

POL-200 Semiautomatic Polarimeter

# Instruction Manual



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## Introduction

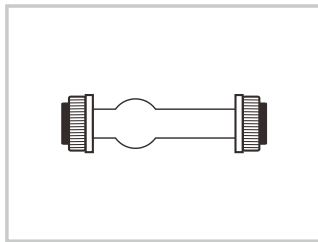
Thank you for selecting the POL-200 semiautomatic polarimeter. This manual provides a step-by-step guide to help you operate the instrument, please carefully read the following instructions before use.

## Unpacking

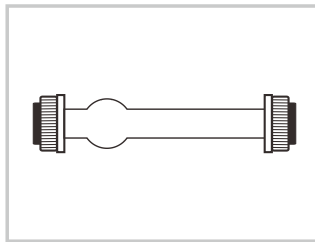
Before unpacking, ensure that the current work environment meet following conditions.

- Ambient temperature is greater than 0°C and less than 50°C.
- No potential electromagnetic and ambient light interference.

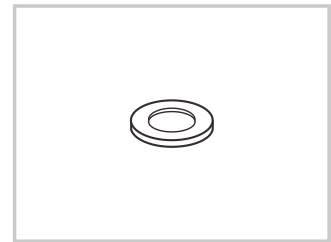
The following list describes the standard accessories of the polarimeter. After the unpacking, please check all accessories are complete. If any are damaged or missing, please contact nearest distributor.



Test tube 100mm



Test tube 200mm



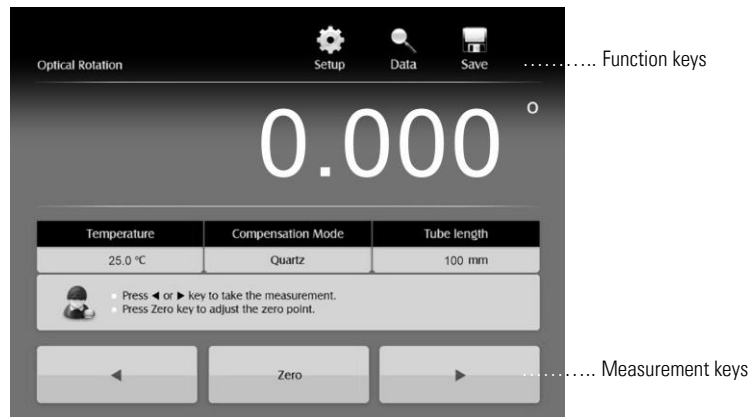
Sealing rings

## Switching the Polarimeter On and Off

- Plug in the power supply and press the **On/Off** key to switch on the polarimeter, the display shows "Wait for light source to stabilize". After a few seconds, the default measurement interface shows on the screen.
- Press the **On/Off** key again, the polarimeter will automatically switch off. Note, DO NOT pull out the power plug from the power source if the instrument does not completely switched off, that may cause the zero-point offset.

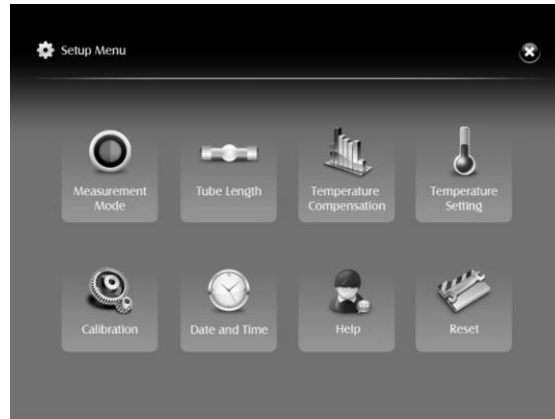
## Display

The POL-200 semiautomatic polarimeter is equipped with the 5.6 inch touch screen that used to show measured values, function keys and help message. In the measurement and setting modes, the instrument will show different user interfaces.



## Setup Menu

The polarimeter contains an integrated setup menu that is used to customize the displayed option to meet measurement requirements. Selectable parameters include the following options.



