

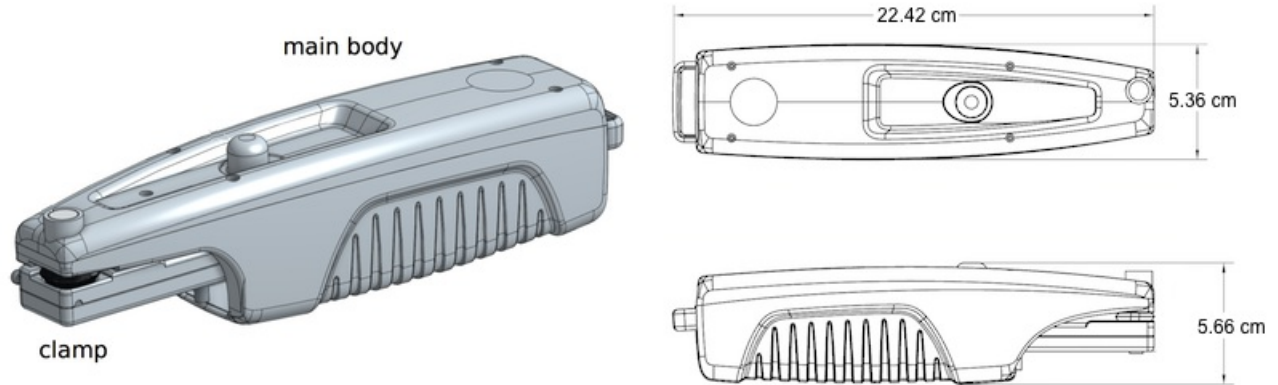


MultispeQ v1.0 Configuration

Modified: November 19, 2018

Version: v0.40

1. MultispeQ v1.0 Configuration



Body	Measurements
Size	224.2 mm x 53.6 mm x 56.6 mm (l, w, h)
Total Weight	340 g (incl. battery)
Light Guide Surface	8 mm x 8 mm (64mm ²)
Leaf Clamp Opening	13 mm
Safety	Ring for leash
Updates	Firmware updates through Applications

Lights

There are sets of five LEDs each on the main body and the leaf clamp.

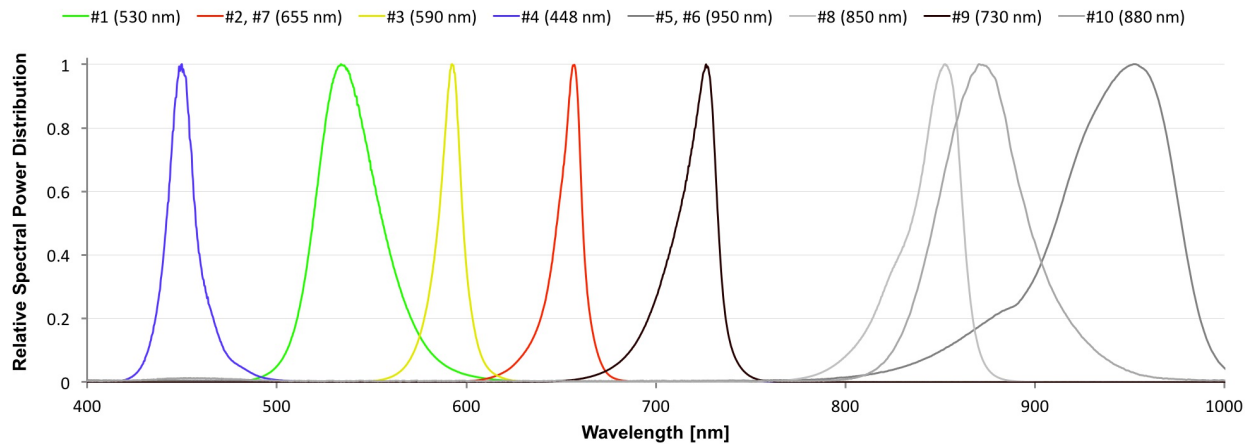
Main Body

#	Emission Peak	Model	Specifications
1	530nm	LED (green), Lumileds, LXZ1-PM01	view
2	655nm	LED (red), Lumileds, LXZ1-PA01	view
3	590nm	LED (amber), Lumileds, LXZ1-PL01	view
4	448nm	LED (blue), Lumileds, LXZ1-PR01	view
5	950nm	LED (NIR), OSRAM, SFH 4441	view

Leaf Clamp

#	Emission Peak	Model	Specifications
6	950nm	LED (NIR), OSRAM, SFH 4441	view
7	655nm	LED (red), Lumileds, LXZ1-PA01	view
8	850nm	LED (NIR), OSRAM, SFH 4451	view
9	730nm	LED (far red), Everlight, ELSH-Q61F1-0LPNM-JF3F8	view
10	880nm	LED (NIR), Kingbright, APTD3216SF4C	view

Emission Spectra for LEDs



Detectors

The MultispeQ v1.0 comes with two detectors. One covering the near infrared on the main body, the other covering the visual range on the leaf clamp.

#	Detection Range	Model	Specifications
1	700nm - 1150nm	Hamamatsu, S6775-01 (main body)	view
3*	400nm - 700nm	Hamamatsu, S6775 (leaf clamp)	view

*Note: The detector 3 is covered with a BG-18 bandpass filter with a center wavelength around 493 nm. If you are using the detector to detect signals on the edges of the detection range, expect the signal strength to be low.

Sensors

The MultispeQ v1.0 has a set of sensors to measure the environmental parameters

Sensor	Model	Specifications
Ambient Temperature, Humidity, Pressure (2x)	BOSCH, BME280	view
Contactless Temperature	Melexis, MLX90615SSG-DAG-000-TU	view
Accelerometer	Freescale, MMA8653FCR1	view
Magnetometer	Freescale, MAG3110FCR1	view
Hall Effect Sensor	TT Electronics, OHS3150U	view
PAR light sensor	AMS-TAOS USA, TCS34715FN + 700nm low pass filter	view

Filters

The MultispeQ v1.0 has two filters, a Band Pass filter covering the visible light detector (#3) and a Low Pass filter used in the PAR sensor.

Filter	Model	Specifications
Band Pass	Schott, BG-18 1mm thickness	view
Low Pass	UQC Optics, Hot Mirror HM-07	view

Battery

The MultispeQ v1.0 has a Li-ion battery which can be charged through the micro USB port.

Battery	Model	Specifications
Main	Soshine Li-ion 26650 Protected Battery: 5500mAh 3.7V	view

References

Kuhlgert, S., Austic, G., Zegarac, R. Osei-Bonsu, I., Hoh, D., Chilvers, M. I., et al. (2016). MultispeQ Beta: a tool for large-scale plant phenotyping connected to the open PhotosynQ network. *R. Soc. Open Sci.* 3, 160592. [doi:10.1098/rsos.160592](https://doi.org/10.1098/rsos.160592).

