

# Aerogen can be used across multiple modalities for ventilated and non-ventilated patients<sup>1-12</sup>

Treatment	Aerogen Pro-X Controller	Aerogen USB Controller	Aerogen Solo	Aerogen Ultra	Aerogen CNTS
Mechanical Ventilation <sup>1</sup>	✓	✓	✓		✓
HFOV <sup>2</sup>	✓	✓	✓		✓
HFNC <sup>7,8</sup>	✓	✓	✓		✓
NIV <sup>3,4,9,10</sup>	✓	✓	✓		✓
Spontaneous <sup>5,6,11,12</sup>	✓	✓	✓	✓	✓
Adults	✓	✓	✓	✓	✓
Paediatrics	✓	✓	✓	✓	✓
Neonates	✓	✓	✓		✓
Portable	✓	✓	✓	✓	



- ✓ No maintenance required
- ✓ No field service or commissioning calibration required
- ✓ No alarm
- ✓ Not connected to external communications

## Ventilation Integration:<sup>13</sup>

- Aerogen USB Controller – SLE: SLE6000, Resmed: Astral, Philips: V680, Mindray: SV800, SV600, Acutronic: fabian HFO, fabian +nCPAP evolution, Dräger: Evita V500, Evita V300, Babylog VN500, Hamilton Medical: C1, C2, C3, T1, MR1, IMT; Bellavista 1000, Bellavista neo, Bellavista 1000e, Bellavista mr
- Standard fully integrated – Getinge/Maquet: Servo Air, Servo N, Servo U
- Standard with dedicated cable – GE/DateX-Ohmeda: Engström Carestation, CareScape R860
- Optional with dedicated cable – Getinge/Maquet: Servo I Hamilton Medical: G5, S1, C6

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PHILIPS

Medtronic

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HAMILTON MEDICAL



Dräger

MAQUET  
GETINGE GROUP

1. Ari A. et al. Influence of Nebulizer Type, Position, and Bias Flow on Aerosol Drug Delivery in Simulated Pediatric and Adult Lung Models During Mechanical Ventilation. *Respir Care* 2010;55(7):845–851 2. Fang et al. Aerosol Delivery Using Jet Nebulizer and Vibrating Mesh Nebulizer During High Frequency Oscillatory Ventilation: An In Vitro Comparison. *Aerosol Med Pulm Drug Deliv.* 2016 Oct;29(5):447-453 3. Abdelrahim ME et al. In-vitro Characterisation of the Nebulised Dose During Non-Invasive Ventilation. *J Pharm Pharmacol* 2010;62(8):966–972 4. Galindo-Filho VC et al. Radioaerosol Pulmonary Deposition Using Mesh and Jet Nebulizers During Noninvasive Ventilation in Healthy Subjects. *Respir Care* 2015;60(9):1238–1246 5. Dugernier J. et al. SPECT-CT Comparison of Lung Deposition Using a System Combining a Vibrating-mesh Nebulizer With a Valved Holding Chamber and a Conventional Jet Nebulizer: A Randomized Cross-over Study. *Pharmaceutical research.* 2017;34:290-300 6. Cushen B, et al. A Pilot Study To Assess Bronchodilator Response During An Acute Exacerbation Of COPD Using A Vibrating Mesh Nebuliser Versus Jet Nebuliser For Bronchodilator Delivery. *BTS poster presentation.* 2016. 7. Alcoforado L, Ari A, Barcelar JDM, Brandão SCS, Fink JB, De Andrade AD. Impact of gas flow and humidity on trans-nasal aerosol deposition via nasal cannula in adults: A randomized cross-over study. *Pharmaceutics* 2019; 11. doi:10.3390/pharmaceutics11070320. 8. Reminiac F, Vecellio L, Bodet-Contentin L, Gissot V, Le Pennec D, Salmon Gandonniere C et al. Nasal high-flow bronchodilator nebulization: a randomized cross-over study. *Ann Intensive Care* 2018; 8: 128. 9. Galindo-Filho VC, Alcoforado L, Rattes C, Paiva DN, Brandão SCS, Fink JB et al. A mesh nebulizer is more effective than jet nebulizer to nebulize bronchodilators during non-invasive ventilation of subjects with COPD: A randomized controlled trial with radio labeled aerosols. *Respir Med* 2019; 153: 60–67. 10. Bodet-Contentin L, Guillon A, Boulain T, Frat J-P, Garot D, Le Pennec D et al. Salbutamol Nebulization During Noninvasive Ventilation in Exacerbated Chronic Obstructive Pulmonary Disease Patients: A Randomized Controlled Trial. *J Aerosol Med Pulm Drug Deliv* 2019; 32: 149–155. 11. Moody GB, Lucket PM, Shockley CM, Huang R, Ari A. Clinical Efficacy of Vibrating Mesh and Jet Nebulizers With Different Interfaces in Pediatric Subjects With Asthma. *Respir Care* 2020; respcare.07538. 12. Dunne RB, Shortt S. Comparison of bronchodilator administration with vibrating mesh nebulizer and standard jet nebulizer in the emergency department. *Am J Emerg Med* 2018; 4: 641–646. 13. Guidance only. Please refer to manufacturer's instructions for use.

