



*“My students in plant physiology found the Qubit Photosynthesis and Nitrogen Fixation systems challenging, enjoyable and rewarding. The most heartening remark was: ‘Now we really begin to understand whole plant photosynthesis and nitrogen fixation, while before it was just meaningless book knowledge....”*

*Dr. Neil G. Grant, Professor, Department of Biology,  
William Paterson University, Wayne, New Jersey*

# Q-BOX SERIES Q-BOX NFILP NITROGEN FIXATION PACKAGE



An open circuit system for measuring nitrogen fixation in legume symbioses that evolve H<sub>2</sub>. This is the only system for *in vivo* measurements of nitrogenase activity in real time. Study the physiology of nitrogen fixation in a safe manner without the use of acetylene or expensive chromatography apparatus. As in all of Qubit's Q-BOX packages the components are modular so you may choose the configuration that best meets your application. Add components to expand your Q-BOX capabilities as your research and teaching needs evolve.

## Features:

- H<sub>2</sub> Analyzer (0 - 100 ppm Range)
- Fuel Cell O<sub>2</sub> Analyzer (0 - 100% O<sub>2</sub> Range)
- Mass Flow Monitor and Pump (1LPM)
- Mass Flow Monitor and Pump (2 LPM)
- Temperature Sensor
- Nodule Flow-through Chamber
- 4 x Gas Exchange Plant Pots
- Gas Supply Bags
- Six Channel Data Interface
- Data Acquisition Software
- Soybean Seeds and Inoculant
- Optional Battery Pack
- Rugged Weatherproof case

## Applications:

- Nitrogen Fixation Studies
- Microbe H<sub>2</sub> Evolution or Uptake
- Lab and Field Studies
- Soil Microbe Studies



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## SOFTWARE



Sample Data from a Soybean Plant



All of Qubit's Q-BOX Packages include the same data acquisition software. You do not need to learn a different program for each suite of instruments. The software is powerful, but intuitive, so that novices are collecting and manipulating data within minutes of set up. Qubit supplies set-up files for each Q-BOX configuration with default displays, experimental periods and all calculations in place. Defaults can be changed quickly and easily as required. You need to buy the software only once, no matter how many types of Q-BOX packages you purchase. Free upgrades are provided on request. *Q-Box sensors and analyzers are compatible with any data acquisition system you may already possess.*

## SOFTWARE FEATURES

- 6 Data Channels
- Variable Data Acquisition Rate
- Graph, Table and Meter Displays
- Suite of Analysis Functions: (Statistics, Curve Fit, Integration etc.)
- Control Devices Using Data Input
- Multi-Page Reporting
- Data Replay Function
- Simple Equation Input and Editing
- Numerous Mathematical Functions
- Automated Calculations On-the-Fly

## STANDARD Q-BOX PACKAGES

- RP1LP Low Range Respirometry
- RP2LP High Range Respirometry
- CO650 Plant CO<sub>2</sub> Analysis
- SR1LP Soil Respirometry
- NF1LP Nitrogen Fixation
- HR1LP Human Respirometry
- AQUA Aquatic Respirometry
- BBB1LP Human Exercise Physiology
- OX1LP Dissolved O<sub>2</sub>

## CUSTOMIZE YOUR Q-BOX

The Q-BOX concept is all about flexibility. Do you want a system that can be used to measure insect respirometry, photosynthesis, human metabolic rate and atmospheric monitoring? Do you need to share your Q-BOX with a colleague from another discipline? Please contact us and we'll show you how the various components required for diverse studies can be configured in a common system.



Each Q-BOX component is easily removed from the Q-BOX and replaced with whatever new component you require. All of the analyzers, pumps and sensors etc. can also be used as stand-alone items independent of the Q-BOX. You may use our software and interfaces for collecting data from analyzers in stand-alone mode.



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