



CASSIA

ABBE REFRACTOMETER R-8

- Determines Refractive Index & dispersion properties of solids & liquids
- Single eye piece for reading scale & viewing the demarcating shadow
- Horizontal prism for easy application of test samples
- Compact lighting system for both prism box & scale illumination
- Digital Thermometer for reading prism temperature
- Water jacketed prism box
- R.I. Scale : 1.3000 - 1.7100, Accuracy: 0.001 or 0.0005 (Direct Reading)
- Sugar Scale : 0.95%, Accuracy: 0.5% (Direct Reading)



ABBE REFRACTOMETER R-4

- Improved optics and eyepiece for accurate measurement
- Both refractive index & sugar scale
- Water jacketed prism box
- Digital thermometer for measurement of prism temperature
- Two eyepiece for reading scale and viewing demarcation shadow
- R.I. Scale: 1,3000 - 1.7000, Accuracy: 0.001 (direct reading), 0.0001 (by estimation)
- Sugar Scale : 0.95%, Accuracy : 1% (direct reading)



BUTYRO REFRACTOMETER R-7

- Specially designed for Dairy Industry
- Both refractive scale & sugar scale
- Built-in Temperature Compensator for sugar scale
- No need for calculating temperature corrections
- Water jacketed prism box allows the circulation of water at constant temperature
- Sugar Scale : 50% - 80% with temperature compensator
- Oil Scale : 0-100, Accuracy: 0.1



AUTOMATIC REFRACTOMETER DG-NXT

- Fully automatic measurement of refractive index, brix & custom built scales
- Automatic temperature compensation of brix
- Stainless steel sample well
- Powerful feature of user creating their own scales like Salinity, Coolants etc.
- Built-in Thermistor for accurate prism temperature measurement
- Serial port for computer connectivity and printouts
- Works on both battery and mains supply
- R.I.: nD1.3330 - 1.5318, Accuracy: ± 0.0002
- Brix Scale: 0.95%, Accuracy: $\pm 0.1\%$



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AUTOMATIC REFRACTOMETER DG-ERT

- Low cost, High accuracy
- Designed specially for field use
- Simple operation with 2 keys
- Dust proof pism cover
- Automatic temperature compensation
- Stainless steel sample well
- Operating temperature : 0-40°C
- Power supply: 1.5V Alkaline Battery
- R.I.: nD 1.333-1.5318, Accuracy: +0.0003
- Brix: 0-95%, Accuracy: $\pm 0.2\%$
- Immediate Result
- Auto Shut off after 30 Sec.



POCKET REFRACTOMETER PR

- Extremely easy to use & requires no maintenance
- Designed for field use and are very common amongst agriculturist & scientists alike.
- Measures the concentration of an aqueous solution
- High repeatability & excellent reproducibility
- Clear defined boundary line
- Simple handling to get pin point accuracy
- Solid and durable construction
- Anti roll characteristics
- Brix: 0-10%, 0-32%, 0-50%, 28-62%, 40-85%, 58-92%, 0-100% salinity & 1.000-1.070 specific gravity for serum & protein



AUTOMATIC POLARIMETER

- Fully automatic readout of
 - Optical rotation
 - Specific rotation
 - Concentration
 - International sugar scale
- Large multi functional LCD display
- Easy interactive setup menu
- RS-232 / USB Output port
- Automatic calculation of average value and repeatability factor
- Tungsten lamp light source with filter
- Angular Scale: -45° to $+45^{\circ}$, LC: 0.001°
- Sugar Scale $+130^{\circ}$ to -130° ISS
- Minimum Transmission : 1%



POLARIMETER - 220 MM

- Measurement of optical rotation
- Extremely sensitive half/triple shadow system
- Tropicalised sealed optics for operation in extreme conditions
- Components made of Gunmetal, Brass, Aluminium & Stainless Steel to ensure high accuracy and trouble free service
- High accuracy & repeatability
- Angular Scale: 0-360°, Accuracy: 0.01°
- ISS: $+130^{\circ}$, Accuracy: 0.05°



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POLARIMETER / SACCHARIMETER - 400 MM

- Extensively used in Sugar Mills, Pharmaceuticals, fragrance industry etc.
- Specially developed optics for high accuracy measurement in 400 mm sample tubes
- Extremely sensitivity triple shadow system
- Tropicalised sealed optics for operation in extreme conditions
- Components made form Gun metal, brass & stainless steel to ensure high accuracy trouble free operation
- Angular Scale: 0-360°, Accuracy: 0.01°
- ISS: $\pm 130^\circ$, Accuracy: 0.05°



