

## Controlled Environment Systems Research Facility Guelph BlueBox model PS1000

The PS1000 plant growth chamber is the sixth generation of whole plant photosynthesis systems to be designed at the University of Guelph's Controlled Environment Systems Research Facility (CESRF). These growth chambers are capable of high-resolution measurement of whole plant photosynthesis and evapotranspiration. They are used as a precision tool to better study plant physiological responses in response to manipulation of multiple variables including:

- |                           |   |
|---------------------------|---|
| Temperature               | Nutrients   |
| Humidity                  | Plant water status  |
| Carbon dioxide            | Insect predation  |
| Oxygen                    | Pathogen application/response                             |
| Light (quantity, quality) | Chemical application (pesticide, bio control, fertilizer) |

### Technical Specifications

- 1600 Watt water-cooled multispectral and programmable LED lighting system with available UV (368 & 380nm), blue (448nm), white (5650K), green (568nm), red (655nm) and far red (735nm) irradiation
- Passive pressure compensation to improve system closure
- Carbon dioxide enrichment from 0 – 10,000 ppm
- Continuous CO<sub>2</sub> (0-20,000ppm) data recording
- Temperature control range from 15°C - 35°C +/- 0.5°C
- VPD control from 0.2 - 1.5 kPa
- Variable speed air flow with bottom up distribution
- Available active venting system to reduce O<sub>2</sub> and ethylene buildup during long term studies
- Integrated Argus Control System - full data graphing and recording of all sensors and actuators
- Made of primarily non-off gassing inert materials
- 1200 x 600 x 800 mm (HxDxW) growing volume can accommodate a wide variety of crops

