

SomnoFlo, Endotracheal Intubation Kit and RoVent Jr.

How the three instruments connect into one working anaesthesia and ventilation line for mouse work. Gas path, canisters, settings, and the parts of the setup that are easy to get wrong.

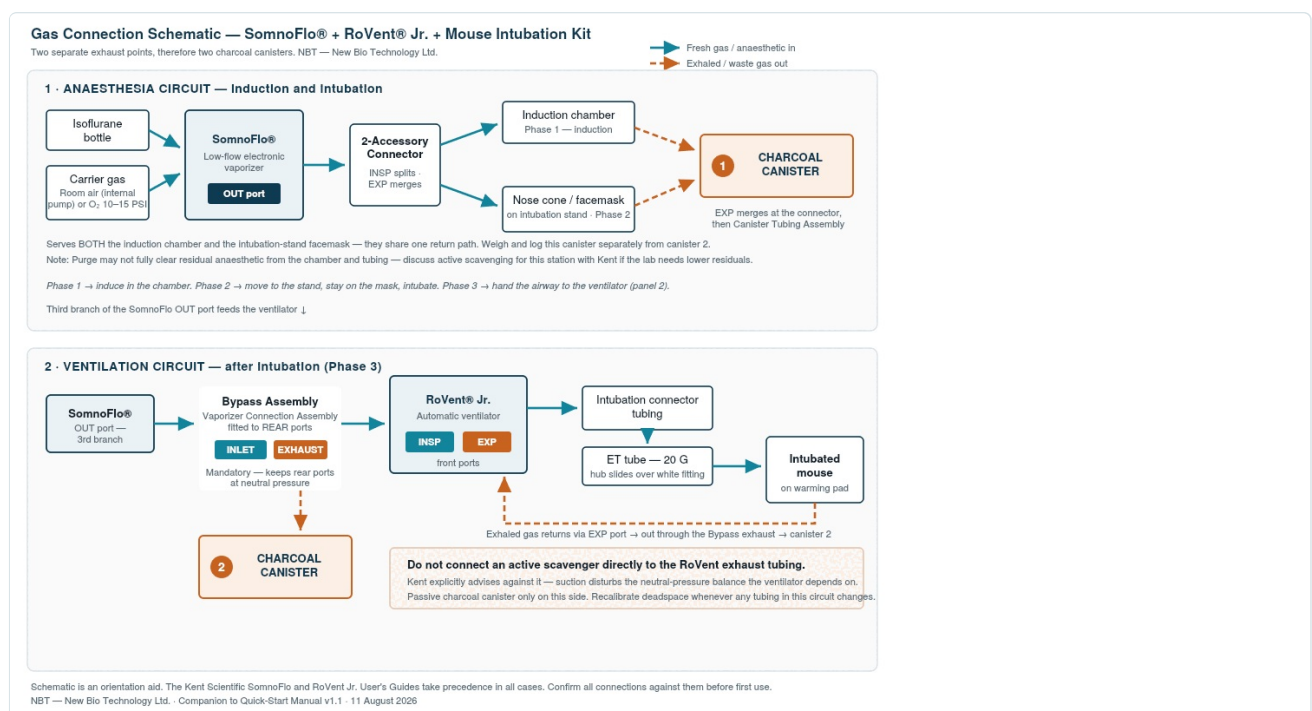
Version 1.0 August 2026 NBT - New Bio Technology Ltd.

Three Kent instruments, bought separately, used as one line. The SomnoFlo delivers the isoflurane. The intubation kit puts a tube in the airway while the animal is still on the mask. The RoVent Jr. then breathes for the animal through that tube.

The order is fixed. Anaesthesia, then airway, then ventilation. The RoVent Jr. will not ventilate through a nose cone, so a lab that buys a ventilator without an intubation kit has bought a ventilator it cannot use.

This guide covers the connections between the three. For operating detail on any single instrument, the Kent user guides are linked at the end and they take precedence over anything here.

01 The gas path



Fresh gas in teal, exhaled and waste gas in orange. Two exhaust points, so two canisters.

The SomnoFlo output feeds three things. Induction chamber, stand facemask, and the ventilator. The first two share a return path through the 2-Accessory Connector and one charcoal canister. The ventilator has its own exhaust and needs its own canister.

