

One Person / Portable

Portable-R3 GO2Altitude® Hypoxicator

Special features:

- Optimal training is achieved via unique [Hypoxic Training index](#) (HTi)
- Dosage of training is precisely measured by embedded microcontroller
- No over- or under-training. No non-responders. ([IHT](#)) works for everybody.
- Lightweight and compact design, EXTRA quiet operation
- Designed to last!
- Can be factory calibrated for extreme altitudes on request
- Fresh, normal humidity odourless air

Technical Specification

Variation of Simulated Altitude / O2 concentration:	9 - 13.5% $\pm$ 0.5% (to simulate altitude of 3,500m - 6,500m)
Programs of training:	8 fixed, add up to 100 of your own
Session duration:	Typical 90 min. Can be selected in the range of 5 - 600 min
Warranty:	24 months comprehensive (return to base). Maintenance is not required.
Dimensions (W x D x H):	300 x 280 x 800 mm
Weight:	20 kg / 44 lb
Power:	115V or 230V versions available
Price:	Contact us for pricing / availability. Comes with pulse oximeter, go2altitude PC software, 2 individual breathing sets (mask + non-rebreathing valve), Operational Manual with Training Protocols, computer and power cable, USB-serial adapter.
Who should use it:	Ideal for individual use. Serious athletes, mountaineers, sports teams, clubs. Can be used by multiple people per day as individual use breathing sets are supplied.

The **Hypoxic Training index (HTi)** provides an objective measure of the hypoxic stress delivered during the [Intermittent Hypoxic Training \(IHT\)](#) session, compared to simply recording the inhaled fraction of oxygen (FiO_2). HTi provides a figure (index) of dosage received by the individual at the end of the session.^[1] Knowledge of HTi can therefore be used to alter the training regime for different individuals, compensating for individual variability, and can be used in scientific studies to ensure that subject exposure was correctly controlled.

Tissue hypoxia develops only when arterial oxygen saturation ([SpO₂](#)) drops to 90% or below. This is due to the oxyhaemoglobin dissociation curve. Saturations above 90% produce very little effect or decrease of arterial oxygen partial pressure (PaO_2). In order to obtain consistent and comparable values of HTi for different individuals the following conditions should be stipulated:

- The values of SpO₂ above 89% are not considered in the calculation of HTi, as such saturation levels do not contribute to the treatment. [SpO₂](#) values below 75% count as 75%.
- HTi is calculated as an integral value of [SpO₂](#) readings made with 1 s sampling frequency and divided by 60 in order to produce a "per minute" value.
- During the treatment target [SpO₂](#) values are in the range of 75% - 89%.
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Calculation

The resulting formula for calculating HTi is:

where:

HTi : Hypoxic Training index,

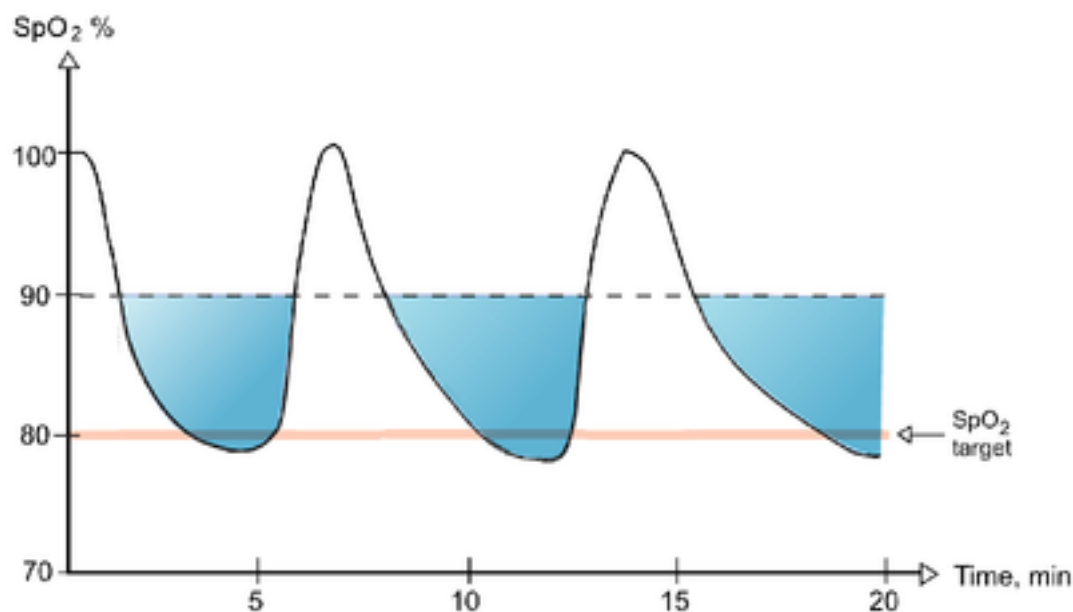
t : period of time, and

SpO₂ (t) : SpO₂ (%), arterial oxygen saturation value measured at one-second intervals.

- This image shows a typical [SpO₂](#) curve during a full biofeedback-controlled IHT session. (FiO_2 is altered automatically using biofeedback controlled [hypoxicator](#) to attain and sustain the desired SpO₂ target value.)

Software to calculate Hypoxic Training Index

Advanced [biofeedback controlled hypoxicators](#) are capable of adjusting the oxygen concentration in the inhaled hypoxic air automatically. This automatic biofeedback control allows targeting of the desired [SpO₂](#), compensating for individual variability. Software is also available^[2] to calculate HTi based on readings from a USB connected [Pulse Oximeter](#).



How the HTi is calculated: Only part of the IHT session is shown, the targeted [SpO₂](#) value is 80% as an example. The filled part of the [SpO₂](#) graph represents the amount of hypoxia delivered, "dosage".

References

- Bassovitch, O; Serebrovskaya, TV (2009). "Equipment and Regimes for Intermittent Hypoxia Therapy". In Lei Xi and Tatiana V. Serebrovskaya (eds.). *Intermittent Hypoxia: From Molecular Mechanisms To Clinical Applications*. Nova Science Publishers. pp. 589–601. ISBN 978-1-60876-127-2.
- http://fellrnr.com/wiki/Hypoxic_Timer Software to calculate HTi from a pulse oximeter