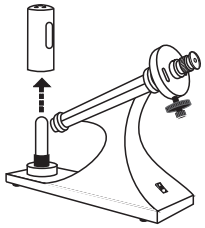
REPLACEMENT OF THE SODIUM LAMP

Disconnect the mains plug before replacing the lamp.

1. If necessary allow the device to cool down.
2. Remove the lamp cover.



3. Pull the defective lamp from the socket.
4. Insert a new lamp in the socket. Do not touch the lamp with your fingers.
5. Replace the lamp cover again in such a way that the window points in the direction of the polarizer.

REPLACEMENT OF THE FUSE

Use a straight screwdriver to lightly press into the slot in the cover of the fuse holder and turn it a quarter turn in the direction indicated by the arrow. Reduce the pressure on the fuse holder. Now the fuse cover will become free and can be fully pulled out.

Pull out the fuse and replace by a new fuse. Ensure that the value of the fuse is 1.6 Ampere. Reinstall the fuse cover. Repeat the first step. Now the quarter turn is made in the direction opposite to that indicated by the arrow. The cover must close tightly.

MAINTENANCE

1. Instrument should be placed in the ventilated place.
2. If the instrument has been used for a long time, Please turn it off 10 to 15 minutes.

SWXG-4 FULL-CIRCLE MANUAL POLARIMETER

OPERATION MANUAL

Distributor:

Amtech Industry Co.,Ltd

MANUAL POLARIMETER

INTRODUCTION

Thank you for selecting the WXG-4 manual polarimeter, This manual provides a step-by-step guide to operate the instrument. If you want to know more information, please visit our website:

WXG-4 manual polarimeter is used for the determination of the concentration of optically active substances.
For this the sodium light with a wavelength of 589nm is linearly polarised by means of a polariser. This light then passes through the solution to be investigated and is observed through an analyser. Optically active substances rotate the polarisation plane.
By measuring the rotational angle by means of the analyser, the concentration of the solution can now be calculated.

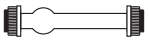
SPECIFICATIONS:

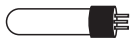
- Range: 0 to ±180°
- Scale Division: 1°
- Reading Precision: ±0.05° (vernier)
- Magnifier: 3X
- Light Source: Sodium Lamp
- Wavelength: 589.44nm
- Round Cuvette: 100 or 200mm
- Power Requirements: 220V/50Hz
- Stabilization Time: 10 minutes
- Dimensions: 500(L)mm×135(W)mm×330(H)mm
- Weight: 6.5kg

UNPACKING:

Inside the carton, you should find a manual polarimeter, round cuvettes, sealing rings and a sodium lamp.
Please check the accessories are complete after you opened the carton.


Round cuvette 100mm

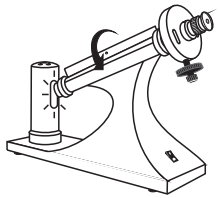

Round cuvette 200mm


Sodium Lamp


Sealing Rings

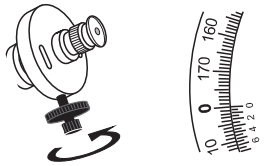
OPTICAL ZEROING

1. Close the shield, Switch on the sodium lamp and wait for it to warm up.

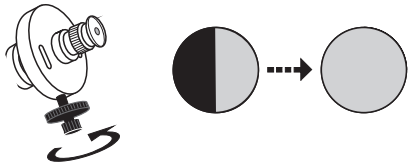


2. After 10 minutes, Rotate the focus knob until visual field became legible.

3. Rotate the vernier knob until vernier scale to the zero position.



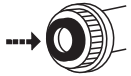
The visual field will became uniform brightness (dark).



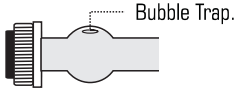
FILLING A ROUND CUVETTE

1. Unscrew the cuvette cap, remove the internal cap, sealing ring and glass disc.
2. Rinse the cuvette thoroughly with distilled water.
3. Fill a cuvette with distilled water.
4. Screw on the cuvette cap, DO NOT OVER TIGHTEN.

5. Wipe away the drips remained on glass disc.

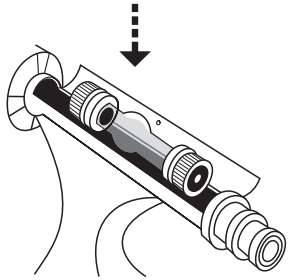


NOTE:
If necessary collect any air bubbles into the bubble trap.

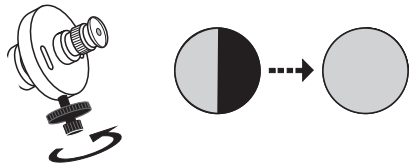


MEASUREMENT

1. Open the shield, Place a round cuvette with distilled water into the sample chamber.
(The bubble trap is upward)



2. Close the shield, Rotate the vernier knob to seach uniform brightness again, Note the measured value.



4. Rotate the vernier knob with clockwise and anticlockwise, Note the measured value separately, Calculate the average of the reference point.
5. Fill the sample solution into the round cuvette.
6. Rotate the vernier knob to seach uniform brightness. Read the angle of rotation α from the scale, and calculate the average of the two readings.

NOTE:
If the measured value is positive angle (Dextrorotatory substance),minus the value of the reference point shall be the actual measured value of the substance;

If the measured value is a negative angle (Levorotatory substance), minus the 180° shall be the actual value of the substance.

DETERMINATION OF THE CONCENTRATION:

To determine the concentration, purity or proportion of samples, please use the following formula:

$a = [a]LC$

a.....Optical Rotation [a]....Specific Rotation
L.....Tube length (dm) C..... Concentration (g/L)

INTERNATIONAL SUGAR SCALE:

The International Sugar Scale (°Z) standard was developed by the International Commission for Uniform Methods to standardize sucrose level measurement. Pure sucrose (26.0 grams) was dissolved in water to make 100mL of solution. The following calculation determines sucrose content:

a (Measured Value) = 34.626°=100°Z, so 1°Z=0.34626°, and 1°=2.8880°Z

When the polarimeter cannot display in °Z, the standard sucrose content can be found by using at 26%(wt./vol.) sucrose solution in a 100mm tube and multiplying the observed angle of rotation by 2.8880 to convert to the International Sugar Scale (°Z).