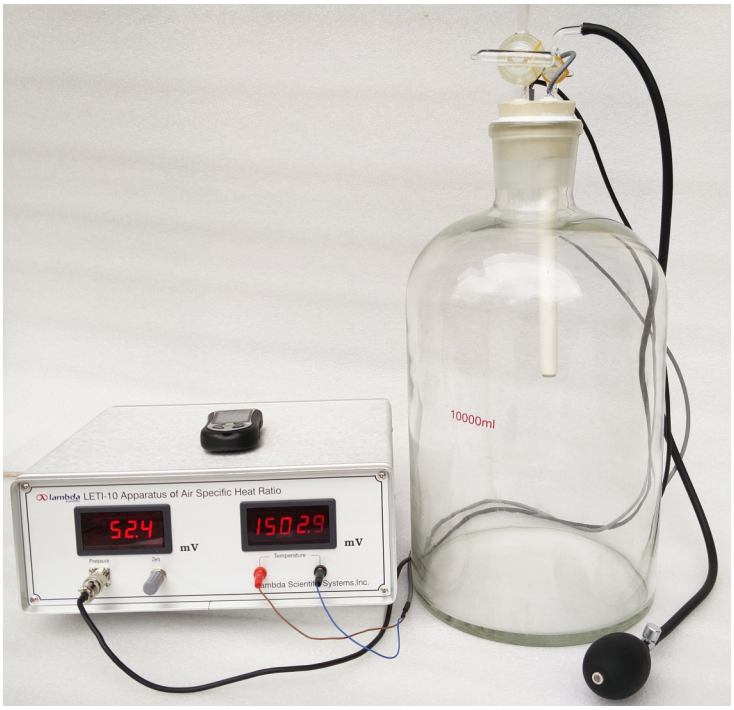
Construct, Conduct & Comprehend Physics Experiments

LETI-10 Apparatus of Air Specific Heat Capacity Ratio



- *Simple structure*
- *High performance*
- *Stable and reliable*
- *Affordable*

Air specific heat ratio (adiabatic index) measurement is an important experiment in general physics at universities. Traditionally, gas specific heat ratio is measured by using an open u-shaped mercury or water manometer for gas pressure measurement, and a mercury thermometer for temperature measurement.

This apparatus uses a diffused Silicon pressure sensor to measure gas pressure and an integrated temperature sensor to measure temperature, leading to higher accuracy and sensitivity. It has obvious thermodynamic phenomenon. Experimental error is less than 3% as compared to the standard value. Using this apparatus, students can learn the principle and applications of an advanced Silicon pressure sensor.

Experimental Contents

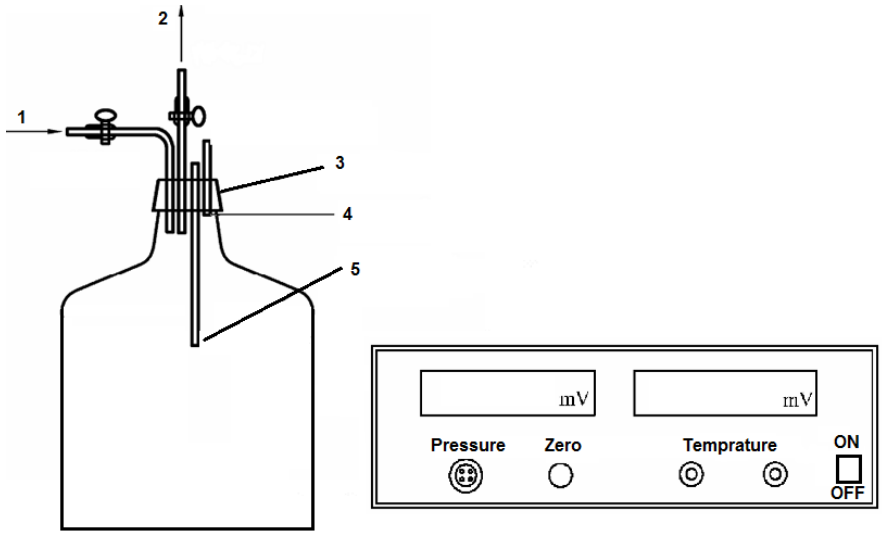
1. Measure the air specific heat capacity ratio at constant volume and constant pressure.
2. Observe thermodynamic process of air.
3. Learn how to measure gas pressure and temperature.

Specifications

Digital voltmeter	3-1/2 digits: pressure measurement; 4-1/2 digits: temperature measurement
Pressure sensor	diffused Silicon; range: 0-10 kpa; sensitivity: 20 mV/kPa
Temperature sensor	sensitivity 1 μA/degree Celsius

Part List

Main Unit	1
Pressure Sensor	1
Plastic Tube for Temperature Sensor	1
Connection Wire	2
Rubber Air Ball	1
Rubber Tube	1
Glass Bottle	1
Manual	1



1. Inlet Valve 2. Outlet Valve 3. Sealant 4. Pressure Sensor 5. Temperature Sensor

Schematic of system

Note: above product information is subject to change without notice.

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