Sensegood Spectrophotometer

Assembly and Quick Start Guide

Version 1.0

SENSEGOOD
INSTRUMENTS PVT LTD

www.sensegoodinstruments.com

Revision History

The following table shows the revision history for this document.

Date	Version	Revision
31/10/2019	1.0	Initial release.

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Caution: If the equipment is used in a manner not specified by the Sensegood, the overall safety may be impaired. The instrument is for indoor use only and not suitable for a wet location.

When reading a sample, the illumination flashes. Please avoid looking directly at the light. User's discretion is advised.

Safety Notes

For your safety when using the Sensegood spectrophotometer, you should pay attention to the following:

- General safety instruction that should be observed at all times while operating the instrument.
- Use of this equipment in a manner not specified by the manufacturer may impair the protection afforded by the equipment.
- Danger of electric shock if liquids are spilled and fire if volatile or flammable liquids are spilled. Use care when measuring liquid samples**.**
- Please take care to remove fingers, jewelry and clothing to prevent damage when sample platform is rotating.
- Sensegood spectrophotometer is for indoor use only at an altitude of up to 2000m and pollution degree 2.

Sensegood Spectrophotometer
Assembly and Quick Start Guide

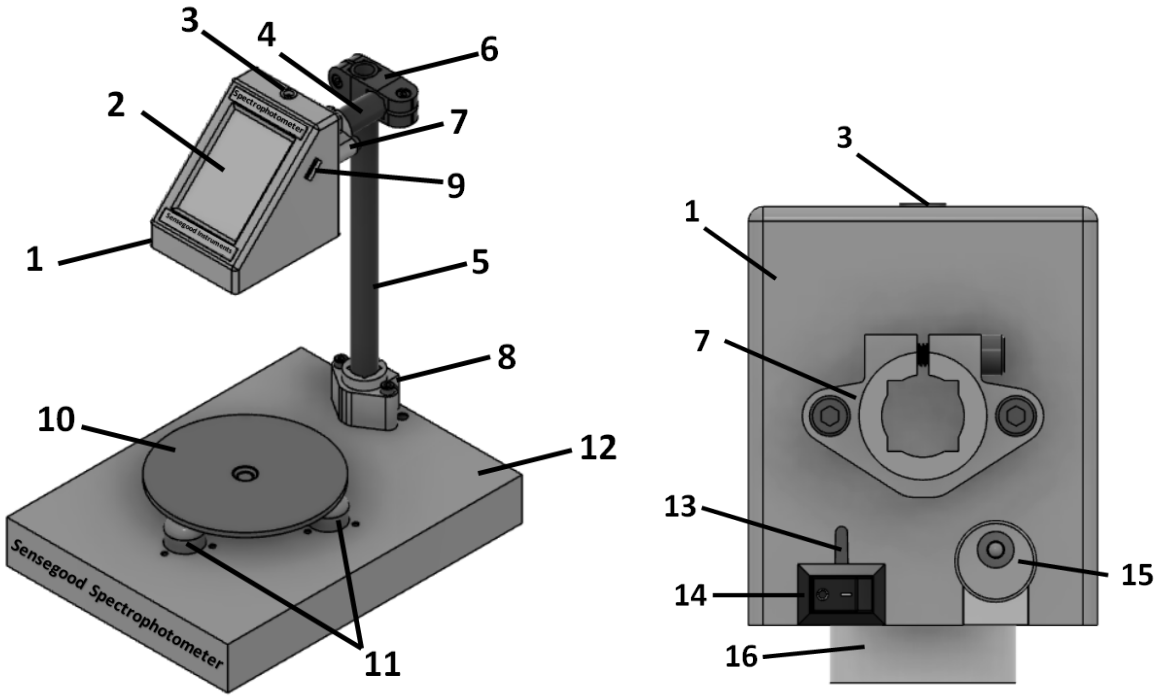
This document briefly covers the Sensegood spectrophotometer assembly for various configurations followed by quick measurement procedure.

User is suggested to refer Sensegood spectrophotometer user's manual to understand detailed operational aspects.