INFRARED MOISTURE BALANCE

- Determines moisture in pharmaceuticals, food and dairy products, chemical, soils, plastics wheat and flour etc.
- Direct reading of percentage moisture
- Best quality auto transformer (variac) for long life & improved temperature control
- Available in 5gms, 10 gms & 25 gms capacity models to suit individual requirement
- Optional quartz heating system for quick & uniform drying
- Scale: 0-100%, Accuracy: 0.2% (Direct reading)



DIGITAL MOISTURE BALANCE WITH BUILT-IN PRINTER

- Automatic detection of percentage moisture
- Accuracy 0.01%
- Built-in Printer for recording reading
- Quartz Heating Systems
- Highly accurate and stable PID based Temperature Controller
- Auto detection of complete drying
- Auto End-of-Experiment detection



MICROWAVE ONLINE MOISTURE MEASUREMENT SYSTEM

- Latest Microwave technology for online determination of moisture in powders / slurries
- Measurement can be made for material flowing on conveyor belts or in soils
- Features a user replaceable measuring head
- High accuracy & repeatability



DIGITAL BOMB CALORIMETER

- Determination of calorific values of oil, coal, food stuffs etc.
- Calorimeter jacket & inner vessel made of bright chrome plated copper
- Patented push fit type of new gas filling system with teflon hose
- Improved Digital temperature indicator with integrated firing unit & Built-in printer
- New soft control fine regulating valve with replaceable teflon tip
- New electronically regulated compact stirrer
- Bomb tested at a pressure of 300atm as per IP standards
- Safety relief valve to prevent over charging.



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EXPIROGRAPH

- Determines tidal volume, forced expiratory volume, maximum
- Breathing capacity, respiratory rate, oxygen uptake
- The bell movements are recorded on a flat kymograph with selectable recording speeds of 60mm / minute or 1200mm / minute
- Most reliable, simple and very accurate testing of all pulmonary function

DIGITAL ABBE REFRACTOMETER MODEL R-9

- Measurement of refractive index of transparent liquids and solids
- Measurement of the brix of sugar solution
- Measurement range-refractive index n_D : 1.3000-1.7000, dissolved solids brix: 0-95%
- Accuracy-refractive index n_D : 0.0002, Brix: 0.1%
- Visual aim and LCD display
- Automatic temperature compensation for brix scale
- Prism made of hard glass
- Serial interface for data print-out

AUTOMATIC BOMB CALORIMETER

- Fully automatic measurement of calorific value
- Finds extensive application in cement, paper & power generation industries
- Two measurement modes
Quick - 5 minutes
Normal - 8 minutes
- Temperature resolution 0.0001°C
- Semi conductor refrigeration and heating
- High efficiency magnetic stirrer
- Adopts advanced PCI technology
- Windows compatible

FULLY AUTOMATIC SULPHUR ANALYSER

- Coulometric principle for sulphur determination
- Upto 24 samples can be tested at a time
- Sulphur testing resolution 0.001%
- Testing time : 5 min per sample
- Furnace temperature 1150°C
- Adopts advanced PCI technology
- Windows compatible

ASH FUSIBILITY ANALYSER

- For measurement of Ash fusibility in coal ash
- Used high resolution CCD camera to collect graphic of Ash cone
- upto 3 sample can be loaded at a time
- Furnace temp range 1520°C
- Displays real time graph of ash configuration change
- Adopts advanced PCI technology
- Windows compatible

AUTOMATIC PROXIMATE ANALYSER

- Integrated with high precision electronic scale using thermogravimetric principle
- Tests 11 samples in every experiment
- Also measures air dry basis moisture, ash & volatile constituents
- Adopts unique integrated configuration of “Three grade double furnace”
- Uses advanced heating elements and heat insulators
- Data collection, calculation and printing done automatically by computer
- Adopts advanced PCI technology

INTEGRATED HYDROCARBON TESTER

- Hydrogen measured using colorimetry principle
- Carbon measured using Gravimetry principle
- Integrated configuration ensures simple & convenient operation
- Unique circulation gutter for cooling
- Electrolytic polarity switched automatically to prevent cathode mud
- Supply voltage adjusts automatically to balance with electrolytic voltage change.
- Unique gutter circulation for instrument cooling

AUTOMATIC MICROWAVE MOISTURE ANALYSER

- For measurement of moisture coal, heavy oil, carbon etc.
- Computer controlled sample weighing determination of evaporated moisture
- Upto 13 samples can be checked at a time both fast & normal measurement methods
- Optional Microwave power control, infrared heating control and timers available
- Adopts advanced PCI technology
- Windows compatible

SPECTROPHOTOMETER

- Single beam / double beam UV / VIS scanning spectrophotometer
- Large LCD display
- Self calibration and automatic filter selection
- RS 232 Port
- Wavelength range: 190 nm - 1100 nm
- Spectral bandwidth : 5nm / 2 nm