### INDEX:

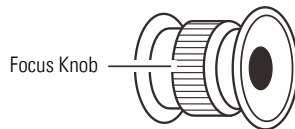
PARAMETER	OPTION	DESCRIPTION
Measurement Mode	<ul style="list-style-type: none"> <li>• Optical Rotation</li> <li>• Specific Rotation</li> <li>• Concentration</li> <li>• International Sugar Scale</li> </ul>	Select the measurement mode.
Tube length	<ul style="list-style-type: none"> <li>• 100mm</li> <li>• 200mm</li> <li>• Custom</li> </ul>	In the custom option, acceptable setting ranges from 0.0 to 220.0mm.
Temperature Compensation	<ul style="list-style-type: none"> <li>• Enable (Default)</li> <li>• Disable</li> </ul>	Temperature compensation allows the instrument to run at ambient temperature but produces readings as if the system was running at 20°C. In the specific rotation, concentration and sugar degrees modes, the instrument will automatically enable this function.
Concentration	---	Set the concentration of sample for measurement of specific rotation.
Specific Rotation	---	Set the specific rotation of sample for measurement of concentration.
Temperature Setting	0.0 to 100.0°C	Calibrate the temperature.
Calibration	1 to 3 points	Using the standard tubes to calibrate the polarimeter.
Date and Time	---	Set the current date and time.

### Setting the option or parameter

1. Tap the **Setup** icon to enter the setup menu, select a parameter you want to set.
2. Tap the ◀ or ▶ key to select an option or the numeric keys to enter the setting value.
3. Tap the **Enter** key to confirm. Setting is completed.

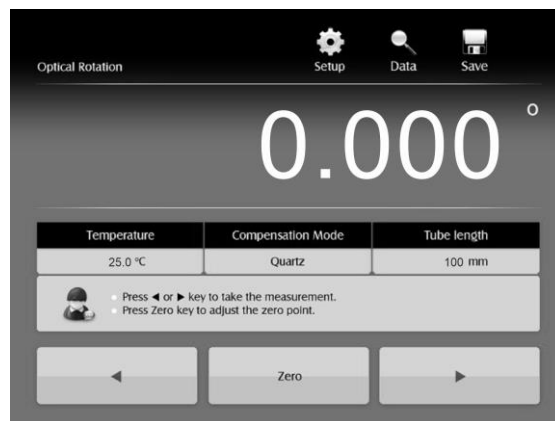
### Prior to Use

Rotate the focus knob on front panel until visual field became legible.



### Zero Correction

1. Take a clean empty tube and place into the sample chamber.
2. If the visual field appears the differences in apparent brightness, tap the **Zero** key to enter the zero-point correction mode.



3. Tap the ◀ or ▶ key to adjust the instrument until the visual field appear the uniform brightness.

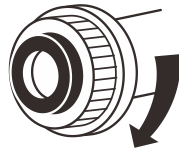


4. Tap the **Enter** key to confirm, the instrument will automatically return to the measurement mode. Zero-point correction is completed.

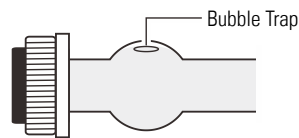
## Measurement

The POL-200 semiautomatic polarimeter is capable of selecting the four measurement modes, including the optical rotation, specific rotation, concentration and International Sugar Scale. Tap the **Setup** icon to enter the setup menu, then tap the **Measurement Mode** icon to select desired measurement mode.

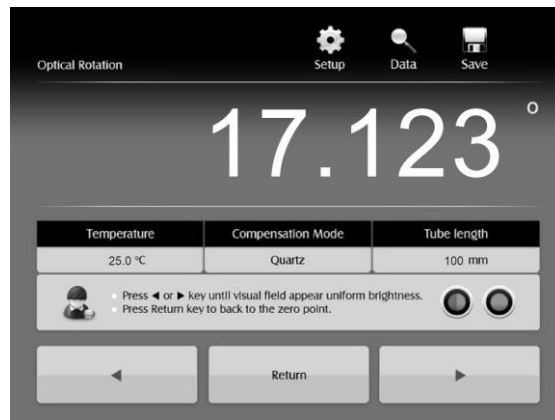
1. Take out the test tube from sample chamber. Unscrew the cap, remove the sealing ring and glass disc.



2. Rinse the test tube thoroughly with distilled water.
3. Pour sample solution into the test tube, then screw on the test tube cap. Wipe away the drops of water on glass disc.
4. If necessary, collect all air bubbles into the bubble trap.



5. Place the test tube into the sample chamber. Note, the bubble trap is upward.
6. Tap the ◀ or ▶ key until the visual field appears uniform brightness. Record the measured value.



