USER MANUAL

CATALOG #s 3415F, 3415FQF, 3415FSE

QUANTUM LIGHT METERS

Spectrum

Technologies, Inc.

Thank you for purchasing a Field Scout™ Light Meter. This manual describes the features and operation of the following meters:
3415F Quantum Light Meter (Solar Calibration)
3415FQF Quantum and Foot-Candle Meter
3415FSE Dual Solar/Electric Quantum Meter

Using the Meter
1. Turn the dial clockwise to the "ON" position. Dual mode meters (3415FQF, 3415FSE) have two "on" settings, one to either side of "OFF".
2. Hold the meter vertical for accurate readings.
3. Turn the meter off after use to conserve battery power.

Changing the Battery
The Field Scout Light Meters use a standard 9V battery. To change the battery:
1. Remove the two screws on the back of the meter.
2. Lift the back from the bottom of the meter.
3. Remove the old battery from the connector, and snap the new battery in its place. Set the battery into the front half of the case.
4. Connect the front and back of the case at the top (by the sensor).
5. Close the case and tighten the two screws.

Accuracy
The Field Scout Light Meters are accurate to ±5%. Cosine correction is accurate to ±3% at 45°, and ±7% at 80°.

A quantum is the amount of energy possessed by a photon. Photosynthesis is driven primarily by light in the range between 400 and 700 nanometers, which is referred to as Photosynthetically Active Radiation, or PAR light. The intensity of PAR light is referred to as Photosynthetic Photon Flux Density (PPFD), which is measured in units of μmol $m^{-2} s^{-1}$ (the number of photons in units of micromoles, striking an area one meter square each second). Quantum Light Meters are calibrated to display PPFD. The meters display PPFD in the range 0-1999 μmol $m^{-2} s^{-1}$.

Field Scout Quantum Light Meters are calibrated for sunlight. Due to differences in the spectrum generated by artificial lights, the following adjustments must be made in the value shown on a sunlight-calibrated meter:
Fluorescent: reads 8% high, so multiply the display by 0.92.
Metal Halide: reads 6% high, so multiply the display by 0.94.
High Pressure Sodium: 0% error—no adjustment needed.
Sunlight: 0% error—no adjustment needed.

Note that the 3415FSE meter displays accurate readings for fluorescent lights when set to "Electric".

The chart below displays the spectral response of the Quantum Light Meters.
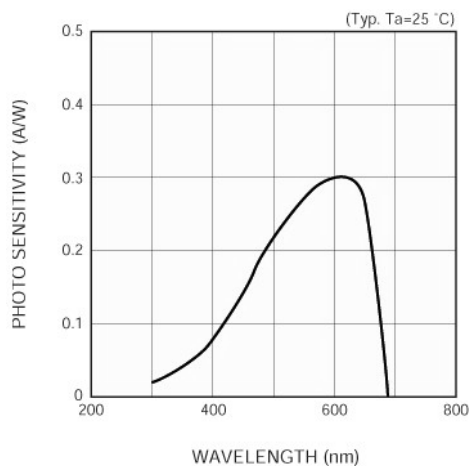
The 3415FQF Quantum and Foot-Candle Meter measures both PAR light, and light intensity as perceived by the human eye. The eye perceives light of approximately 560 nm most strongly, with perception half that at 500 and 600 nm.
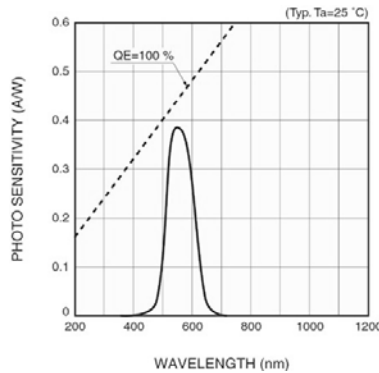
The meters display values in the range 0-1999. This must be multiplied by 10 to obtain Foot-Candles, so the meter range is 0-19990 Foot-Candles. Since 1 Foot-Candle is equivalent to approximately 10.8 lux, multiplying the meter reading by 108 will compute lux.

WARRANTY

The Field Scout[TM] Light Meters are warranted to be free from defects in materials and workmanship for a period of 1 year from the date of original purchase. During the warranty period, Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty is void if the product has been damaged by customer error or negligence, or if there has been an unauthorized modification.

Returning Products to Spectrum
Before returning a failed unit, you must obtain a Returned Goods Authorization (RGA) number from Spectrum. You must ship the product(s), properly packaged against further damage, back to Spectrum (at your expense) with the RGA number marked clearly on the outside of the package. Spectrum is not responsible for any package that is returned without a valid RGA number or for the loss of the package by any shipping company.