

Flinn Spectrophotometer Owner's Manual



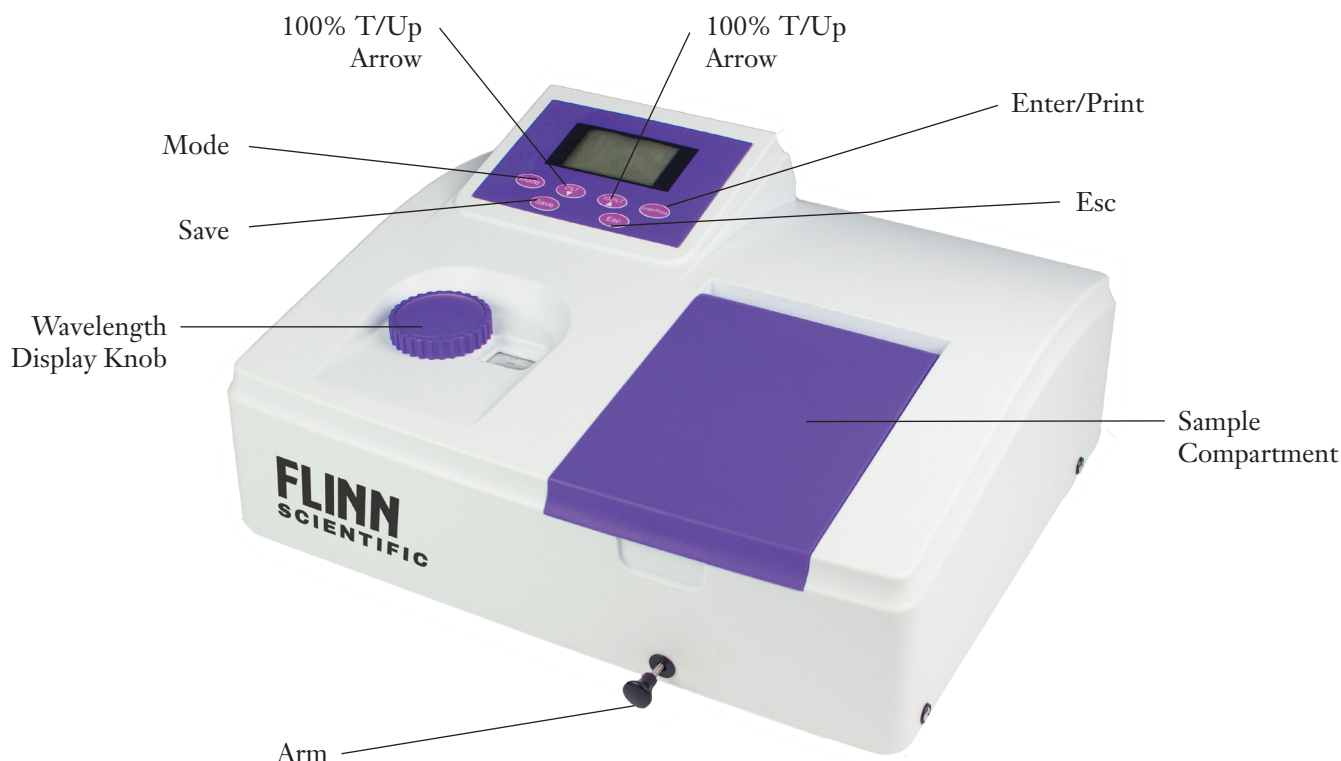
Please read and adhere to all recommendations to ensure the best experience and to maintain your spectrophotometer in good working order. This owner's manual is for the following model: AP8502.

Unpacking, Assembly and Storage

1. The spectrophotometer and accessories have been carefully packaged to assure they reach you in the best possible condition. Retain the original packaging in case you need to transport, store or return the spectrophotometer for service. If it becomes necessary to ship the spectrophotometer for any reason, pack it in the original packaging and then in another box, secured for transport. Inadequate shipping may result in damage to your spectrophotometer.
2. Lay the molded spectrophotometer container with the top facing you. Remove the top piece and inspect the contents. Each spectrophotometer comes with the following:
 - a. Spectrophotometer
 - b. Power cord
 - c. Four square glass cuvettes
 - d. One black block cuvette
3. Make sure there are no objects obstructing the air flow around the instrument.
4. Connect the included power supply to the device. Many similar looking power supplies have different voltages. Before each use, examine the power supply to ensure the voltage is consistent with the rating voltage printed on the spectrophotometer ($220\text{ V} \pm 22\text{ V}$).
5. Store the spectrophotometer in a dry, clean location away from direct sunlight. Do not store the instruments in a location where air chlorine, hydrochloric gas, hydrogen sulfide gas, sulfurous gas and other corrosive gases are present.
6. In order to have the best performance, keep it as far as possible from any strong magnetic or electrical fields or any electrical device that may generate high-frequency fields.

