



MANUAL STACK MONITORING KIT

Available Model

PEM-SMK-10B

PEM-SMK-10M

Industrial stacks are the means by which an industrial plant discharges its gaseous wastes into the atmosphere. These gaseous effluents may contain pollutants which may be organic or inorganic in chemical nature and be in may be solid, liquid, or gas in physical form.

Stack Monitoring is an instrumental method or procedure for evaluating the characteristics of the emissions into the atmosphere from industrial waste gas streams. Effluent measurements and sampling procedures follow specific test methods and protocols to ensure representative and accurate emission data. Test methods are pollutant specific, sometimes industry specific and originate from a variety of sources and jurisdictions such as USEPA, CPCB etc.

Salient Features

- ✦ Portable, Compact and Light Weight
- ✦ User Friendly Control Module
- ✦ Multi-Function Electronic Unit with Digital Electronic Manometer
- ✦ Programmable For Start and Stop of Sampling Pump
- ✦ Digital Display of Stack Gas & Gas Meter Temperatures
- ✦ Electronic High Precision Gas Flow & Volume Meter for Particulate Flow
- ✦ Light-Weight Sampling Pump
- ✦ Fiber Glass Impinger Module
- ✦ Design Complies with Specifications recommended by US EPA & CPCB, New Delhi



Manual Stack Monitoring Kit can be used to take accurate representative samples of particulate matter and various gaseous pollutants such as SO₂, NO_x etc. from the stack in accordance with the methodologies developed by US EPA.

Monitoring Kit Description

Polltech manufactures two models of Stack Monitoring Kit. These models are called Model PEM-SMK-10B and Model PEM-SMK-10M. The two models are similar in most respects. PEM-SMK-10B is a battery operated instrument where as Model PEM-SMK-10M is a mains cum battery operated instruments. Model PEM-SMK-10M also includes a provision for automatic starting and stopping of the sampling pump. For accomplishing this, two modes are provided viz. timer mode and stop watch mode. In all other respects the two models are similar and are referred in the rest of this document as simply Model PEM-SMK-10.

PEM-SMK10 consists of a control module, a sampling pump and a set of standard sampling accessories. A stack gaseous sampling add-on (**Model PEM-SSCIB-1X**) with 6 glass impingers is provided as standard accessory for sampling of gaseous pollutants and determination and removal of moisture.

Control Module

The module houses a electronic gas flow and volume meter for particulate flow, one gaseous rotameter, two control valves, a vacuum gauge for meter vacuum and a multifunction electronic unit, which gives digital display of the various parameters such as stack gas temperature, meter temperature, Pitot differential pressure along with an electronic stopwatch / timer. The stopwatch /timer function can be used for auto start and stop of sampling pump when model PEM-SMK 10M is operated on mains power.

Impinger Module (Stack gaseous sampling add-on Model PEM-SSCIB-1X)

Required for gaseous sampling, consists of a thermocole-insulated lightweight, fiberglass cabinet, which is capable of accommodating 4 nos. of 125 ml capacity and 2 nos. of 250 ml capacity glass impingers. The required low temperature is maintained by keeping ice in the module

Sampling Pump

Sampling Pump is a very lightweight mono-block dry type pump with a free flow of about 100 LPM.

Standard Sampling accessories

Standard sampling accessories includes Pitot tube, thimble filter holder, thimble pipe, nozzles, stack thermo-couple and interconnecting tubes etc.

