

# LABPOD MINI SYSTEM



SCS Labpod mini

The LabPod mini can be used for testing the respiration rate of fruit, vegetables, or packaged produce. Another use of the LabPod is for actually holding an oxygen and carbon dioxide setpoint. It is ideal for Postharvest laboratories working with controlled atmospheres and respiration rates within a controlled temperature environment. Along with respiration data, the Low Oxygen Limit can be easily defined as the respiration of the produce inside brings the oxygen level down.

The LabPod mini 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 22 pounds of produce in standard 12x16 inch plastic crates. Each pod is self-contained with built in oxygen, carbon dioxide, and temperature sensors, all 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 Rate and Respiration Quotients are periodically and automatically measured using the built-in high sensitivity analyzers. Once the atmosphere control is paused, the changes in oxygen and CO<sub>2</sub> caused by the product respiration are measured and used to calculate and display the respiration rate. An internal low power circulation fan periodically stirs the atmosphere, which is also activated by the system controller.

Each SafePod Controller, pictured below, controls two LabPod minis. All setpoints are programmed via the SCS app or web interface. The measured data is regularly collected and can be displayed on the app or web dashboard, are continuously uploaded to the SCS Cloud, and can be exported to Excel or other common programmes.

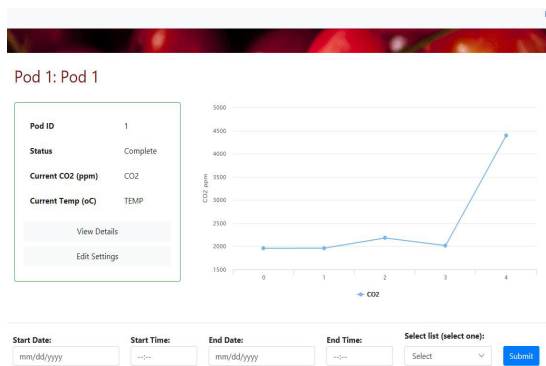
Dashboard

History

Start Date: mm/dd/yyyy End Date: mm/dd/yyyy Select list (select one): Select Submit

Pod	Time Stamp	Mode	CO <sub>2</sub> ppm	Temperature °C	Test Time	Respiration	Pod
16	2019-02-04 12:40:48	Complete	400	10	10	Pod	Pod
9	2019-02-04 12:40:12	Complete	400	10	10	Pod	Pod
13	2019-02-04 12:39:43	Complete	400	10	10	Pod	Pod
10	2019-02-04 11:41:24	Complete	400	50	50	Pod	Pod
14	2019-02-04 11:40:55	Complete	400	50	50	Pod	Pod
11	2019-02-04 11:20:48	Complete	400	33	33	Pod	Pod
15	2019-02-04 11:20:18	Complete	400	33	33	Pod	Pod
12	2019-02-04 11:09:46	Complete	400	25	25	Pod	Pod
8	2019-02-01 13:00:42	Complete	400	10	10	Pod	Pod
5	2019-02-01 13:00:42	Complete	400	10	10	Pod	Pod
2	2019-02-01 12:01:56	Complete	400	50	50	Pod	Pod
6	2019-02-01 12:01:54	Complete	400	50	50	Pod	Pod

Web-Based Data-Recording Interface for Remote Monitoring



Web-Based Graphing of Data with Export Options



## FEATURES

- Patented Technology – U.S. Patent No. 11484038,
- Canadian Patent No. CA 3057938, UK Patent No. GB 2579270
- Calculates Respiration Rates
- Self-Contained Control of Atmosphere
- Measures Respiration Quotient
- 22 Pounds/10kg Capacity
- High-Resolution Gas Analysers
- Automatic Operation
- Full Data Recording & Graphing via SCS Cloud
- Cloud Reporting



XPod Controller

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# LABPOD MINI 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: 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 0.1 to 1 L/min

Nitrogen added when Oxygen is measured high or when CO<sub>2</sub> is high. Adjustable flow 0.2 to 2 L/min

CO<sub>2</sub> (if connected) added when CO<sub>2</sub> is low. Adjustable flow 20 to 200 mL/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 website.

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

Capacity for up to 2 LabPod connections.

The controller has a standard Ethernet connection with an IP address.

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 web-based portal accessible via internet browser or mobile app for iOS and Android devices. Can be exported in various formats including Excel 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

55 x 50 x 35 cm high Weight 13 Kg. Empty volume 41L. Pull down time to 2% Oxygen with N<sub>2</sub> at 2 L/min is 1 Hour.

Capacity approx 10kg fruit. Plastic 1/2 crate 300 x 400 mm Maximum height 240mm (1 x 220 box or 2 x 120mm box or 4 x 70 mm)

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