
Oxysync Oxygen Control System

Revision 1.0 – March 2026

**System Overview**

The Oxysync system is a multi-zone, low-voltage oxygen control system designed to increase and regulate indoor oxygen concentration systems within designated residential spaces. The system is intended to improve comfort and support altitude acclimation by enriching indoor air with supplemental oxygen while maintaining controlled and stable oxygen levels.

Oxysync continuously monitors oxygen concentration in each controlled zone using both in-room sensors and timer-based operations. Oxygen production and distribution are coordinated through automated control logic that combines sensor feedback with programmable scheduling.

The system is designed to operate autonomously under normal conditions, regulating oxygen levels, managing equipment cooling cycles, and preventing excessive oxygen concentration through built-in safeguards. Multi-zone operation allows oxygen to be delivered to different areas of the residence at different times, optimizing both occupant comfort and equipment efficiency. No daily user interaction is required for normal operation.

This cut sheet is intended to provide a general technical overview of the Oxysync system, including key specifications, power requirements and special needs. Information contained in this document is intended for planning and reference purposes and does not replace detailed installation instructions or site-specific system design documentation.

| Feature Specification | Feature Specification |
|---|---|
| Zones | Zones 8 / 16 / 32 relay configurations |
| Control Modes | Timer-only with remote screen<br>Timer-only no remote screen<br>Sensor-based (24% target) |
| Cooldown | Cooldown Automatic 1-hour enforced delay when oxygen saturation reached. Also, recommended when setting up timer-only zones. |
| Oxyburst | On-demand mode. When used, immediate oxygen system activation for specified zone. No impact on overall oxygen schedule |
| Base Enclosure | Dimensions: 280 mm x 190 mm x 140 mm. Gasket-sealed thermoplastic housing for indoor control installations. |
| Sensor Enclosure | Sensor module installed within single-gang remodel style enclosure using custom trim plate with airflow slots and integrated 30 mm axial fan. |

**Installation Considerations**

Sensor recommended be located at the headboard wall within 6 feet of the bed.

Avoid placement near HVAC supply vents, return vents, or direct oxygen discharge streams.

Ensure airflow slots on sensors remain unobstructed.

Do not install sensors behind furniture, drapes, or other obstructions that may restrict air circulation.

Install equipment in a clean, dry indoor environment with stable temperature conditions.

Ensure the oxygenated zone can be reasonably isolated (doors and windows closed) during operation.

Recommended a dedicated electrical power circuits be provided to limit power surges.

Allow sufficient wall or equipment space for user and service access.

Low-voltage communication wiring should be routed separately from high-voltage power wiring when possible.

Indoor residential use only.

