*Training Video*

**VAPOTHERM®**

# Oxygen Assist Module (OAM)
# Guide for Neonates

*Suitable for any Baby on Vapotherm Precision Flow requiring manual adjustment in response to SpO₂ fluctuations.*

## A: Before starting automated control

- Titrate flow, temperature and $FiO_2$ manually to patient requirements.
- Attach the second $SpO_2$ probe and turn on the OAM.
- Adjust the Patient Screen settings ($SpO_2$ Target ❸, Backup $O_2$ ❶ & $O_2$ Alarm Limit ❷)

| Setting* | Preterm | Term |
|---|---|---|
| ❸ SpO₂ Target* | | |
| ❹ Target Range* | | |
| ❶ Backup O₂* | | |
| ❷ O₂ Alarm Limit* | | |

*\* fill in your facility defaults*
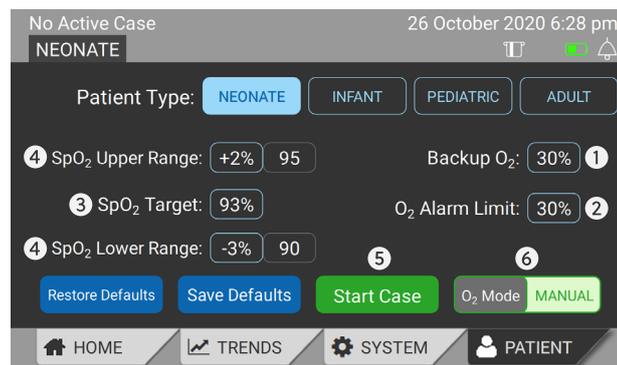


## B: Settings guide

❶ **Backup O₂** - *"The FiO₂ you want to deliver when signal is lost"*
If the $SpO_2$ signal gets lost, the last calculated $O_2$ is delivered for 2 minutes.
After 2 consecutive minutes of signal loss, the OAM will alarm and go to its "Fallback mode" (see IFU for details), one option of which is the set backup $O_2$.

❷ **O₂ Alarm Limit** - *"The threshold of FiO₂ you want to be notified"*
This is a critical alarm that is used to alert the clinician once the patient requires more $O_2$ than the set limit for more than 2 consecutive minutes. This $O_2$ alarm will signify a patient deterioration in the absence of an $SpO_2$ alarm, which helps mitigate the risk of missing a change in the patient's stability.

❸ **SpO₂ target** - The OAM uses the $SpO_2$ target value to drive the controller and make decisions on the delivered $O_2$. It can be set between **80-100%**.

❹ **SpO₂ target range** - The $SpO_2$ target range is for graphical display only. The light blue target range bar is visible on the HOME and TREND screens to allow visual judgement of the patient's $SpO_2$ stability.

## C: Starting automated control

- After checking and adjusting all patient settings, press **Start Case** ❺
- Check correlation between patient monitor and OAM $SpO_2$.
- If a clinically relevant mismatch occurs, $SpO_2$ probe(s) need be repositioned/replaced, or sites changed.
- **Start AUTO mode** ❻
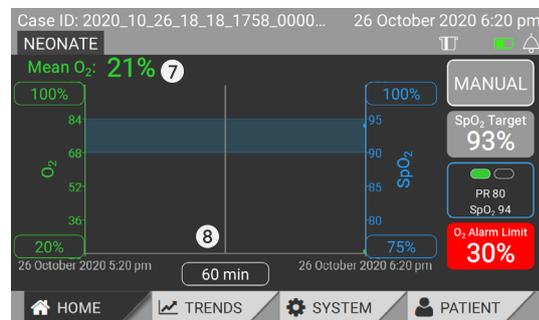


## D: Recommended Monitoring frequency

- **Hourly**
  Record $SpO_2$ from patient monitor on observation chart and re-check correlation of $SpO_2$
  Record Mean $O_2$ ❼ from Home screen set to 60min ❽
- **At start of shift and every 4 hours**
  - Check and adjust backup and alarm settings (Backup $O_2$ & $O_2$ Alarm Limit)
  - Check therapy settings ($SpO_2$ Target)
  - Re-check $SpO_2$ difference between OAM and monitor (every 4 hours and after major changes such as positioning, probe site changes etc.)

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Titrate HVNI manually
Attach second SpO₂ Probe
**Turn on OAM**
 〉
Adjust Patient Screen
settings to individual
**Start Case**
 〉
Check for correlation between
OAM & SpO₂ monitor readings
**Start Auto mode**
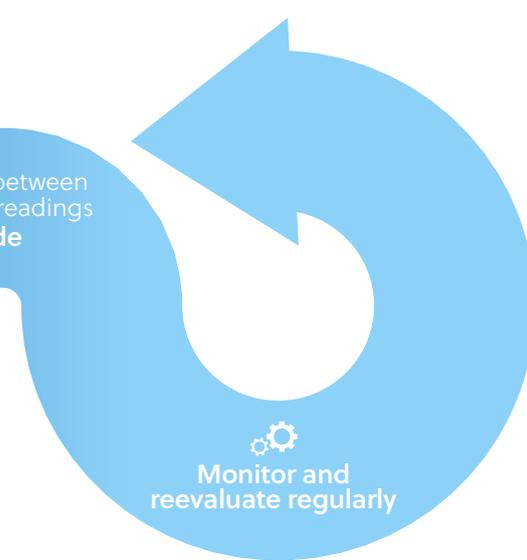
Monitor and
reevaluate regularly

## E: Additional Information

### OAM makes large and frequent changes to the $FiO_2$, is this correct?

The OAM control algorithm is tuned to maintain the patient as close as possible to the set target SpO₂. In order to achieve this and based on its 10 second cycle time, the OAM can make large and frequent adjustments to the $FiO_2$. The behavior and performance of the OAM (investigated in a clinical trial[1]) was able to keep babies in target range for 80% of time (vs 49% in manual control)

### The OAM and the monitor SpO₂ do not match up — what shall I do?

The issue will most likely be the probes, the probe positioning, patient movement, an open duct or differences in limb perfusion. We recommend working with your SpO₂ probes: adjust them, change sites or replace them until you get a good match of the SpO₂ readings.
Should this be impossible or outside your currently available resources we suggest turning the OAM into MANUAL mode, control the $O_2$ setting manually and return to AUTO mode once you have had success in matching up the SpO₂ readings.

### Why do I have to use two probes?

The OAM is not an SpO₂ monitor and does not provide SpO2 alarms. Pulse oximetry is a technology which is heavily vulnerable for interferences. Having two probes helps to validate the information by identifying differences between the two readings (OAM and Monitor). If a large difference is shown it should be solved by repositioning the probes, checking probe age or changing probe site. Auto mode should not be used until the mismatch between the two readings is settled.

### What is the "Exit Override" setting?

You can override the OAM at any time by using the Precision Flow control knob. The OAM will go into an "Override mode" and deliver the clinician's chosen $FiO_2$. After the set "Exit Override" time it will revert back to automatic control again.

### Does the algorithm learn from the patient's dynamics?

The algorithm integrates short term past behavior into its calculations. Signal loss does not impact this as the OAM recognizes signal loss and pauses the algorithm until the next valid SpO₂ is recognized.

### Is tight control really better for my patient?

**Hypoxemia** increases the risk for NEC, death and neurodevelopmental impairment whereas **hyperoxia** increases the risk for ROP and lung damage. The OAM showed significant reduction of time in hyperoxia as well as hypoxemia when compared with manual control.[1]

1. Randomised cross-over study of automated oxygen control for preterm infants receiving nasal high flow; Reynolds et al. 2018;

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