Document repository: https://sensegoodinstruments.com/support.php

Organization of this manual

Annotation – Instrument parts



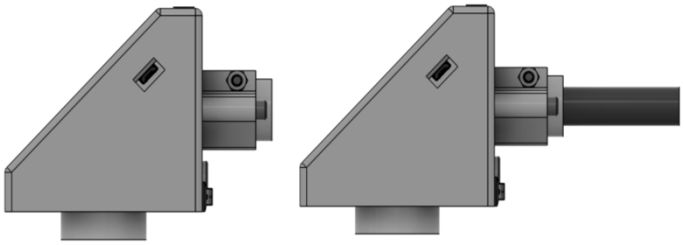
The figure in the left represents the Sensegood spectrophotometer in benchtop configuration while in the right is backside view of the sensor head. The numberings mentioned represent corresponding parts as narrated below.

1. Sensor head
2. Color Touch TFT LCD
3. Stylus resting hole
4. Short pipe (12mm square/ 14mm round)
5. Long pipe (12mm square/ 14mm round)
6. Cross coupler
7. Shaft end coupler-1
8. Shaft end coupler-2
9. MicroUSB cutout
10. Rotating platform
11. Load bearings
12. Base – motor assembly enclosure
13. Cutout for buzzer audio signals
14. ON/OFF switch
15. Motor socket
16. Sensor-illuminant protective projection

Assembling for various configurations

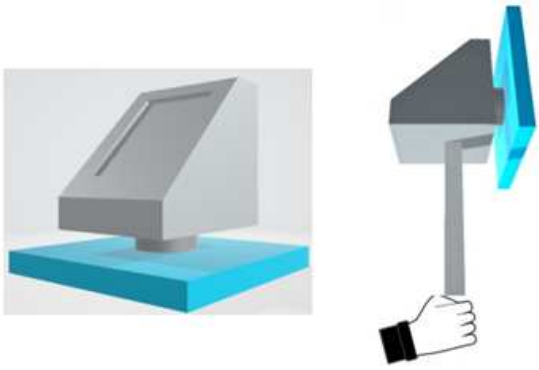
Portable/ Handheld use:

Sensor head itself can directly be used as handheld spectrophotometer. If required, user can use long pipe attached to sensor for extended reach. Leave motor socket open. Connect micro USB cable to the connector and power up the instrument.



Suggested settings:

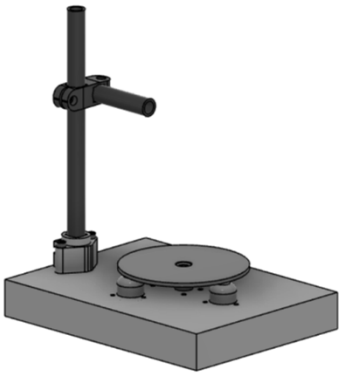
- Only sensor head is used.
- No motor electrical connection, Motor is disabled in settings.
- Typically averaging and auto measurement is not used.
- Target distance is set to 0 cm.
- Contact measurements are performed.
- User can set desired start delay.
- One can use portable power bank (not provided) along with the sensor head.
- User may set color tolerance and check for the match percentage.
- Below figure illustrates the configuration.



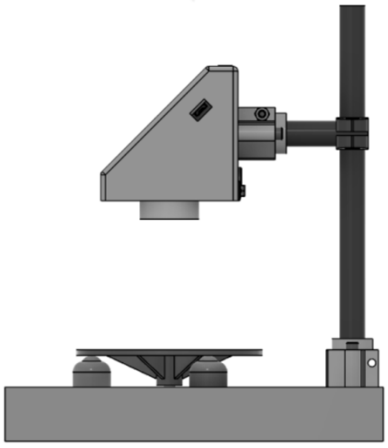
Benchtop/table-top use:

- Join pipes using cross coupler.

- Insert longer pipe to the coupler which is attached to the base/ motor enclosure.



