



# APM 411TE



## APPLICATION

APM 411TE has been developed as an attachment of Dust Sampler with all needed facilities and provisions. It is a sampling instrument for monitoring of SO<sub>2</sub> and NO<sub>2</sub> in ambient air besides many other gases like H<sub>2</sub>S, Cl<sub>2</sub>, F<sub>2</sub>, NH<sub>3</sub>, Mercaptans etc. which are absorbed in aqueous medium. All fore said gases sampled at controlled constant flow rate and desired low temperatures around impingers can be maintained through out sampling period without the need to pack ice in the cold box. Provision has been made for sampling four gases at a time.

## WORKING PRINCIPAL

Gaseous sampling requires only a few LPM of air flow. In the process of gaseous pollutant monitoring, sampled air is bubbled through suitable reagents that absorb specific gaseous pollutants and the absorbing media is analyzed as per standard wet chemical methods. The impingers temperatures can be maintained lower than the atmospheric temperature by using thermo-electric cooling.

## TECHNOLOGICAL ADVANCEMENT

The APM 411TE uses Peltier effect solid-state heat pump units having no moving parts to keep the impingers upto 25°C below ambient temperature. This means that even in peak summer when outdoor temperature goes above 40°C Impingers placed in the APM 411TE will remain at 15°C. A built-in thermostat constantly monitors the cold box temperature and ensures that absorbing solutions are maintained within +/- 1°C of the set point. Envirotech has specially designed the cooling system to provide effective cooling at the point of use via a cold-plate that surrounds the bottom portion of each impinger.

The APM 411TE is thus able to attain desired temperature within a few minutes of powering-on of the system. Filter and improved valve design maintain constant sampling rate. In APM 411TE special silica gel filter columns have been added in the outflow path of each impinger and the needle valve design has been modified to eliminate the deposition of the particulates in the valve units Which controls the flow rate, that escaped through the bubblers.

## NEED

Normally ice is used to keep to temperature of absorbing solution low during sampling of gaseous pollutants. But, arranging ice at all the times during the course of sampling sometimes becomes difficult and its availability at remote places may not be ensured. In APM 411TE gaseous sampling attachment cooling around the impingers is done thermoelectrically. It uses a heat pump unit based on Peltier effect with no moving parts which brings the temperature around the impingers down to 15±3°C thus, eliminates the requirement of ice and makes the monitoring work easier. All other features of the attachment are similar to APM 411.



# APM 411TE



## FEATURES

- Thermo-Electric Cooling system keeps impingers at a cool temperature of 15°C even when ambient temperature is 40°C or above.
- Focused cooling for rapid and efficient cooling.
- Special Silica-gel filter tubes to remove entrained particulates & moisture.
- Improved valve design maintains constant flow rate.
- Four 35ml Impingers Can Be placed in The cooled Ice Tray.
- Short term power failure do not influence cold box temperature where impingers are kept.
- Cabinet is lockable and sturdy.
- Cabinet can be hooked on the body of RDS or it can be kept on the ground.

## SPECIFICATION

Flow Rate Range	0.2 to 2 LPM, accuracy : 2% of span. Least count 0.05 LPM
Flow Control	Four inlet and one outlet with built in needle valves for flow control of each impinger.
Sampling Train	4 Nos. of 35ml Borosilicate glass impingers.
Size	240 x 125 x 350mm(H)

**1**  
**Year**  
**Warranty**

\*Specifications are subject to change without any prior notification



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