COLORIMETER

- Designed for easy operation with a durable performance, powerful functions
- Allows quick, accurate, economical measurement in routine analysis
- Its optical system consists of the lamp, heat-absorption filters, lens and diaphragm.
- They are extensively used in laboratory and other scientific fields
- Wavelength Range : 420 - 660 nm
- Filter : 420, 470, 530, 620, 660 nm





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OMEC PARTICLE SIZE ANALYSER

- Used to measure the particle size distribution of powder, suspensions or spray, cement particle distribution
- Particle size distribution table & graph, average diameter, median diameter, boundary diameter and SSA
- Measuring range : 0.5-300
- Repetitive precision : 3% (D50)
- Detector number: 40
- Light source: He-Ne laser, power 2mW, wavelength 0.6328
- Software circumstance: Windows 92, Widows Me
- Figuration size: 1000 (L) x 350 (W) x 250 (H) mm

DIGITAL THERMOMETER (OPTIONAL)

It is very handy and can be connected to the Abbe refractometer for temperature measurement and wide range of other applications. Temperature measurement is done by a special silicon sensor which is protected by a stainless steel tube. This operates on a standard 9 volt battery.

Temperature Range: -55°C to +150°C

Resolution : 0.1 degC

Accuracy: $\pm 0.2^\circ\text{C}$, + 1 digit from -15°C to +125°C

Accuracy in other range: $1^\circ\text{C}/\pm 1$ digit

- Dual graduations of refractive index & brix percentage
- Measurement of dispersion of liquids with conversion table
- Water jacketed prism box which can be connected to circulating thermostat for temperature maintenance
- Employs both day light & artificial light system
- Compensator to compensate for dispersion in the medium under test.

ADVANCE DIGITAL REFRACTOMETER

DG-ERT

- Large measuring range of refractive index and brix
- High accuracy and repeatability
- Suitable for field use
- Automatic temperature compensation of distilled water and brix
- Auto shut off after 30 seconds
- Immediate readings
- Stainless steel sample well
- Operating temperature: 0-40°C
- Easy to use 3 keys
- Dust proof prism cover
- Calibration using distilled water

Technical Specifications

Refractive Index: nD 1.3330 to 1.5318

Resolution: nD 0.0001

Accuracy: nD ± 0.0003

Brix: 0-95%

Resolution: 0.1%

Accuracy: $\pm 0.2\%$

Automatic Temperature Compensation: 5°C to 40°C

Power supply : One 1.5V Alkaline battery

Battery Life: Upto 8000 tests

ADVANCE AUTOMATIC REFRACTOMETER

DG-NXT

- Fully automatic measurement of refractive index, brix and custom built scales
- Easy measurement of highly coloured, dark, viscous and difficult to measure liquids
- Extremely powerful feature allows users to define & easily create their own scales like salinity, coolants etc.
- Automatic Temperature compensation of Brix and distilled water
- Serial port for computer connectivity and printout of readings
- Measurement using high accuracy advanced CCD Chip

Technical Specifications

Refractive Index: nD 1.3330 to 1.5318

Resolution : nD 0.0001

Accuracy: nD \pm 0.0002

Brix: 0-95%

Resolution: 0.1%

Accuracy: \pm 0.1%

Automatic Temperature Compensation: 5° C to 40°C

Serial port with software (optional)

Power Supply: Both mains (thru adaptor) and battery

Battery Life: Upto 5000 tests

AUTOMATIC DIGITAL POLARIMETER

- Fully automatic readout of
 - Optical Rotation
 - Specific Rotation
 - Concentration
 - International Sugar Scale
- Large Multifunctional LCD display
- Easy Interactive setup menu
- RS-232 / USB Output Port
- Automatic Calculation of Average value and repeatability factor

Technical Specifications

Specification	Sucropol	POL:PS
Angular Scale	\pm 45°	\pm 45°
Least Count (Angular Scale)	0.001°	0.001°
Repeatability (Angular Scale)	\pm 0.035°	\pm 0.035°
International Sugar Scale	\pm 130°Z	\pm 120°Z
Repeatability (ISS)	+ 0.1°Z	+ 0.1°Z
Minimum Transmission	01% (can measure dark places)	10%
Light Source	Tungsten lamp with filter	Sodium lamp
Computer Connectivity	USB Port	Serial port
Display	Extra Large Multifunctional LCD Display	LCD Display
Displays	Angular Rotation, Specific Rotation, Concentration, International Sugar Scale	Angular Rotation, Specific Rotation, Concentration, International Sugar Scale
Calculation	Average Value, Repeatability Factor	Average Value, Repeatability Factor
Power Supply	230V, 50Hz	230V, 50Hz
Nett Weight	35 kg	30 kg
Gross Weight	45 kg	40 kg

