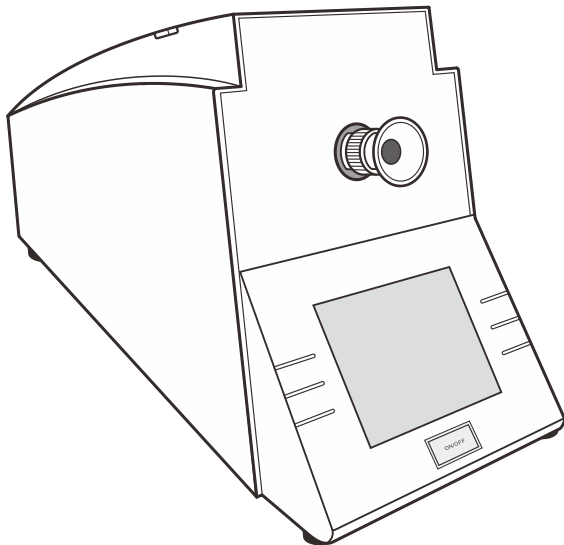POL-200 Semiautomatic Polarimeter

USER MANUAL

Introduction

Thank you for selecting the POL-200 semiautomatic polarimeter. This user manual provides a step-by-step guide to help you operate the instrument, please carefully read the following instructions before use. Any use outside of these instructions may invalidate your warranty and cause permanent damage to the instrument.
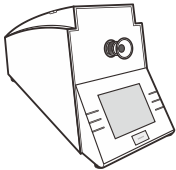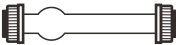
Environmental Conditions

Before unpacking, ensure that current environmental conditions meet the following requirements.

- Relative humidity is less than 80%
- Ambient temperature between 0°C (32°F) and 40°C (104°F)
- No ambient light interference
- No corrosive gas exists

Packing List

The following list describes all components of the instrument. If any items are missing or damaged, contact the supplier immediately.

- POL-200 polarimeter

- Sealing rings

- Test tubes 100 and 200 mm

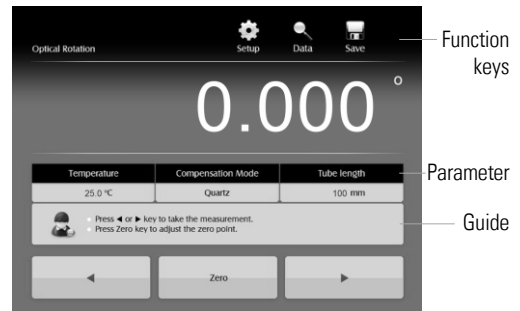# Switching the Instrument On and Off

- Plug the power cord into the wall outlet. Press the **ON/OFF** key, the screen shows "*Wait for light source to stabilize*". After a few seconds, the instrument shows default measurement screen and ready for use.
- Press the **ON/OFF** key again, the instrument begins running and returns to the optical zero point, the screen will automatically switch off.

⚠ WARNING

Do not pull out the power cord if the instrument is not completely switched off, that will cause the optical and mechanical faults.
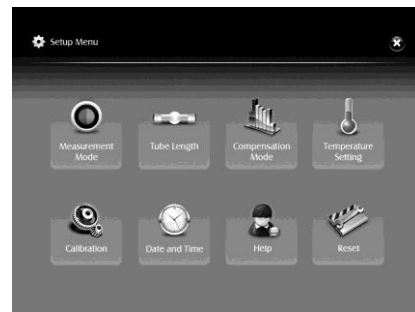
Display

The POL-200 polarimeter is installed with the 5.6 inch touch screen for showing the function key, measured value, associated parameters and operation guide. In the measurement and setting modes, the screen will show different user interfaces.

Settings

The instrument contains an integrated setup menu for customizing the function parameters to meet measurement requirements, selectable items include the following options.

Setup Menu
Measurement Mode
Optical Rotation (default)
Specific Rotation
Concentration
International Sugar Scale
Tube Length
100 mm (default)
200 mm
Custom (range: 0.0 to 220.0 mm)

Temperature Compensation
This option 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 option will be enabled automatically.

