



# CW-SAR1000

## Small Animal Ventilator



For rats, mice and other small animals, the versatile **CW-SAR1000** ventilator is easy-to-use. You can deliver a fixed tidal volume with each breath (Volume mode) or set an airway pressure at which inflation stops (Pressure mode). In either mode, lung inflation is maintained at the end of inspiration until the percent inspiration (%Insp) time has elapsed. End inspiratory pause (IEP) improves gas exchange and efficiency of ventilation.

In volume mode, the ventilator operates on the proven flow-time principle, where a known airflow is delivered for a set time, delivering a fixed volume. In pressure mode, airflow is adjusted for a suitable inspiration time.

Actual tidal volume is computed and displayed on the LCD display, as well as minute ventilation (MV) and other respiratory parameters. A built-in air pump ensures self-contained

- Pressure or volume-cycled operation
- Wide tidal volume and rate range
- User-friendly
- Mice to Guinea pig size
- Direct display of Tidal volume and other parameters
- Remote control via USB port
- Safe with oxygen and anesthesia
- Multi-animal set-ups

operation. The pump draws in room air, oxygen or anesthetic gasses through a rear-panel port.

### Operation

Simple, intuitive controls on the **CW-SAR1000** let you set respiratory rate (RR). It displays as breaths/minute. Percent inspiration (%Insp) is the fraction of the total cycle time devoted to inspiration. Use the pressure knob to set the desired end-inspiratory pressure (and sigh pressure setting). Use the inspiratory flow knob to set the airflow rate during inspiration. The LCD display updates automatically with the new flow rate and corresponding tidal volume.

The volume and pressure modes are switch-selectable. In any mode, the front-panel pressure bar graph continuously displays the current airway pressure. Use an external data acquisition system to record the pressure signal.



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Sighs are initiated manually by pressing the sigh pushbutton. On a sigh breath, the end inspiratory pressure is determined by the sigh pressure setting.

### Features

Advanced sensors for airflow and pressure insure the accuracy of respiratory parameters. The simple but versatile operating modes allow safe, long-term ventilation of small, delicate animals.

Remote computer control using the built-in USB port and a host PC is available. Basic control and monitoring software is provided, and specialized software packages are optional. Using such external control programs, it is possible to synchronize the ventilator for imaging purposes, do neural-controlled ventilation, constant-CO<sub>2</sub> ventilation and much more.

### Accessories

The **CW-SAR1000** comes complete with everything needed for immediate operation. It is fully compatible with oxygen and inhalational anesthetic gasses. Available options include:

- Anesthesia kit turns the **CW-SAR1000** into a compact anesthesia/ventilator.
- Mixing manifolds for combining air or oxygen with anesthetic gasses.
- External valve assemblies for multiple animals or larger ones—The ventilator is expandable to multiple animals (or larger animals) via a rear-panel expansion port. Ventilate up to five mice or rats.
- A range of endotracheal tubes, connectors, tubing sets, etc.

Customizations are available.

## SPECIFICATIONS

Respiratory rate range.....	5–200 breaths/min.
Tidal volume range (NOTE 1).....	0.2–35mL
Inspiration/Expiration range (%Insp).....	10–90%
Inspiratory flow range.....	10–1000mL/min.
Pressure control range.....	0–50.0cmH <sub>2</sub> O
Internal air pump capacity.....	3LPM @ 5PSI (0.34 bar)
Analog pressure output voltage.....	50mV/cmH <sub>2</sub> O
Logic sync out voltage.....	5V (TTL)
Trigger in voltage.....	5V (TTL)
Remote-control interface.....	USB
INSP, EXP, and PRES MONITOR ports (front panel).....	Luer female
PUMP IN, PUMP OUT, FLOW IN, EXP AIR, and IN VENT ports (rear panel).....	0.15" flex tubing barb (4mm)
Power requirements.....	120/240VAC, 50Hz
Dimensions.....	9Wx4Hx9D in (23x10x23 cm)

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