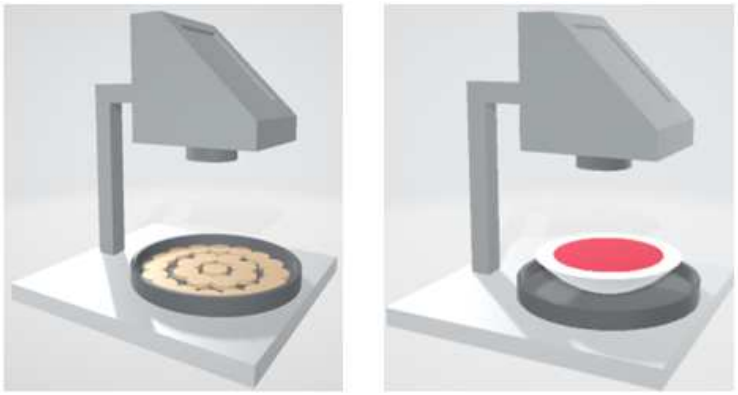
- Insert shorter pipe to the coupler which is attached to the sensor head.



- Set desired sensor height as per your sample and application. Tighten all coupler screws. Insert the motor jack cable to socket. Connect micro USB cable to the connector and power up the instrument.

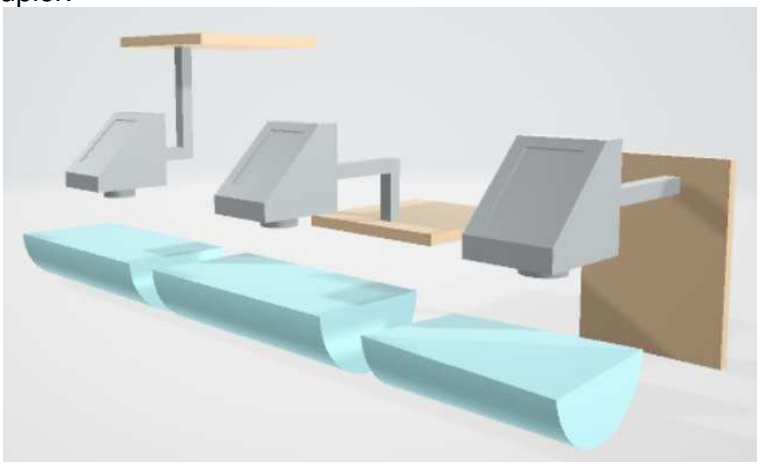
Suggested settings:

- Motor is electrically connected and also it is enabled in settings.
- Typically averaging is on.
- Target distance is physically determined and the same distance is set in the settings.
- For absolute color measurement, target distance can be 1 or 2 cm, for color difference measurement it can be within 1cm to 6cm range.
- Noncontact measurements are performed as typically sample platform is rotating.
- User can introduce start delay if required. However typically it is 0 seconds.
- Averaging is kept typically on.
- Auto measurement is typically disabled. However if you are using this instrument in continuous production sample tests you can consider enabling auto measurement mode with desired repeat interval of 30, 60 or 120 seconds.
- User may set color tolerance and check for the match percentage.
- Below figure illustrates the configuration.



Online/in-process use:

- Using the pipes and provided couplers, user can assemble the instrument to make it suitable for desired online application.
- If required, the shaft coupler which is mounted to the base/motor enclosure can be detached. For the same, user will have to unscrew the motor enclosure and then unscrew the coupler.



Suggested settings:

- Only sensor head with pipe attachments is used.
- No motor electrical connection, Motor is disabled in settings.
- Averaging can be typically off.
- Auto measurement mode is enabled with desired repeat interval of 30, 60 or 120 seconds.
- Target distance can be within 1cm to 6cm range.
- Start delay is not effective in auto measurement mode, so it is kept 0 seconds.
- Typical LCD view is match screen. For the same, user need to take reference color measurement, set color tolerance/ Alarm Limit and check for the match percentage.
- Below figure illustrates the configuration.

Quick Start

1. Consider sample for measurement. Set physical target distance (sample to sensor distance): Lesser distance is desirable.
2. Set the same target distance in instrument's settings.
3. Just press "GO" to take measurement every time.

Refer to user's manual for sample holder selection and sample preparation guidelines.

