



PILOT OXYGEN GUIDE

Portable Oxygen Concentrator — Aviation Operation & Reference

1 UNDERSTANDING YOUR ALTITUDE ONE

The Altitude One is a portable pulse-dose oxygen concentrator designed for pilots who require supplemental oxygen during flight. It draws ambient air, strips out nitrogen using molecular sieve technology, and delivers high-concentration oxygen ($\geq 90\%$) on demand — triggered by your breath. Understanding its operating modes is essential before your first flight.

Key Specifications

Specification	Value
Oxygen Concentration	$\geq 90\%$ at all settings and respiratory rates
Operating Altitude	Up to 18,000 ft
Warm-Up Time	2 minutes (do not use during warm-up)
Operating Noise	≤ 60 dB(A) at position 5
Respiratory Rate Range	10–40 BPM
Settings	1, 2, 3, 4, 5, 6, 7, 8, L
Battery Life	4–1.2 hours (8-cell, varies with ambient temperature)
Unit Weight	3.2 lbs + 1.0 lb battery
Dimensions	6.7 x 3.1 x 7.8 in
AC Power Input	110V, 50/60 Hz
DC Input	12V DC
Temperature Range	5°C – 40°C (41°F – 104°F)

2 OPERATING MODES

The Altitude One has three distinct operating mode types across its setting range. Selecting the correct mode for your phase of flight is critical to ensuring adequate oxygen delivery.

Settings 1–7 | Pulse Dose with Breath Sensing

In settings 1 through 7, the unit operates in **pulse dose mode with active breath sensing**. A sensitive trigger (≤ 0.12 cmH₂O) detects the onset of each inhalation and delivers a precisely timed bolus of oxygen at the start of the breath — the moment when oxygen delivery is most efficient for gas exchange.

Setting	Flow Volume	Best Use
1	Lowest pulse	Low altitude / light workload
2	Low pulse	Cruise up to 10,000 ft
3	Moderate	General cruise, 10,000–13,500 ft

4	Moderate-high	Higher altitude cruise, 13,500–15,500 ft
5	High	Higher altitude, 15,500–18,000 ft
6	Higher	High demand, approaching 18,000 ft
7	Maximum pulse	Maximum altitude up to 18,000 ft

NOTE In pulse/sense mode the unit must detect your breath to trigger delivery. Ensure the cannula is properly seated and tubing is not kinked. If no breath is detected for 15 consecutive seconds, a 'No Breathing Detected' alarm sounds.

Setting 8 | Maximum Pulse Dose — No Breath Sensing

Setting 8 delivers the **maximum available pulse dose at a fixed rate, without waiting for breath detection**. Pulses are delivered on a timed interval regardless of your breathing pattern. Use this mode when:

- The unit is having difficulty detecting shallow breaths at high altitude
- You are breathing through your mouth and the cannula trigger is unreliable
- Maximum dose is needed in a high-demand situation
- Breath-sensing alarms are triggering due to unusual breathing patterns

Setting L — Continuous / Constant Flow — Maximum Dose

Setting L activates **continuous flow at the maximum oxygen output**. Unlike pulse modes, the concentrator delivers a steady, uninterrupted stream of oxygen — similar to a traditional oxygen system. Oxygen flows regardless of breath timing.

When to use Setting L:

- When you need to reach or maintain maximum altitude for your aircraft configuration
- When pulse settings are not maintaining adequate SpO2 at higher altitudes
- When a pilot is unable to breathe through the nose and requires full-time delivery

Mode Quick-Reference Summary

Mode	Type	Breath Sensing	Dose Level	Battery Impact	Best For
1–7	Pulse	YES — triggered by inhalation	Low → High (by setting)	Low–Moderate	Normal flight operations
8	Pulse	NO — timed continuous pulse	Maximum pulse	High	Sensing failure or high demand
L	Constant Flow	NO — steady stream	Maximum continuous	Very High	Max dose need

3 PRE-FLIGHT CHECKLIST

Complete the following checks before every flight where the Altitude One will be used.