7. Tap the **Return** key, the instrument will automatically return to the zero-point. Measurement is completed.

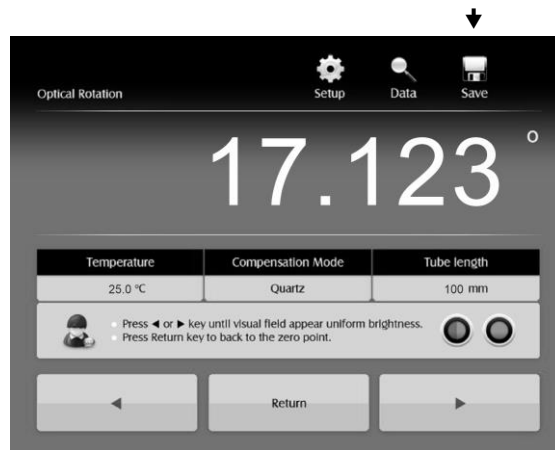
ⓘ Press and hold the ◀ or ▶ key for 8 seconds, the instrument will start the auto-run mode. Tap the ◀ or ▶ key again, the instrument stops running.

## Storing and Recalling Data

The POL-200 semiautomatic polarimeter is capable of storing and recalling up to 100 data sets.

### Storing data into memory

1.1 During the measurement process, tap the **Save** icon, the screen shows a dialog box and waits for entering the sample name.

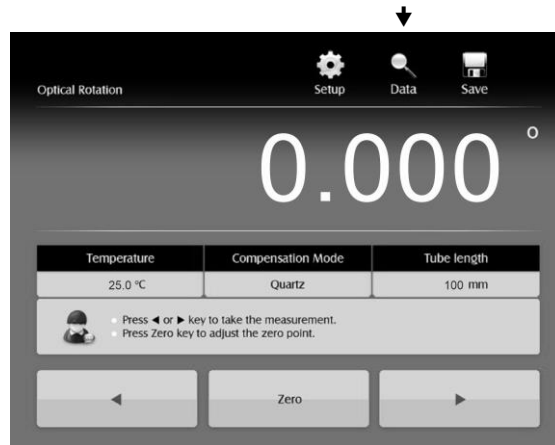


1.2 The default sample name is SAMPLE. If you need to modify, tap the ◀ key, then tap the letter keys to enter the new sample name. Tap the **Enter** key, the measured value will store into the memory.

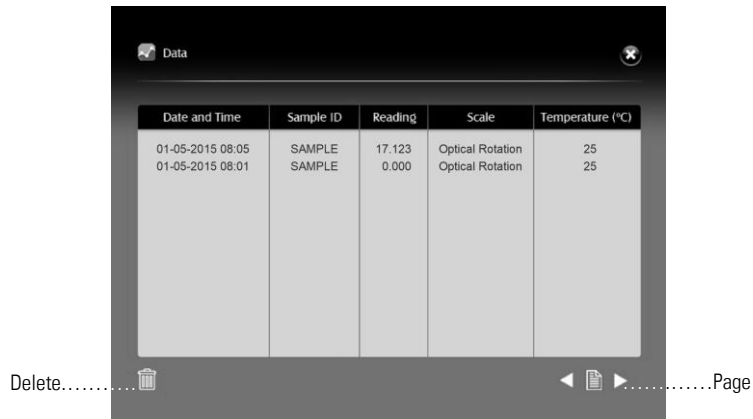


## Viewing stored data

2.1 Tap the **Data** icon in the measurement mode, the screen shows the stored measured values.



2.2 Tap the **Page** key, the screen will toggle to next page.



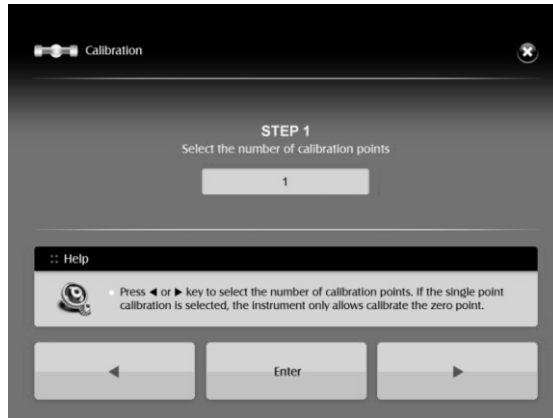
2.3 If you need to delete stored data, tap the **Delete** key.

**WARNING:** Once the data are deleted that cannot be recovered.

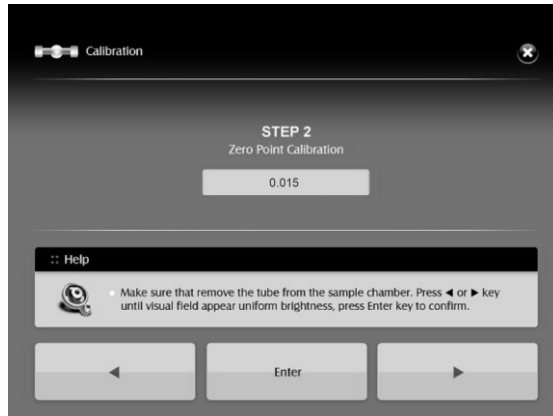
## Calibration

The POL-200 semiautomatic polarimeter allows 1 to 3 points calibration, but calibration is not necessary unless the measured value appeared serious deviation.