Enable

Disable (default)

Concentration
Set the concentration of sample for specific rotation measurement.

Specific Rotation
Set the specific rotation of sample for concentration measurement.

Temperature Setting
Calibrate the temperature, range: 0.0 to 100.0°C

Calibration
Using the standard tubes to perform 1 to 3 points calibration.

Date and Time
Set the current date and time.

Setting an Option
1. Tap the **Setup** key at the top of the screen and select an option.
2. Tap the ◄ or ► key to select a parameter or the numeric keys to enter the setting value.
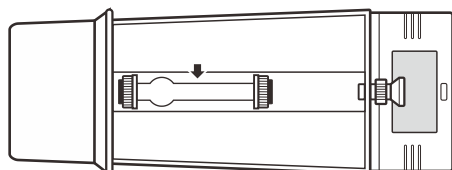3. Tap the **Enter** to confirm.

Prior to Use

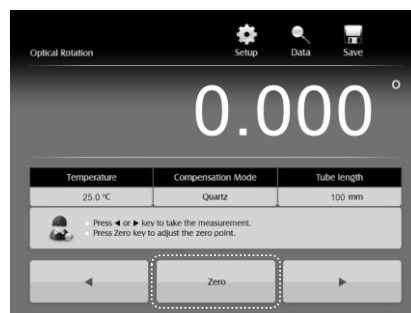Rotate the focus knob on front panel of the instrument until the visual field becomes legible.
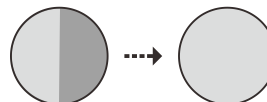

Zero Point Correction
1. Place an empty test tube into the sample chamber.

2. If the visual field appears the different brightness, tap the **Zero** key to enter the zero point correction mode.

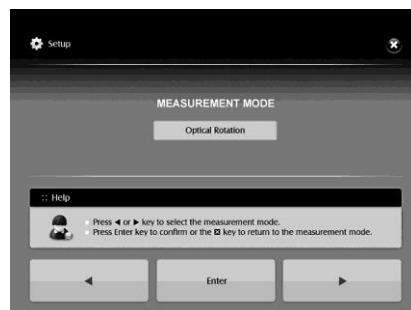3. Tap the ◄ or ► key to adjust the visual field until the uniform brightness appears.

4. Tap the **Enter** key to confirm.

Measurement

Selecting the Measurement Mode
The POL-200 polarimeter contains 4 measurement modes, including the optical rotation, specific rotation, concentration and International Sugar Scale.

1.1 Tap the **Setup** key.
1.2 Tap the **Measurement Mode**.
1.3 Tap the ◄ or ► key to select an option.
1.4 Tap the **Enter** to confirm.

Filling the Sample Solution

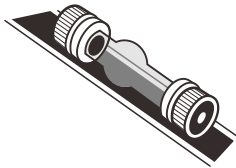2.1 Take out the test tube from sample chamber. Unscrew the metal cap, remove the sealing ring and glass disc.

2.2 Rinse the test tube thoroughly with distilled water.
2.3 Fill the sample solution into the test tube, screw on the cap, wipe away the water drops on glass disc.
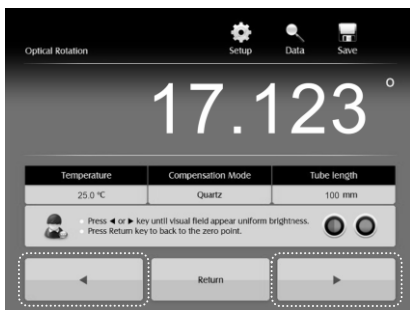2.4 If necessary, collect all air bubbles into the bubble trap.