Description of Components

1. Screen: LCD screen displays the mode and corresponding data
 - a. Mode: Used to select Transmittance, Absorbance, Concentration or Factor mode.
 - b. 0 %T/down arrow: Press in Transmittance mode to set zero. Press in Concentration or Factor mode to decrease the value of C or F by 1.
 - c. 100 %T/up arrow: Press in Absorbance or Transmittance mode to set 0.000 A or 100 %T, respectively. Press in Concentration or Factor mode to increase the value of C or F by 1.
 - d. Enter/Print: Press after setting the desired value of C or F when in Concentration or Factor mode. Press the key to print the current value under Transmittance, Absorbance and Concentration modes.
 - e. Save: Store data and read the data.
 - f. Esc: To delete stored data, hold down the button for three or more seconds.
2. Sample compartment: Lid lifts up and down to reveal the compartment and cuvette holder.
3. Cuvette holder: Fit up to four cuvettes in the samples holder that is secured inside the compartment.
4. Arm: Switch between samples by moving the arm in and out.
5. Wavelength control knob: Turn the labeled knob to adjust the wavelength in nm.
6. Cuvettes: Transparent, square glass cuvettes hold the samples.
7. Power adapter: AC power adapter plugs into the spectrophotometer with a cord that plugs into an electrical outlet.



Operation

1. Transmittance mode:

- a. Turn the instrument on and allow it to warm-up for 30 minutes.
- b. Prepare the blank and sample solutions.
- c. Open the sample compartment cover and insert the black block in the first slot of the cuvette holder, the blank in the second slot, and the sample solution(s) in the remaining slot(s). Close the cover. Be sure to wipe the cuvettes with a Kimwipe before inserting them into the cuvette holder.
- d. Close the sample compartment lid.
- e. Rotate the wavelength knob to the desired wavelength.
- f. Press Mode key to Transmittance mode. Pull the black block into the light path. Press the 0%T key until the display reads 0.0.
- g. Pull the blank into the light path. Press the 100%T key until the display reads 100.0.
- h. Pull the sample solution(s) into the light path and record the transmittance value displayed.
- i. Repeat steps f-h for each desired wavelength.

2. Absorbance mode:

- a. Turn the instrument on and allow it to warm-up for 30 minutes.
- b. Prepare the blank and sample solutions.
- c. Open the sample compartment cover and insert the black block in the first slot of the cuvette holder, the blank in the second slot, and the sample solution(s) in the remaining slot(s). Close the cover. Be sure to wipe the cuvettes with a Kimwipe before inserting them into the cuvette holder.
- d. Close the sample compartment lid.
- e. Rotate the wavelength knob to the desired wavelength.
- f. Press Mode key to Transmittance mode. Pull the black block into the light path. Press the 0%T key until the display reads 0.0.
- g. Press Mode key to Absorbance mode. Pull the blank into the light path. Press the 100%T key until the display reads 0.000.

- b.* Pull the sample solution(s) into the light path and record the absorbance value displayed.
 - i.* Repeat steps f-h for each desired wavelength.
3. Concentration mode:
 - a.* Turn the instrument on and allow it to warm-up for 30 minutes.
 - b.* Prepare the blank, standard solution, and the sample solution(s).
 - c.* Press Mode key to Absorbance mode.
 - d.* Rotate the wavelength knob to the desired wavelength.
 - e.* Open the sample compartment cover and insert the blank into the first slot of the cuvette holder, the standard solution into the second slot, and the sample solution(s) in the remaining slot(s). Close the cover. Be sure to wipe the cuvettes with a Kimwipe before inserting them into the cuvette holder.
 - f.* Pull the blank into the light path and press the 100%T key until the display reads 0.000.
 - g.* Press the Mode key to Concentration mode.
 - h.* Pull the standard solution into the light path. Press the 0%T key and the 100%T key to increase or decrease the concentration, until the concentration of the solution is reached.
 - i.* Press the Enter key. The mode will automatically switch to Factor mode. The display will read the Factor value.
 - j.* Press the Enter key again and the mode will go back to Concentration mode.
 - k.* Pull the sample solution(s) into the light path and record the displayed concentration value(s).
 - l.* Repeat steps f-k for each desired wavelength.
4. Factor mode:
 - a.* Turn the instrument on and allow it to warm-up for 30 minutes.
 - b.* Prepare the blank, standard solution, and the sample solution(s).
 - c.* Press the Mode key to Absorbance mode.
 - d.* Rotate the wavelength knob to the desired wavelength.
 - e.* Open the sample compartment cover and insert the blank into the first slot of the cuvette holder, the standard solution into the second slot, and the sample solution(s) in the remaining slot(s). Close the cover. Be sure to wipe the cuvettes with a Kimwipe before inserting them into the cuvette holder.
 - f.* Pull the blank into the light path and press the 100%T key until the display reads 0.000.
 - g.* Press the Mode key to Factor mode.
 - h.* Pull the standard solution into the light path. Press the 0%T and the 100%T key to increase or decrease the factor value until the value of the standard is reached.
 - i.* Press the Enter key. The mode will automatically switch to Concentration mode.
 - j.* Pull the sample solution(s) into the light path and record the displayed concentration value(s).
 - k.* Repeated steps f-j for each desired wavelength.
5. Optional: To print data, connect to printer with port located on the back of the instrument. Press the "Enter" button to print the value.

Specifications

Wavelength Range:	320–1100 nm
Spectral Bandwidth:	4 nm
Wavelength Accuracy:	2 nm
Wavelength Precision:	1 nm
Photometric Accuracy:	0.5 %T
Photometric Precision:	0.2 %T
Stray Light:	0.15 %T at 500 nm
Stability:	0.002 A at 500 nm
Wavelength Setting:	manual
Light Source:	Tungsten lamp
Display:	70*40 mm blue-lit LCD
Detector:	Silicon photodiode
Power:	AC 220 V/50 Hz; AC 110 V/60 Hz

Maintenance

WARNING: For your own safety, make certain the device is unplugged before maintaining your spectrophotometer.