Detail – Doing first measurement:

- Assemble the instrument according to the type of your application. Give power supply using the 5V adapter or power bank or by connecting it to computer USB port.
- Carry out the settings discussed above as per your configuration.
- Prepare the sample according to the guidelines provided in user's manual.
- You may just press "GO" to check how light is falling on the sample. Light should not fall outside the sample surface, adjust the distance accordingly.
- Determine desirable physical target distance and set the same in the settings.
- Open the screen you want to see; graph, table, etc. Just press "GO" to measure the color of your sample.
- Now for the same target distance, you can measure all of your samples just by pressing "GO".

❖ Note: In case if you see a message: "INVALID! Move sensor head upwards" when "GO" is pressed, do following:

1. Verify if the target distance set in settings is the same as the physical target distance.
2. If above point is verified then move sensor head upwards (increase target distance) physically in 0.5 cm steps till the message stops coming after pressing "GO". In this procedure, don't change the target distance in settings, just increase the physical sample-to-sensor distance.

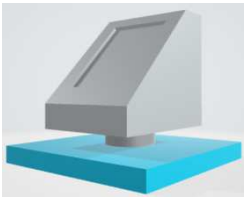
Recommended practices

- For liquid, pastes and powders it is intuitive to not to use 0 cm target distance (contact measurement).
- Place instrument on a leveled surface in case of benchtop operation.
- In case of online measurement, mount the sensor on non vibrating surface.
- Reduce any external light falling on to the sample.
- Turn on/off the mains supply when not in use.
- Disconnect with the computer when not in use.
- Use the provided adapter or any good quality +5V 1–2Amp adapter only.
- In settings: Turn off the motor if you haven't connected the motor electrically or you are not intending to use it.
- Attach motor wire jack to socket only when the instrument is powered off.
- It is good practice to tie the data cable and motor cable with the stand pipes using cable ties to avoid cable movements.
- Use stylus for touch screen. Press gently.
- It is best not to touch the screen while the instrument is booting up. If you see other screen than similar to the one mentioned above, restart the instrument.
- Refer to the troubleshooting manual before applying reset.

SENSEGOOD SPECTROPHOTOMETER - *UNIVERSAL* (REFLECTANCE)

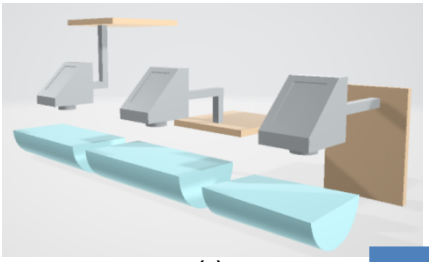
(a)

(b)

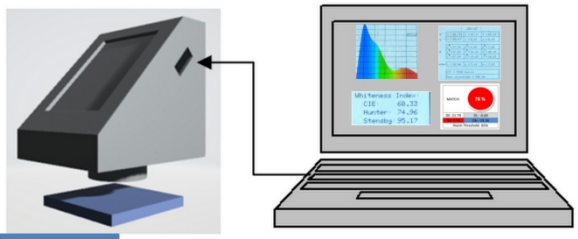


(c)

(d)



(e)



(f)

– ALL IN ONE –

- ✓ Benchtop/ Tabletop: (a) (b) (Rotating sample platform)
- ✓ Handheld/ Portable: (c) (d)
- ✓ Online/ In-process: (e)

- ✓ Solid: (a) (c) (d) (e)
- ✓ Liquid: (b) (e)
- ✓ Paste: (b) (e)
- ✓ Powder: (a) (b) (e)

Works with:

- ✓ 5V adapter (cell phone charger)
- ✓ Power bank
- ✓ Computer/ Laptop (f)

- ✓ Contact measurement: (c) (d)
- ✓ Non-contact measurement: (a) (b) (e) (Adjustable height)

- ✓ Averaging
- ✓ Auto repeat measurement mode
- ✓ *SensegoodSmart* – computer interface software utility

- ✓ Color match percentage
- ✓ Color indices (whiteness, yellowness, …)

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