Measurement

3.1 Place the test tube into the sample chamber and close the light shield lid. Note that the bubble trap is upward.

3.2 Tap the ◄ or ► key until the visual field appears the uniform brightness. Record the measured value.

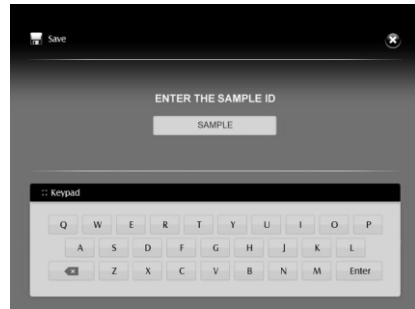3.3 Tap the **Return** key and wait for the instrument stops running. Measurement is completed.

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During the measurement, press and hold the ◄ or ► key for about 5 seconds, the instrument will switch to the auto-run mode. Tap the ◄ or ► key again, the instrument will switch to the manual mode.

Data Management

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

Storing Data into Memory

1.1 In the measurement process, tap the **Save** key, the "*Enter the sample ID*" dialog box shows on screen.
1.2 If necessary, tap the ⌫ key, then tap the letter keys to enter the sample name.
1.3 Tap the **Enter** key to save.

Viewing or Deleting the Data Logs

2.1 Tap the **Data** key on measurement screen, the instrument shows stored data sets.
2.2 If necessary, tap the ◄ or ► key to toggle between pages.
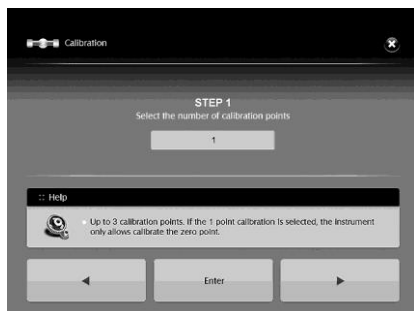2.3 Tap the 🗑 , all of stored data will be deleted.

⚠
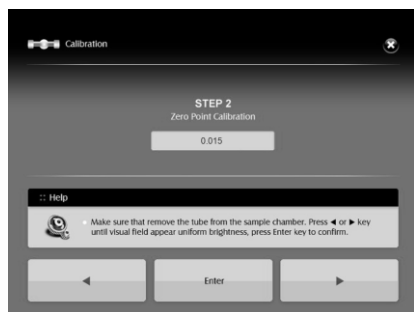
Once the data logs are deleted, it cannot be recovered.

Calibration

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

1. Tap the **Setup** key on the measurement screen.
2. Tap the **Calibration**, the instrument enters the calibration mode.
3. Tap the ◄ or ► key to select the number of calibration points. Tap the **Enter** key to confirm.

4. Ensure 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.

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

6. Tap the ◄ or ► key until the visual field appears the uniform brightness. Tap the **Enter** key, the instrument will automatically returns to the optical zero point and stops running.

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- If you have selected multipoint calibration in setup menu, repeat the steps 5 through 6 until the screen shows "*Calibration is completed*".
- If 1 point calibration is selected, the instrument is only allowed zero point calibration.

Appendix

Optional Accessories

Order Code	Description
POLTUBE 100	Test tube, 100 (L) × 27 (Dia.) mm
POLTUBE 200	Test tube, 200 (L) × 27 (Dia.) mm

Specifications

Model	POL-200
Range	±90°, ±130°Z
Accuracy	±0.02°, ±0.05°Z
Resolution	0.005°
Calibration Points	1 to 3 points
Light Source	LED with interference filter
Wavelength	589 nm
Tube Length	50, 100 or 200 mm
Memory	Stores up to 100 data sets
Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	0 to 60°C (32 to 140°F)
Relative Humidity	< 80% (non-condensing)
Display	5.6 in. TFT LCD
Power Requirements	AC 220V/50Hz
Dimensions	500 (L) × 300 (W) × 220 (H) mm (19.6 × 11.8 × 8.6 in.)
Weight	7.5 kg (16 lb)

Disposal

This product is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC and may not be disposed of in domestic waste. Please dispose of product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

Warranty

The warranty period for semiautomatic polarimeter is one year from the date of shipment. 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 supplier.

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