Sensor Technology: Special purpose long life sensors with cross interface filters to achieve high accuracy. Oxygen sensor guaranteed for 4 years and other electrochemical sensor for 2 years.

Instant record of measurement data: The built-in thermal printer provides an immediate record of the measurement data. All essential information including date and time are printed.

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How the analyzer works????



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Integral sample conditioning: The gas sample is drawn into the analyzer via a sample probe and hose connected to the input connection on the front panel of the analyzer. The sample enters the water catch pot where residual water is removed. The sample gas is then passed through a 0.1 micron particulate filter. After removing water and mist or dust the sample gas is routed to the sensor manifolds.

Sensor accuracy and longevity: To maintain sensor integrity, they are purged with fresh air each time the analyzer is switched on or off. For accuracy they are calibrated on 'switch on' with ambient air.

SPCIFICATIONS

Display	full function Alphanumeric/ graphic LCD With backlight, 4 X8 matrix Liquid crystal
Sampling	Through inbuilt Auction Pump
Response time	less than 30sec
Key Pad	Tactile membrane (Integral with display) Functions keys and cursors.
Indicators	LED type for ON (Power), charging, Low batt, Faulty,
Power Supply	230 V AC, 50 Hz.
Sample flow rate	3 to 5 LPM
Data memory	1000 readings for each gas
Printer	Thermal
Alarms	Visual and Audible, 4 alarms
Digital interface	RS 232 and USB Port.
User data	4 X8 matrix Liquid crystal
Case	Rigid Aluminum
Line Filter	Replaceable 5 microns

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Optional Accessories:

- ❖ RS 232 or USB port - data transferring to the PC
- ❖ Data logging -
- ❖ Thermal Printer - for instant reading print out
- ❖ Flow measurement - flue gas velocity, flow rate
- ❖ Draft measurement - internal stack pressure
- ❖ Smoke measurement - readings to Bacharach smoke scales
- ❖ Dual Language display options - English,Hindi,Italian,Spanish

Note: Specifications and Features will vary with application. The above are established and validate during design, but are not to be construed as test criteria for every product. Due to Vasthi' s commitment to research, design and development specifications are subjected to change without notice.

**VASTHI INSTRUMENTS**

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