Detailed Technical Specifications

Sampling accessories

Pitot Tube	Modified S-type Pitot tube of SS 304 duly calibrated 1 Meter length *
Sampling Probe	Fabricated from SS 304 tube (ID >15 mm) 1 Meter length *
Nozzles	A set of 3 SS Nozzles (1/4", 3/8 & 1/2" bore) with sharp & tapered outer leading edge.
Stack Thermocouple	1 Meter long* K type in SS housing with 3 mtr. Cable.
Thimble Holder	Tapered design made from SS 304 / 316 for Cellulose & G/F Thimbles.
Poly-urethane Interconnection tubes	12 mm OD – 3 Nos. All tubes 3 meters long * 6 mm OD – 2 Nos. All tubes 3 meters long *
Tool kit	Containing essential tools required for assembly of Sampling Train

Control Module

Measured Parameter	Required for	Methodology	Range	Accuracy	Display	
					Mode	Device
Pitot Δp	Velocity	Pressure Sensor	200.00 mmWC (1300 mmwc onrequest)	$\pm 0.5\%$ FS	Digital	LCD Display Module
Stack Gas Gauge Pressure	Velocity, Iso-kinetic particulate sampling and Gaseous sampling					
Stack Gas Temperature						
Particulate Flow	Iso-kinetic particulate Sampling	Orifice dp measured by Pressure sensor	2-60.0 LPM	$\pm 2\%$ FS		
Sample Volume		Computed from Flow and Time	9999.9 - 9999 Liters	$\pm 2\%$ of reading		
Meter Temperature	Iso-kinetic particulate Sampling & Gaseous sampling	K Type Thermocouple	60 ⁰ C	$\pm 1^0$ C	Digital	
Meter Vacuum		Vacuum gauge	0-760 mmHg	$\pm 5\%$	Analog	Gauge
Time / Timer		Quartz crystal controlled Stop Watch/Timer	9 Hours, 59 minutes, 59 seconds	$\pm 0.1\%$	Digital	LCD Display Module
Gaseous Flow	Gaseous Sampling	Rotameter	0-6 LPM	$\pm 2\%$	Analog	Rotameter
Pneumatic Connections	Push fit unions: 2 Nos. for 6mm OD for Ptot tube and 2 Nos. for 12mm OD PU tube for sample inlet and sample outlet					
Housing	High quality, light-weight powder coated aluminum box					
Power	6 VDC from 1.5x4 dry cells or from external adaptor (110-230 V AC). 230 AC for Pump operation for SMK10M					
Dimensions	31 x 32 x 17 Cms. and Weight about 4 Kg.					

Sampling Pump

Type	Monoblock, Dry Rotary type with Graphite Vanes coupled to a1/4 H.P. Pump Motor
Motor operating supply	230 V AC, 1 Ph, suitable for 0.5 HP Motor
Free Flow & Max. Vacuum	> 95 LPM & > 600 mm Hg
Weight	About 7 Kg.

Add-Ons

PEM-SMK10 facilitates sampling for gaseous pollutants as per EPA specified methods through an add-on Standard Stack Gaseous Sampling Equipment Model PEM-SSCIB-1X. It comprises of a thermocole-insulated lightweight, cabinet, which is capable of accommodating 4 nos. of 125 ml capacity and 2 nos. of 250 ml capacity glass impingers. The required low temperature is maintained by keeping ice in the module.

Accessories

Whatman Glass Fiber Thimbles, Whatman Cellulose Filter Thimbles, Glass Impingers of various types & capacity, Pitot Tubes of various length, Sampling Probe s of various length, PU Tubes of various length, Thermocouple, of various length. Nozzles of various sizes.

Related Products

Automatic Stack Monitoring System Model PEM- SMS4

Manual Stack Monitoring Kit Model PEM-SMK-10B, PEM-SMK-10M

Digital Stack Velocity Meter Model PEM-SVM1

Heated Sampling Probes Model PEM-HGLP3, PEM-HTLP3, PEM-HSLP3

Heated Filter Box Model PEM-HFB2

Sampling Equipment for NOx, Sulfuric Acid Mist, Metal Emission, Halogen & Halides, Volatile Organic Compounds, Dioxins & Furans etc.

PM₁₀ Sampling Equipment Model PEM - STPM10-X

PM_{2.5} Sampling Equipment PEM - STPM2.5-X

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