



# LABPOD DCA SYSTEM



The LabPod is for testing the response of fruit or vegetables to Controlled Atmospheres down to less than 0.1% Oxygen and for measuring their respiration and respiratory quotient. It is ideal for Post-Harvest Laboratories working with controlled atmospheres and respiration rates within a controlled temperature environment.

The LabPod is a hermetically sealed enclosure with a stainless steel base and a clear molded cover that sits in a water trough for perfect sealing. It has a capacity for about 70 kg of produce in 4 RPC boxes.

Each pod is self-contained with built in Oxygen, Carbon Dioxide and temperature sensors with digital communications to a central operating panel. Built in control valves and gauges regulate the connected Nitrogen, Air and optional CO<sub>2</sub> supply to very accurately maintain the selected atmosphere.

Respiration and RQ are periodically and automatically measured using the built in high sensitivity analysers. The atmosphere control is paused and the changes in Oxygen and CO<sub>2</sub> caused by the product respiration is measured and used to calculate and display the respiration rate.

An internal low power circulation fan periodically stirs the atmosphere and is activated by the system controller.

The central operating panel supports from 1 to 32 Lab Pods and all the settings are made from this panel through its touch screen or remotely from a network or internet-enabled PC or smartphone. The measured data is regularly collected and can be displayed on a program that runs on the PC and can be exported to Excel or other common programmes.

The controller can be dedicated to the LabPods or it can be an addition to an existing SCS6000 CA control system running a conventional system using a single analyser and pumped sampling systems.



**LabPod**  
FOR RESEARCH LABORATORIES

## FEATURES

- ▣ Patented Technology - U.S. Patent No. 8739694, Canadian Patent No. CA2746152
- ▣ Self-contained control of CA Atmosphere
- ▣ Totally leak tight
- ▣ Measures RQ & Respiration
- ▣ 70kg fruit capacity
- ▣ High resolution gas analysers built in
- ▣ Automatic operation
- ▣ Full data recording

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# LABPOD DCA SYSTEM

## FEATURES & SPECIFICATIONS

### MEASUREMENT & CONTROL RANGE

Oxygen: 0-25% or 0-2.5% Auto range Resolution: low range +/- 0.002% O<sub>2</sub> Electrochemical 4-year long life sensor  
Carbon Dioxide: Two options at purchase, 0-5% or 0-20% CO<sub>2</sub> Resolution: < 5% 0.002% >5% 0.02%

### CONTROL INPUTS

Control Gases required: Nitrogen with an oxygen content lower than minimum required CA Oxygen.  
Fresh Filtered Air. CO<sub>2</sub> if required. Gas supply inlet pressure 1 to 3 Bar (15 to 50 psi)

Automatic atmosphere control with included solenoids.

Control Setpoints for Oxygen and CO<sub>2</sub> adjustable to a 0.01% resolution. Gas control differentials 0.05%, CO<sub>2</sub> add differential 0.2%.

Air added when Oxygen is measured low: Air flow adjustable 0.5 to 5 L/min

Nitrogen added when Oxygen is measured high or when CO<sub>2</sub> is high. Adjustable flow 1 to 10 L/min

CO<sub>2</sub> (if connected) added when CO<sub>2</sub> is low. Adjustable flow 0.1 to 1. L/min.

Additional flow rate adjustable from controller from 100% to 1% of maximum flow over a 5 minute period.

Optional CO<sub>2</sub> scrubber available for CO<sub>2</sub> control if Nitrogen flush CO<sub>2</sub> removal is not acceptable.

### RESPIRATION & RQ MEASUREMENT

Automatic frequency of measurement, adjustable from 10 to 999 hours

### OPERATION OF INTERNAL FAN

ON when control gases being added. With no gas addition, adjustable over range 1 to 999 seconds every 1000 seconds.

### TEMPERATURE MEASUREMENT

Probe with a typical accuracy of 0.1°C available for measuring and recording the fruit temperature

### ANALYSER CALIBRATION

Zero stability typically better than 0.05% over 12 months

Automatic barometric pressure compensation for span calibration

Remote calibration possible from operating panel.

Sampling port available for atmosphere sampling with a portable standard analyser and for Ethylene and volatile measurement

### WATER LEVEL DETECTOR

A warning indicated on operators screen when water in trough is low and requires topping up.

### PRESSURE RELIEF

The flow of correction gases into the LabPod are automatically discharged to atmosphere through vents normally sealed by the water seal.

### ELECTRICAL CONNECTION

One multicore cable for CAN data connection and 24v operational power. Connector & wall mounted termination box provided with each LabPod.

### CENTRAL OPERATION PANEL

5.7inch touch screen display. Capacity for up to 32 LabPod connections. 24v power supply for the system included in Panel.

Additional power supply needed for greater than 16 Lab Pods. The controller has a standard Ethernet connection with a dedicated IP address.

Remote client and PC software provided for PC operation.

Continuous readout of gas and temperature and operational status. Access to all control settings. Remote analyser calibration protected with a passcode. Settings for empty volume and product weight for respiration rate calculations

### DATA COLLECTION

O<sub>2</sub>, CO<sub>2</sub> and temperature recorded every hour together with most recent RQ and respiration results. Results stored on CF card in PLC and on hard disk of connected PC. Can be displayed on PC in Graphical and tabular formats and exported in various formats including Excel, Word and pdf.

### LEAKTIGHTNESS

Oxygen at typically 1% in a static LabPod (no produce, no correcting gas) will remain within 0.1% O<sub>2</sub> over a period of 24 hours.

### DIMENSIONS

135 x 84 x 70 cm high Weight 46 Kg. Empty volume 379L. Pull down time to 2% Oxygen with N<sub>2</sub> at 5 L/min is 4 Hours.

Capacity: 4 x RPC crates (Typical Single RPC size: 40 x 60 x 20 cm, 17 Kg capacity)

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