Canopy photosynthesis System

Model **F.LCpro T-001** | Brand **Master Science** | Unit **Pc**



The LCpro T by ADC BioScientific Ltd. is a state-of-the-art portable photosynthesis system designed for precise and efficient analysis of gas exchange and photosynthesis. With advanced features, unparalleled portability, and robust performance, it is ideal for researchers in plant science and environmental studies.

KEY HIGHLIGHTS

- Environmental Stability
- Integrated GPS
- Broad Leaf Chamber
- Soil/Small Plant Chamber
- Conifer Leaf Chamber

Request a Quotation
Contact us for pricing, configuration options and delivery details.

support@themsci.com
www.themsci.com

Scan to view online

Key Features

Equipped with a color, touch-sensitive LCD, providing instant data entry and real-time graphing.

Environmental Stability
Sealed LCD and rugged construction ensure performance in harsh field conditions.

Integrated GPS
Automatically records location, elevation, and UTC for each data point.

CHAMBER OPTIONS

Broad Leaf Chamber
For a wide variety of plant species.

Soil/Small Plant Chamber
For analyzing net carbon exchange in soil or small plants.

Conifer Leaf Chamber
Specially designed for pine needles and small fruits.

DATA HANDLING AND PROGRAMMING

Simple Programming
Intuitive menu-driven software for rapid experiment setup.

Real-Time Data Visualization
Parameters can be plotted dynamically on the LCD.

USB and RS232 Outputs
For data transfer and connection to external devices.

SOIL RESPIRATION AND ENVIRONMENTAL MONITORING

LCpro T
Technical Specifications

MEASUREMENT RANGES AND TECHNIQUES

Technique
Infrared gas analysis (IRGA), differential open system with auto-zero and automatic compensation for atmospheric pressure and temperature.

Sensors
Two laser-trimmed, fast-response water vapor sensors.

Sensor
Silicon photocell.

Method
Precision thermistor or self-positioning microchip thermistor.

Options
Self-positioning thermistor, manual placement, or Energy Balance Equation.

ENVIRONMENTAL CONTROL AND PROGRAMMING

Micro-Peltier element for automatic regulation
±15°C and -10°C from ambient.

Achieved using self-indicating conditioning chemicals in dedicated removable columns.

DISPLAY AND DATA MANAGEMENT

Display
Color WQVGA touch-sensitive LCD.

COMPATIBLE WITH AUTOMATIC AND MANUAL DATA RECORDING MODES.

Real-Time Graphing
Dynamic plotting with automatic scaling.

USB Connection
Functions as a mass storage device.

POWER AND BATTERY

Charger
Universal input voltage with fixed output.

PAR CONTROL

Programming
Automatic light response curves and adjustable RGB ratios.

Automatic Environmental Control
LCpro T

The LCpro T offers sophisticated environmental control, ensuring precise and consistent conditions for photosynthesis and gas exchange experiments. The system is fully programmable through its intuitive, menu-driven software and supports automatic adjustments of key parameters.

KEY FEATURES OF ENVIRONMENTAL CONTROL

Maintains stable CO2 concentrations for up to 32 hours of continuous operation.

Functionality
Supports automatic "A/Ci curves" by programming sequential control levels with specified dwell times.

Mechanism
Utilizes self-indicating conditioning chemicals in dedicated, removable columns.

Fully integrated light units with programmable light response curves (LRCs).

Customizable
Allows adjustment of RGB light ratios or total PAR for specific experimental needs.

PROGRAMMING AND AUTOMATION

All environmental parameters (CO2, H2O, temperature, PAR) are controlled through the LCpro T console.

Parameters can be programmed for constant values or sequential levels.

Sequential Programming
Enables multiple parameters to change automatically in pre-set sequences with defined dwell times.

Energy Efficiency
Incorporates power-efficient components to maximize battery life, allowing up to 16 hours of operation.

Technical Specifications

PARAMETER	SPECIFICATION
LCpro TThe Intelligent Canopy Photosynthesis System	
CO2 Range0-3000 ppm with a resolution of 1 ppm.	
H2O ControlIndividual or sequential humidity control from 0-75 mbar.	
Maximum intensity2400 µmol m²/s (RGB LED) or 2500 µmol m²/s (White LED).	
Dynamic range±15°C above or -10°C below ambient temperature.	
Narrow Leaf ChamberDesigned for long grasses and narrow leaves (<1 cm width).	
Unlimited StorageStores data on SD cards up to 32 GB.	
CO2 Range0–3000 ppm (1 ppm resolution)	
H2O Range0–75 mbar (0.1 mbar resolution)	
Range0–3000 µmol m²/s.	
Range-5°C to 50°C.	
Accuracy±0.2°C.	
Flow Rate100–500 ml/min to the leaf chamber.	
RangeUp to 2000 ppm via the integral elevated CO2 supply system.	
RS232 OutputConfigurable up to 230400 baud for computer or printer.	
Battery Type7.5Ah 12V Lithium-ion rechargeable.	
Battery LifeUp to 16 hours of continuous operation.	
Console Dimensions230 x 110 x 170 mm (H x W x D).	
Leaf Chamber Dimensions300 x 80 x 75 mm (H x W x D).	
Console4.1 kg.	
Leaf Chamber0.8 kg.	
Operating Temperature5°C to 45°C.	
RGB LED Array0–2400 µmol m²/s.	
White LED Array0–2500 µmol m²/s.	
Range0–2000 ppm.	
MechanismIntegral elevated CO2 supply system using a 4g pure CO2 cartridge.	
Range0–75 mbar.	
Range±15°C above and -10°C below ambient temperature.	
RGB LED Array0–2400 µmol m²/s.	
White LED Array0–2500 µmol m²/s.	
Enhanced PortabilityWeighs only 4.1 kg and comes with an adjustable strap for convenient use in the field.	

PARAMETER	SPECIFICATION
Long Battery LifePowered by a 12V Lithium-ion rechargeable battery, providing up to 16 hours of continuous operation.	
Auto-Zero CyclingEnsures stable and accurate gas exchange measurements with a rapid 4-second cycle time.	
Fruit ChamberFor measuring gas exchange in fruits up to 11 cm diameter and 10.5 cm height.	

Applications

Increases humidity to counteract excessively dry experimental conditions.

Mechanism
Compact Peltier heat transfer system for dynamic and responsive regulation.

Modes
Can maintain a constant temperature or track ambient air temperature.

Photosynthetically Active Radiation (PAR) Control

Reduces humidity when working with moist samples, preventing condensation within the chamber.