

Specifications Document

F-750 Produce Quality Meter

The F-750 Produce Quality Meter is a portable visible and near-infrared (NIR) spectrometer that easily and non-destructively measures internal and external qualities of produce.

The F-750 delivers non-destructive, quantitative measurements of substances (e.g. Chlorophyll), features that involve multiple substances (e.g. ripeness, Total Soluble Solids, Dry Matter) along with qualitative metrics (e.g. flavor, personal preference).

Unlike traditional spectroscopy which uses a ratio of spectral bands, F-750 measurements are calculated using a Partial Least Squares-based model built from a training set using the entire spectra from 310-1100 nm.

Building the Training Set

- ✓ 80 - 200 fruit subjects are measured using the F-750 Produce Quality Meter.
- ✓ The quality parameter of interest is measured on each of the subjects using an alternative destructive method (ie; Brix (TSS) is measured using a refractometer).
- ✓ The included model building software combines the spectral data with the destructive data to create a new model.
- ✓ The F-750 can now use the newly created model to rapidly non-destructively estimate the quality of interest.



F-750 Specifications

Spectrometer	Carl Zeiss MMS-1 Spectrometer
Range	310-1100 nm
Spectral Sample Size	3 nm
Spectral Resolution	8-13 nm
Light Source	Xenon Tungsten Lamp
Lens	Glass, coated to enhance NIR
Shutter	Gold-plated reference standard
Display	Sunlight visible transfective LCD screen
PC Interface	USB and SD Card
Data Recorded with Each Measurement	Raw Data, Reflectance, Absorbance, First Derivative Absorbance, Second Derivative Absorbance
Power Source	Removable 3100 milliamp hour lithium-ion battery
Battery Life	1600+ Measurements
Data Storage	Removable 4 GB SD card
Body	Heavy-duty anodized aluminum body
Weight	1.05 kg

Applications

- ✓ Crop management
- ✓ Harvest timing
- ✓ Controlled atmosphere assignment
- ✓ Import quality assessment
- ✓ Retail outlet inspection