This is the question we get asked most often on this setup, so to be explicit about it: you need TWO canisters, and they saturate at different rates. The anaesthesia canister absorbs during induction. The ventilator canister absorbs for the length of the procedure. Weigh both, log the start weight, and replace at the weight-gain limit printed on the canister.

The Bypass Assembly

When the RoVent Jr. is fed from a vaporizer or any compressed gas source, the Vaporizer Connection Assembly with Bypass goes on the back of the ventilator. Gas source to the inlet side. Charcoal canister on the exhaust side.

The RoVent Jr. is built to run with its rear ports at neutral pressure. Backpressure there affects ventilator function, which is why the Bypass exists and why Kent does not recommend connecting an active scavenger directly to the exhaust

tubing. Passive canister on that side.

A note on the SomnoFlo side, which is different: Kent states that the Purge function may not fully clear residual anaesthetic from the chamber and tubing, and active scavenging there is worth discussing. Two circuits, two answers. Do not carry the ventilator rule across to the chamber.

02 Running the line

Induction on the SomnoFlo

- 1 Set carrier gas and concentration. Room air runs off the internal pump. Oxygen needs the compressed gas inlet.
- 2 Induce in the chamber. A smaller chamber induces faster and wastes less gas, which is the argument for buying the 0.47 L rather than defaulting to the 2 L.
- 3 Confirm depth before touching the animal. Toe pinch, breathing pattern, tail curl.

Intubation on the stand

- 1 Straight onto the stand facemask. The integrated mask is the reason to buy the Kent kit rather than improvise a stand, because the animal stays on isoflurane through the whole attempt.
- 2 Suspend by the upper incisors, supine, neck extended. Set the neck support angle. This adjustment is where the technique lives, and it is what separates a thirty second intubation from a twenty minute one.
- 3 Transilluminate the neck with the fiber optic illuminator and find the tracheal opening.
- 4 Advance the catheter through the cords. Do not force it. Resistance means withdraw and reposition.
- 5 Confirm placement before connecting the ventilator. Chest rise, condensation in the tube, capnography if it is available.

Ventilation on the RoVent Jr.

- 1 Connect the endotracheal tube to the intubation connector on the front panel.
- 2 Set body weight. Main Menu, Body wgt, turn Dial B. The screen shows the nominal rate, tidal volume and minute volume it will use.
- 3 Choose the priority mode under More ventilator, Priority Menu.
- 4 Start ventilator. Watch the first ten breaths for even chest excursion and a clean pressure waveform.
- 5 Stop ventilator at the end of the procedure and recover the animal warm.

03 Calibration

The RoVent Jr. needs to know the volume of your tubing. At a mouse tidal volume of 0.2 mL, the tubing between the ventilator and the animal holds a large fraction of every breath, so an uncalibrated setup delivers the wrong volume from the first breath and nothing on the screen tells you.

Run Measure Deadspace and Zero Sensors on first use and after any change to tubing or connectors. Calib & tests, Measure deadspace, seal the end of the endotracheal tube so there is no leak, press Dial B twice. Then Zero sensors, Dial B twice.

Never run either function with an animal connected. The same applies to Purge and Leak Test.

04 Settings the ventilator does not calculate for you

Body weight sets the respiratory rate and the tidal volume. Everything below is a separate decision.

BODY WEIGHT	TIDAL VOLUME	RESPIRATORY RATE	MINUTE VOLUME	PER KG
20 g	0.132 mL	148 bpm	19.5 mL/min	6.6 mL/kg
25 g	0.166 mL	140 bpm	23.2 mL/min	6.6 mL/kg
30 g	0.200 mL	133 bpm	26 mL/min	6.7 mL/kg
35 g	0.235 mL	128 bpm	30.1 mL/min	6.7 mL/kg
40 g	0.270 mL	124 bpm	33.4 mL/min	6.8 mL/kg

Kent's worked example in the RoVent Jr. User's Guide is a 30 g mouse at 133 bpm, 0.200 mL, 26 mL/min. Device ranges are 20 bpm to 400 bpm, 0.01 mL to 12.0 mL, and 3 g to 1,250 g.

Those nominals work out around 6.6 mL/kg to 6.8 mL/kg. A lot of published mouse protocols use 8 mL/kg to 10 mL/kg. My view, and it is a view rather than a Kent instruction: check what your protocol specifies before the first experiment rather than after, because the difference is large enough to matter and the ventilator will not flag it. Which figure does your protocol use?