1. Tap the **Setup** icon in the measurement mode, the screen shows the setup menu.
2. Tap the **Calibration** icon, the instrument enters the calibration mode.
3. Follow the displayed guides to select the number of calibration points, tap the **Enter** key to confirm.

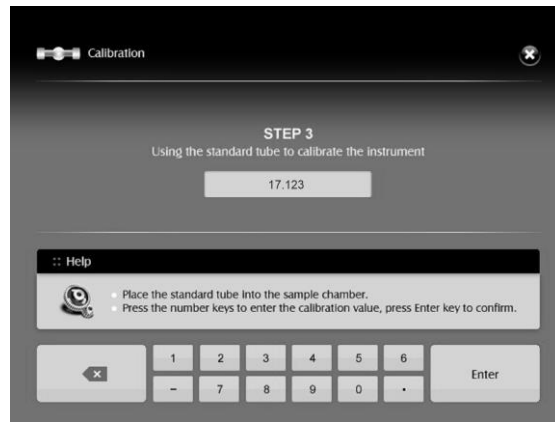


4. Make sure that remove the test tube from the sample chamber. Tap the ◀ or ▶ key until the visual field appears uniform brightness, tap the **Enter** key to confirm. Zero-point calibration is completed.





- Place the standard tube into the sample chamber, tap the numeric keys to enter the calibration value, tap the **Enter** key to confirm.

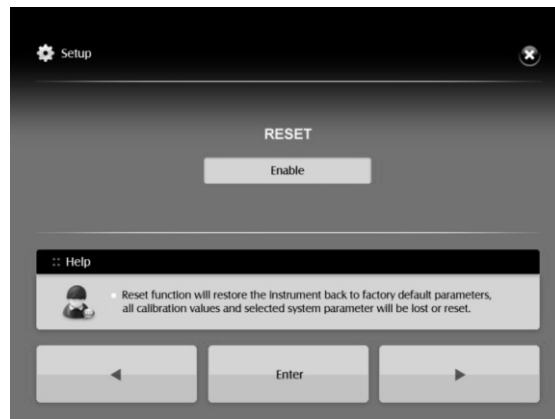


- Tap the ◀ or ▶ key until the visual field appear uniform brightness, tap the **Enter** key to confirm. The instrument automatically returns to zero-point.
- If you have selected multi-point calibration in setup menu, repeat the steps above until the screen shows "Calibration is completed". The instrument will automatically return to the measurement mode. Calibration is completed.

## Restore Factory Settings

NOTE, Reset function will restore the polarimeter back to factory default parameters, all calibration values and selected parameters will be lost or reset.

- Tap the **Setup** icon to enter the setup menu.
- Tap the **Reset** icon, then tap the ◀ or ▶ key to select the "Enable".
- Tap the **Enter** key to confirm.



## Specifications

Model	POL-200
Measurement Modes	Optical Rotation, Specific Rotation, Concentration, International Sugar Scale
Range	$\pm 90^\circ$ , $\pm 130^\circ Z$
Accuracy	$\pm 0.02^\circ$ , $\pm 0.05^\circ Z$
Resolution	0.005°
Calibration Points	1 to 3 points
Light Source	LED, interference filter
Wavelength	589nm
Test Tube Length	50/100/200mm
Memory	Stores up to 100 data sets
Output	USB communication interface
Display	5.6 inch TFT touch screen
Power Requirements	AC220V/50Hz
Dimensions	550 (L) × 300 (W) × 220 (H)mm
Weight	7.5kg

### **Hazardous Substance Statement**

Bante Instruments is committed to the reduction and eventual elimination of all hazardous substances in both the manufacturing process and finished products we supply. We have an active manufacturing and procurement program to minimize and eliminate the use of harmful heavy metals such as cadmium, lead, mercury and the like. New technologies and design parameters are also promoting these efforts and we expect to have little or no such materials in our product in the coming years. We welcome our customer suggestions on how to speed up these efforts.



### **Warranty**

The warranty period for polarimeter is two years from the date of shipment. Above warranty does not cover the light source. Out of warranty products will be repaired on a charged basis. The warranty on your polarimeter shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer.
- Unauthorized modification or misuse.
- Operation outside of the environment specifications of the products.

For more information, please contact the nearest authorized distributor.