Power

- Battery fully charged and securely installed
- AC/DC adapter available for long flights
- Battery charge shows 3–4 bars minimum for planned flight

Hardware

- Nasal cannula connected to oxygen outlet nozzle — firm, airtight fit
- Tubing is not kinked, pinched, or blocked
- Air inlet and heat dissipation holes are clear and unobstructed
- Unit is secured in aircraft — will not shift during maneuvers

Startup

- Press ON/OFF — confirm startup beep sounds
- Allow 2-minute warm-up — do NOT connect cannula or use oxygen yet
- After warm-up, connect cannula and begin normal use
- Confirm O₂ concentration reading $\geq 90\%$ on display
- Confirm setting is set for planned departure altitude

Display Check

- Battery status shows adequate charge for flight
- O₂ percentage shows $\geq 90\%$
- No warning indicators illuminated
- Flow rate matches selected setting

4 IN-FLIGHT OPERATIONS

Selecting Your Setting for Altitude

As a general guideline, increase your setting as you climb. Individual requirements vary based on physiology and physical condition. Use a pulse oximeter to verify SpO2 and adjust accordingly. Start conservative and increase your setting if saturation drops below 90%.

Aircraft Seats	Approx. Max Altitude	Suggested Setting	Mode Type
1 seat	18,000 ft	7–8	Pulse / Sense
2 seats	15,500 ft	5–6	Pulse / Sense
3 seats	14,500 ft	4–5	Pulse / Sense
4 seats	13,500 ft	3–4	Pulse / Sense
Max dose needed	Any altitude	L	Continuous Flow

Adjusting Flow Mid-Flight

Use the **+** and **-** buttons on the front panel to increase or decrease your setting while in flight. Changes take effect immediately. If climbing or descending significantly, adjust proactively rather than waiting for symptoms.

Switching Between Modes In Flight

- **Pulse → Setting 8:** If the unit is alarming 'No Breathing Detected' or sensing is unreliable, step up to Setting 8. Oxygen delivery continues without requiring breath detection.
- **Setting 8 → Setting L:** For high-demand conditions requiring continuous maximum oxygen, press to Setting L.
- **Returning to Pulse:** Once conditions normalize, step back down to an appropriate pulse setting to conserve battery.

Battery Management In Flight

Battery life varies significantly with setting and temperature. Plan accordingly:

Condition	Expected Battery Life (8-cell)
Lower pulse settings (1–3)	Up to 4 hours
Mid pulse settings (4–6)	2–3 hours (estimate)
High pulse / Settings 7–8	1–2 hours (estimate)
Continuous flow (Setting L)	Significantly reduced — use external power

TIP For flights longer than 2 hours, connect to aircraft DC power (12V) via the vehicle adapter. The power indicator confirms a good connection and eliminates battery drain entirely during cruise.

5 ALARMS & IN-FLIGHT TROUBLESHOOTING

When an alarm occurs, a beep will sound and alarm information appears on the display.

Alarm	Cause	Pilot Action
No Breathing Detected	Unit not detecting breath for 15 consecutive seconds	<ol style="list-style-type: none"> 1. Check cannula is properly seated 2. Check tubing for kinks 3. Switch to Setting 8 (no-sense mode)
Low Battery	Battery 0–20% on battery power only	<ol style="list-style-type: none"> 1. Connect to DC/AC power immediately 2. If unavailable, land as soon as practicable 3. Use lower settings to conserve charge
High Temp / Comp. Off	System temp exceeds 60°C — fan failure or blocked airflow	<ol style="list-style-type: none"> 1. Check inlet and cooling holes for blockage 2. Shutdown unit 3. Allow 20 min to cool before restart 4. Contact seller if issue persists
Fan Stopped	Cooling fan has stopped rotating	<ol style="list-style-type: none"> 1. Alarm only — contact seller promptly 2. Monitor unit temperature 3. Prepare to switch to backup O2
Low O2 Concentration	Oxygen output below threshold	<ol style="list-style-type: none"> 1. Check machine temperature 2. Restart after 10 min shutdown 3. If persists, molecular sieve may need service
No Output	Tubing kinked/blocked or not connected; equipment fault	<ol style="list-style-type: none"> 1. Check all cannula and tubing connections 2. Verify rubber hose is connected to outlet 3. Contact supplier if no improvement