INFRARED MOISTURE BALANCE FOR MOISTURE IN MINUTES-IN SOLIDS, POWDERS & GRANULES

- Direct moisture readings to 0.2%
- High accuracy & repeatability
- Simultaneous drying weighing
- Controlled heat output
- Portability
- Fast & Easy 2-step operation
- Quartz heating system
- Locking facility to prevent torsion wire breakage
- Operation with either solid state control (Standard model) or Auto transformer (Deluxe Model)

Fast and Accurate Determination of Moisture in these products

Pharmaceuticals - Non-fat milk powder - Dry milk - Soyabean products - Fertilizer - Corn Products - Plant seeds - Chemicals - Leather - Fibre - Resins - Paper - Pulp - Soap & Detergents - Food products - Ceramic powder - Clays - Paint Pigments - Raw meat - Dextran - yeast - Plastics Lactose - Cotton - Soil etc.

The instrument consists of a 250 watt infrared lamp / quartz heating system, a sensitive torsion balance and a temperature control all housed in a compact cabinet made of aluminium having robust design. The infrared radiation from the lamp / quartz. Tube is used for heating the sample. The quartz heating system provides extremely uniform heating of the sample with deeper heat penetration and minimum heating time as compared to infrared lamp. The temperature is controlled by the solid state control in standard model & auto transformer in deluxe model. The sensitive torsion balance uses magnetic damping to damp the vibrations of the pan. The instrument is directly calibrated in percentage of moisture between 0% & 100%. It is available in following models to suit individual requirements.

- **The model 'A' uses approximately 5 gms. of the material:** For applications in pharmaceuticals, light powders, chemicals, detergents etc.
- **The model 'B' uses approximately 10 gms. of the Material :** For Grains, Rice, relatively heavy grained products etc.
- **The Model 'C' uses approximately 25 gms. of the Material :** For coal, cashewnuts, sand, agricultural soils etc.

Deluxe Model

Deluxe model infrared moisture balance is supplied with best quality material and an auto transformer is used for temperature control

The balance is supplied complete with

- One dozen disposable pans
- Pair of forceps
- Instruction manual

Power Requirement

230 Volts, 50 Hz (A.C. Mains 250 Watts)

Accessories at extra cost

1. Automatic timer with alarm (Cat No. M-3/1). This timer unit gives a continuous buzz after turning the infrared lamp off after specified time.

ADVANCE ABBE REFRACTOMETER

Model R-8

- Single eye-piece for reading the scale & viewing the demarcation shadow
- Completely sealed optics for operation in tropical regions and extreme operating conditions
- Dual graduations of refractive index & brix percentage
- Measurement of dispersion
- Horizontal prism for easy application of test samples
- Water jacketed prism box which can be connected to circulating water bath for temperature maintenance
- Compensator to compensate for dispersion in the medium under test
- Compact lighting system for both prism box & scale illumination

DIGITAL TEMPERATURE INDICATOR (OPTIONAL)

Refractive index measurements are highly dependent on temperature. The digital temperature indicator is a compact and rugged system for easy and accurate determination of prime temperature. It is specially useful when temperature of the samples have to be accurately noted while refractive index is being measure. The PT-100 probe gives a resolution of 0.1C with a repeatability of 0.5C. The temperature is displayed on a bright LED or LCD display and the unit operates on 220 Volts AC. An intensity controller is built in the indicator panel to control the intensity of the prism box illuminator

COMPACT ILLUMINATION (OPTIONAL)

The new ultra compact lighting arrangement for Abbe refractometer Model R - 8 eliminates the tedious process to arrange for an external light source to read the scale & view the demarcation shadow. Built-in illuminators are provided for reading the Scale and viewing the shadow. The intensity controller allows the user to adjust the intensity of the Prism Box illuminator to get a sharp and well defined demarcation shadow.

(Accessories shown on the front page may not form part of standard supply.)

DIGITAL BOMB CALORIMETER WITH NEW EASY FIT GAS FILLING SYSTEM AND INTEGRATED CONTROLLER WITH PRINTER

- Bomb body and lid are fabricated from corrosion-resistant stainless steel alloy
- Extremely easy to use push fit type gas filling system, first time in India
- Each bomb tested at a pressure of 300kg/cm² for 10 minutes
- Calorimeter vessel & water jacket made of chromium plated copper
- Safety relief valve for user safety
- New soft control fine regulating valve with built-in pressure gauge
- Latest design compact stirrer for customer convenience and to minimize heating effect
- New digital temperature indicator with built in printer.
- High mechanical standard & easy controls
- Accurate, reliable & user friendly

Operational Requirements

Temperature controlled room

Weighing balance of accuracy 0.1 mg

Distilled water 2.5 liters approx

De-mineralised water 20 litres approx

Oxygen cylinder 99.95% pure

To be kept away from windows and heat generating sources like ovens etc.

Areas with strong electric-magnetic interference should be avoided.

Power supply: 200V AC., 50Hz.