Multiplex®

Specifications

Samples: Any plant material: leaves, coniferous needles, crops, turf, fruits, vegetables, grains, etc.
Measured Parameters: Epidermal UV absorbance by FER method: flavonol content, Epidermal Visible absorbance by FER method: anthocyanins content, Chlorophyll fluorescence emission ratio: chlorophyll content, UV-excited Blue-Green fluorescence (BGF), Several other fluorescence ratios
Measurement Area: < 10 cm diameter
Measurement Distance: 10 cm
Acquisition: 9000 acquisitions per second
Acquisition Modes: One shot mode, Continuous mode
Light Sources: Light Emitting Diodes (LED); pulsed operation, 4 excitation channels: UV, Blue, Green and Red
Detectors: Silicon photodiodes, 3 detection channels: Yellow (or Blue), Red and Far-Red
Storage Capacity: 128 MB (1 GB optional) = 1 million multi-parametric data (12 spectroscopic data, GPS location, time, temperature)
User Interfaces: 3.2" (160 x 80) graphic LCD panel with touchscreen Sound warning
Data Interfaces: USB port for data transfer, Serial port for external GPS link, Data transfer compatible with Excel sheets
Temperature Range: 5 – 35° C (operation)
Power Source: External Li-ion rechargeable battery
Power Autonomy: 10 hours
Charging Time: 2 hours
Total Weight: 2.5 kg (without battery)
Optical-head Size: 16 cm Diameter x 15 cm Height

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Optical Measurement of Polyphenols and Chlorophyll

Thanks to more than 15 years of research, Multiplex is now available for fast, easy, and non-destructive measurement of constitutive and induced polyphenolics and chlorophyll in plants. Multiplex uses fluorescence technology with multiple excitations to measure various compounds in berries skins, leaves, fruits and vegetables skins. Multiplex is the appropriate tool to easily monitor the phenolic maturity in grapes.

MULTIPLEX® Measures

- Anthocyanin content, epidermal visible absorbance by FER method
- Flavonol content, epidermal UV absorbance by FER method
- Chlorophyll content, chlorophyll fluorescence emission ratio
- UV-excited Blue-Green fluorescence (BGF)

The advantages of the technology are:

- Simultaneous measurement of various compounds
- Non contact and fast measurement (less than a second)
- Active sensing with measurement possible under any light condition, day or night
- Non destructive measurement
- No preparation of the plant
- Portable device for field measurement

Monitoring of the Grape Phenolic Maturity

The phenolic maturity has a different time course than the technological maturity (pH, Brix...). It is important to monitor anthocyanins in red berries and flavonols and chlorophyll in white berries as they can't be strongly correlated to technical parameters and estimated indirectly. However, polyphenols measurements are expensive, labor and time consuming (chemical extraction, HPLC...) until now. Polyphenols measurements can now be realized with a fast and easy to operate instrument - the Multiplex.

With Multiplex the monitoring of the phenolic maturity becomes a common and simple practice.

Phenolic Monitoring Made Easy

A measurement with Multiplex takes less than a second by just pressing a button. The settings are easily configured through a user friendly interface on the touchscreen. The data is stored on a SD card and is also displayed on the LCD screen. The data can then be handled with the most common data presentation software. In its field portable version, Multiplex has a long life battery designed to keep measuring for an entire day and it can then be recharged in three hours.