SETTING	WHERE	WHAT IT DOES
Priority mode	More ventilator, Priority Menu	Pressure Priority ventilates to a set inspiratory pressure and reports the delivered volume. Volume Priority delivers an initial target pressure on the first breath, then a target tidal volume, and reports the pressure it needed.
Target pressure	Set target pressure	Default is 15 cmH ₂ O and it does NOT scale with body weight. A 15 g mouse and a 40 g mouse both get 15 cmH ₂ O until someone changes it.
Target volume	Set target volume	Used in Volume Priority. Defaults to the weight derived figure above. Setting it here replaces the calculated value.
Respiration rate	Respiration rate	Manual override of the weight derived rate.
Min and max pressure	Volume Priority settings	The pressure range the ventilator may work within while chasing the target volume. Set before running.
Deadspace	Calib & tests	Section 03. Re-run after any tubing change.

Two dials. Turn Dial A to move through menu choices, turn Dial B to change a value. Press Dial A to go back a level, press Dial B to select or to clear alarms. Hold Dial A from the run screen for the Main Menu, or from any menu screen for on-unit help. Touch the upper half of the run screen for the touch menu and the lower half for the display menu and Stop Alarm.

05 Alarms

ALARM	TRIGGER	FIRST CHECK
Tube open to atmosphere	Peak pressure under 25% of target, tidal volume over target	Something between INSP and EXP is open, disconnected or leaking. Also check the entered body weight against the animal.
Tube blocked	Peak pressure under 25% of target, tidal volume under target	Endotracheal tube not seated, or a kink or blockage in the inspiratory or expiratory line.
Exhaust blocked	Breath pressure fails to drop during expiration	Cap left on the EXP port, or a failed expiratory valve.
Out of regulation	Peak pressure off target over five consecutive breaths	Requested tidal volume too high for the set pressure and rate.
Large rise in TV	Tidal volume up more than 25% over four breaths	Leak or disconnection between INSP and EXP.

Large drop in TV	Tidal volume down more than 25% over four breaths	Kink, foreign matter in tubing or exhaust valve, blocked exhaust outlet, or the tube has moved.
Deadspace calib	Calibration produced a negative tidal volume	Calibration does not match the current tubing. Re-run with no animal connected.

06 Where not to spend the money

A few things labs buy for this setup that they usually do not need, and one they skip that they do.

Skip the large induction chamber unless you are working with rats. A 3 L chamber on a mouse line induces slower and wastes gas on every session. Skip the second SomnoFlo if the plan is throughput, because a 2-Accessory Connector on one SomnoFlo covers a chamber and a mask on the same unit.

Do not skip warming. An anaesthetised, ventilated mouse loses core temperature within minutes, and that temperature loss will move almost any physiological number you are trying to measure. A warming pad with a rectal probe running from induction costs a fraction of the ventilator and protects the data the ventilator is there to produce. If the budget is tight and something has to go, it should not be this.

07 Kent documentation

DOCUMENT	LINK
RoVent Jr. User's Guide	kentscientific.com
SomnoFlo and SomnoFlo O2Care User's Guide	kentscientific.com
Intubation Kit User's Guide	kentscientific.com
Tidal Volume and Respiratory Rate Calculator	kentscientific.com
SomnoFlo setup and mouse anaesthesia protocol, video	youtu.be/Jz73f5eQgxM
Intubating a mouse with the Kent intubation kit, video	youtu.be/6OqrE_ceoj0
Tail curl reaction in an anaesthetised mouse, video	youtu.be/2Fb2W-hVTrI
Anesthesia induced hypothermia in mice	kentscientific.com

NBT Ltd is the distributor of Kent Scientific in Israel. We scope, deliver, install and train on this setup locally. If you are putting one of these lines together and want the configuration checked against your protocol before you order, send us the protocol.

This guide is a configuration aid. The Kent Scientific user guides take precedence in every case of conflict, and every anaesthesia, intubation and ventilation parameter must be confirmed against your institution's approved animal ethics protocol before use.

Kent Scientific, RoVent, SomnoFlo, SomnoSuite and RightTemp are trademarks of Kent Scientific Corporation.

NBT - New Bio Technology Ltd. - nbt ltd.com - Integration Guide v1.0