Common Issues — Non-Alarm

Problem	Likely Cause	Solution
Unit won't turn on	Dead/disconnected battery or poor AC connection	Reinstall battery; connect to AC adapter; check power cord
No oxygen through cannula	Rubber hose kinked, not connected, or fault	Check and straighten tubing; confirm firm connection to outlet nozzle
Warm air from exhaust port	Normal heat dissipation during extended use	Not a fault — exhaust is a heat vent, not an oxygen outlet
Short battery life	High setting / continuous flow or cold temp	Use lower setting where possible; switch to DC power; keep unit warm

6 STARTUP & SHUTDOWN PROCEDURE

Startup

1	Select power source — battery, aircraft DC (12V), or AC adapter
2	Press and hold ON/OFF button — listen for startup beep
3	Allow 2-minute warm-up — unit purges internal air — do NOT use yet
4	After warm-up, connect nasal cannula to oxygen outlet nozzle
5	Confirm airtight, secure connection — tubing not kinked
6	Set to appropriate setting for current or planned altitude
7	Confirm display: O ₂ ≥90%, no warning lights, battery adequate
8	Begin normal use — unit triggers on each inhalation (Settings 1–7)

Shutdown

1	Long-press ON/OFF button for approximately 3 seconds
2	Listen for shutdown beep — shutdown screen will appear
3	Unit will power off automatically
4	Disconnect cannula and all power connections
5	If storing, remove battery from unit to prevent drain

7 MAINTENANCE & CARE

Item	Interval	Action	Who
Intake Filter Cotton	Monthly / 100 hrs	Replace — see steps below	Owner
Molecular Sieve	2–3 Years	Contact seller for service	Authorized only
Battery	Every 3 months	Charge to 30% for storage	Owner
Rubber Hose / Cannula	Monthly (est.)	Inspect and replace as needed	Owner
Equipment Cleaning	As needed	Wipe exterior — see cleaning rules	Owner

Filter Cotton Replacement (Monthly / 100 hrs)

1. Shut down the device and disconnect all power — remove battery
2. Remove the filter cotton bottom shell
3. Carefully remove the intake filter cotton (may contain dust — avoid inhaling)
4. Install new filter cotton in the correct orientation
5. Replace the filter cotton bottom shell
6. Dispose of old filter cotton properly

NOTE For molecular sieve replacement, contact Pure Medical for a replacement kit.

Cleaning Guidelines

- Power off and disconnect all power before cleaning
- Do NOT allow water or liquids to enter the unit or oxygen outlet
- Do NOT use alcohol, chlorinated solutions (Clorox), or oil-based cleaners
- Do NOT use organic solvents or flammable volatile substances
- Wipe exterior gently with a dry or lightly damp cloth
- Ensure unit is completely dry before next use

Battery Care

- Use only the dedicated factory battery — do not substitute third-party lithium batteries
- Battery life rated at 500 full charge/discharge cycles
- For long-term storage, keep charge at 30–60%
- Charge stored batteries every 3 months
- Remove battery from unit during extended storage

8 WARRANTY & SERVICE

Component	Warranty Period	Notes
Oxygen Concentrator Host (excl. consumables)	3 Years from purchase date	Faults not caused by user error repaired free during warranty period
Battery	500 cycles or 1 Year	Does not cover damage from non-approved batteries
Molecular Sieve	2–3 Years	Long-term humid storage/operation may reduce service life
Consumables (hose, filter cotton)	Not covered	User-replaceable; purchase from authorized sellers

Service Contact

For warranty service, molecular sieve replacement, or technical support, contact Pure Medical:

Pure Medical / Altitude One	
Website	puremedco.com
Phone	888.747.7590
Email	info@puremedco.com