

Specifications of the Exhaust Emission Analyser

Item	Requirement
Operating conditions in which the system needs to work at site	
Site temperature	10 deg C to 40 deg C
Site Pressure (absolute)	90 kPa to 102 kPa
Site atmospheric Relative Humidity (RH)	Maximum 80%
Power supply (Raw & UPS) available at site	Raw/UPS: 1 phase 230 V \pm 10%, 50 Hz
Analyser Specifications	
Hydrocarbon analyzer (THC)	HFID, 0 to 60000ppm C
Hydrocarbon analyzer (CH ₄)	NMC, 0-50 to 25000 ppm C
NO _x	HCLD, 0-10 to 10000 ppm
Simultaneous Indication of THC/CH ₄	To be provided
Simultaneous Indication of NO _x /NO	Both NO _x and NO should be indicated based on selection. But, simultaneous indication of NO and NO _x is not needed.
NO _x conversion efficiency	>90 %
Non-methane cutter penetration fractions	CH ₄ penetration fraction: 85% or higher C ₂ H ₆ penetration fraction: 2.0% or less
Length of Heated line	12m with a response time less than or equal to 10s
Warming up time	3.0 hours after turning on the main power
Response Time (direct line)	<10s
Emission measurement capability	All the analyzers must have accuracy compatible with Euro 6 measurements.
Type of applicable engines/fuels	Diesel, gasoline, CNG, LPG & Ethanol, Methanol, blended fuels, BioCNG & LNG, Bio diesel, bio-gas, hydrogen
Transient Measurement	Yes
Effect of sample inlet pressure	within \pm 1.0% of full scale (inlet pressure -5 kPa to +30 kPa (as gauge pressure), as THC 100 ppmC)
Analyzer accuracy	2% of the reading or 1% of the full scale whichever is smaller
Repeatability	Within \pm 0.5% of full scale
Zero Noise	NO, NO _x : 0.02 ppm THC : 0.02 ppmC CH ₄ : 0.10 ppmC
Zero/ span drift	Zero: within \pm 1.0% of full scale per 8 hours Span: within \pm 1.0% of full scale per 8 hours (with ambient temperature fluctuation of within \pm 5°C)
Interference for NO/NO _x	CO ₂ 1 vol% : within -0.1% of NO/NO _x readings H ₂ O 1 vol% : within -0.3% of NO/NO _x readings
Interference for THC	O ₂ 0 vol% to 21 vol% : within \pm 1.5% THC readings (for C ₃ H ₈ 350 ppmC \pm 75 ppmC)
Interference for O ₂	NO 1000 ppm : 500 ppm or less
Other Settings	
Interface protocol	AK-LAN
Control unit	Separate PC with touchscreen along with latest OS and bench software or Rack mounted PC with latest OS and Software Platform
Measurement rate	Greater than 5Hz(Adjustable)
Parameter Indicators	Yes

CO (H) and CO2 Analyzer	0...0.5....12% Volume (± 2 per cent of the reading or ± 1.0 per cent of full scale whichever is smaller) 0...3....20% Vol (± 2 per cent of the reading or ± 1.0 per cent of full scale whichever is smaller)
Oxygen Analyser	Range: 0-25% (dynamic range) T_{10-90} time < 2 s Drift: < 1% FS Repeatability/reproducibility < +/- 0.5% FS
The system must have the capability to manually perform:	
<ol style="list-style-type: none"> 1. Calibration of each of the analysers in the system 2. Leak Check 3. Line Response Check 4. Interference check 	

Supplier Qualification Requirements

1. The bidder should have supplied three analysers with BS IV specifications or higher to NATRIP testing centres (National Automotive Testing and R&D Infrastructure Project) and Reputed automotive OEMs (Original Equipment Manufacturers) in the last five years. Out of the three at least two should have been supplied to NATRIP testing centres like ARAI (Automotive Research Association of India) or ICAT (International Centre for Automotive Technology) or GARC (Global Automotive Research Centre) or NATRAX (National Automotive Test Tracks) for automotive applications with BS IV capability or higher. Proof of supply has to be provided along with the technical bid without any financial items being indicated.
2. The supplier should be the sole representative of the manufacturer of the offered item in India.
3. The supplier should be able to offer complete after sales service support in Chennai with office in Chennai.
4. Warranty should be for three years, supply should be within 6 months of the PO, the rate indicated should be CIP and that the mode of payment should be specified.
5. No financial details should be specified in the technical bid. Violation will lead to disqualification.
6. Any other support systems that are needed for the functioning of the analyser but do not form a part of the analyser should be specified in the technical bid.