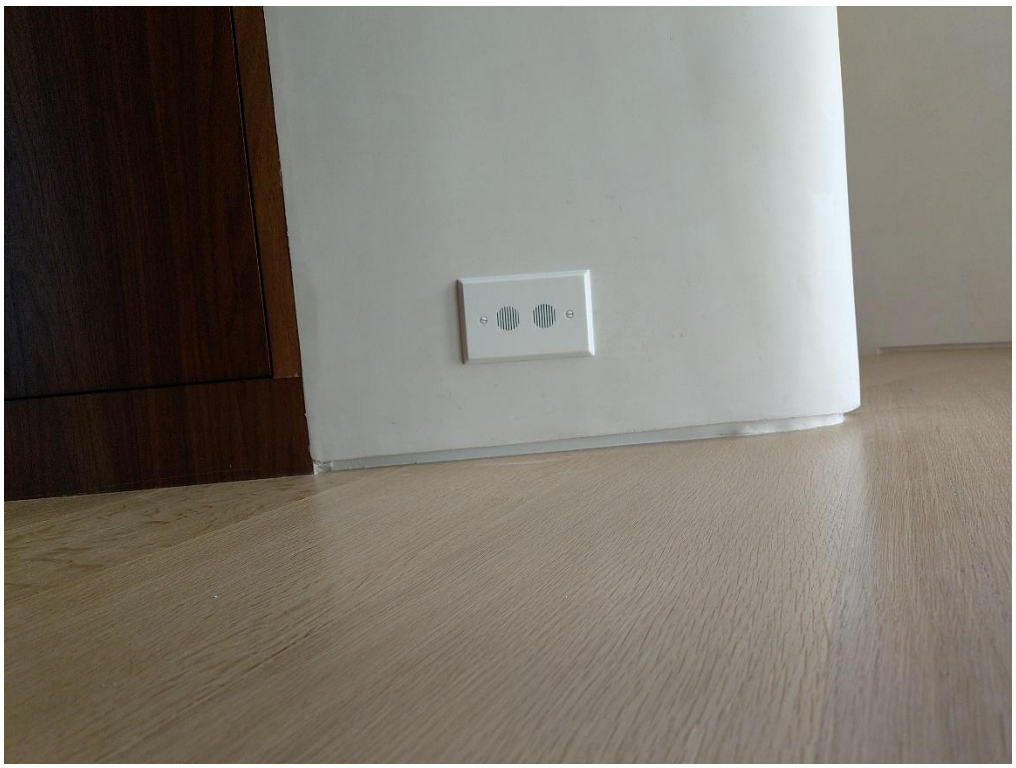
**Component Specifications**

**Base**

| Dimensions | Parameter Specification |
|---|---|
| Power requirements | 12 VDC regulated, 5.5 mm barrel (center positive) |
| Relay Type | Electromechanical dry contact (Normally Open) 12 VDC 1.6 AMP. |
| Relay Contact | Rating 10 A @ 250 VAC / 10 A |
| Network | WiFi 2.4/5 GHz (WPA2/WPA3) or Ethernet 10/100 |
| Power requirements | 5.5 mm barrel (center positive) 12VDC ~ 500 mA. |
| Touch Type | Capacitive multi-touch |

**Sensor**

| | |
|---|---|
| Dimensions | Single-gang wall box format (~69 mm x 114 mm face) |
| Wireless Sensor Link | Bluetooth Low Energy (2.4 GHz). Must be located within 50 feet - open space, or 30 feet - obstructed. |
| Sensor Interface | $I^2C$ digital oxygen sensor (PCB-level assembly) |
| Microcontroller | 32-bit dual-core MCU (240 MHz class) |
| Trim plate | Vented airflow faceplate with integrated 30 mm fan mount |
| Fan | 30 mm axial fan (rated 5 VDC, operated at 3.3 VDC) |
| Fan Operation | Continuous active airflow sampling |
| Power requirement | 5 VDC supplies from GPIO pins in remote screen or base ~ 250 mA (including fan) |

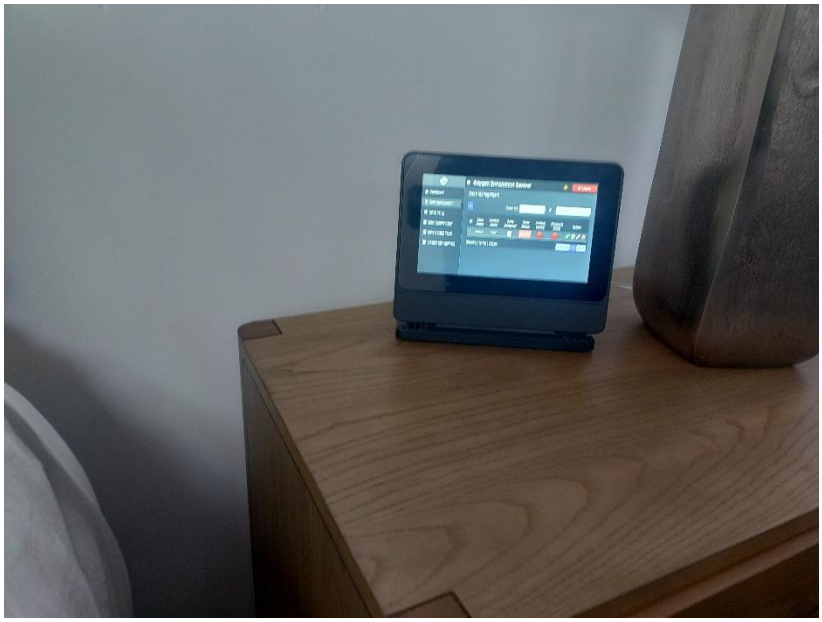


**Remote screen – Wall**

| | |
|---|---|
| Dimensions | Overall size: 8.1 in × 5.1 in × 0.75 in |
| Mounting | 3 Gang electrical box |
| Material | Anodized aluminum |
| Weight | 13 oz. |
| Power requirement | PoE (IEEE 802.3af/at) ~ 2 AMP |
| Touch Type | Capacitive multi-touch |

**Remote screen – Tabletop**

| | |
|---|---|
| Dimensions | Overall size 8.4 in w x 7.9 in h x 1 in d |
| Bottom plate | Weighted plate with rubber grip pads |
| Material | ABS plastic |
| Weight | 13 oz |
| Power requirement | 5 VDC 5.5 mm barrel connector ~ 2 AMP |
| Touch Type | Capacitive multi-touch |



**Estimated Power Budget**

| Component | Estimated consumption |
|---|---|
| Base Controller Logic | ~500 mA @ 12 VDC |
| Relay Module (per 8 channels active) | ~250–400 mA |
| Remote Display | ~2 A @ 5 VDC |
| Sensor Module | <250 mA @ 5 VDC |