Tel. +353 91 540 400

Email [marketing@aerogen.com](mailto:marketing@aerogen.com)

web [aerogen.com](http://aerogen.com)

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# TECHNICAL GUIDE



**Aerogen®**

Pioneering Aerosol Drug Delivery

# / Aerogen® Pro-X Controller

- Aerogen Pro-X Controller is mains operated. Can be battery-operated for portable applications (in intermittent mode only)<sup>1</sup>
- Aerogen Pro-X Controller is approved for use with the Aerogen AC/DC adapter (FRIWO FW7660/09). AC/DC Adapter (input 100 to 240 VAC 50 – 60 Hz, output 9V) or internal rechargeable battery (4.8V nominal output)<sup>1</sup>
- 30 minute mode (press and release)<sup>1</sup>
- Continuous mode (3 sec. hold from off). The continuous mode can only be operated from AC power supply<sup>1</sup>
- If the mains power is disconnected during a continuous nebulisation cycle and reconnected within 10 seconds, the controller shall return to Continuous Nebulisation mode automatically<sup>1</sup>
- Contains a nickel metal hydride (NiMH) rechargeable battery<sup>1</sup>
- The rechargeable battery can power the Aerogen Solo System\* for up to 45 minutes when fully charged. In the case of AC power failure the controller will automatically switch to battery operation<sup>1</sup>
- Allow a minimum of four hours for the internal battery to fully recharge. If the controller is placed in long-term storage, it is recommended that the battery be recharged every 3 months<sup>1</sup>
- Power Consumption: < 8.0 Watts (charging), 2.0 Watts (nebulising)<sup>1</sup>
- Patient Isolation: Circuitry provides 4 kilovolt (kV) patient isolation and complies with IEC/EN 60601-1<sup>1</sup>
- The Aerogen Pro-X Controller and AC/DC Adapter are warranted against defects in manufacturing for a period of two years from the date of purchase<sup>1</sup>



<b>Size</b>	33 x 75 x 131mm 1.3 x 2.9 x 5.2" (H x W x D) <sup>1</sup>
<b>Controller Cable Length</b>	1.8m (5.9ft) <sup>1</sup>
<b>AC/DC Cable Length</b>	2.1m (6.7ft) <sup>1</sup>
<b>Weight incl. battery and cable</b>	230g (8.1oz) <sup>1</sup>



\*The Aerogen Solo System consists of the Aerogen Solo nebuliser and the Aerogen Pro-X Controller.



Controllers

- Multiple patient use<sup>1,2</sup>
- Clean with alcohol-based disinfectant<sup>1,2</sup>
- Do not place in an incubator during use<sup>1,2</sup>
- Do not use in the presence of devices generating high electromagnetic fields such as magnetic resonance imaging (MRI) equipment<sup>1,2</sup>

# / Aerogen® USB Controller

- Approved for use with Aerogen USB Controller AC/DC Adapter (FRIWO FW7721M) (input 100 to 240 VAC 50 – 60 Hz, output 5V)<sup>2</sup>
- Can only be operated from a USB port on medical electrical equipment approved to IEC/EN 60601-1<sup>2</sup>
- Power Consumption: ≤ 2.0 Watts (nebulising)<sup>2</sup>
- Patient Isolation: Circuitry provides 4 kilovolt (kV) patient isolation and complies with IEC/EN 60601-1<sup>2</sup>
- The Aerogen USB Controller and AC/DC Adapter are warranted against defects in manufacturing for a period of one year from the date of purchase<sup>2</sup>



<b>Size</b>	2865 x 28 x 25.2mm 112.8 x 1.1 x 1" (L x W x H) <sup>1</sup>
<b>Weight</b>	91g (3.2oz) <sup>1</sup>



# / Aerogen® Solo\*

- Single patient use<sup>1</sup>
- Up to 28 days' intermittent use based upon a typical usage profile of 4 treatments per day<sup>1\*\*</sup>
- 7 days' continuous use with the Continuous Nebulisation Tube Set<sup>1</sup>
- Use only with Aerogen Solo components, connectors and accessories<sup>1</sup>
- Noise level: < 35 dB measured at 0.3 m distance<sup>1</sup>
- Flow rate: > 0.2 mL/min (Average ~ 0.38 mL/min)<sup>1</sup>



Size	67 x 48 x 25mm 2.6 x 1.88 x 1.1" (H x W x D) <sup>1</sup>
Weight	13.5g (0.5oz) incl. plug <sup>1</sup>
Capacity	6ml max. <sup>1</sup>



# / Aerogen® Ultra\*

- Single patient use<sup>1</sup>
- 20 intermittent use treatments (at a rate of four 3mL doses per day over 5 days) or 3 hours of continuous use<sup>1</sup>
- Can be used with or without O<sub>2</sub><sup>1</sup>
- Use with mouthpiece or valved mask<sup>1</sup>

Note: When using an open face mask, a minimum oxygen flow of 1 LPM is required<sup>1</sup>

	H mm	L mm	W mm	Weight
Aerogen Ultra	121.7 <sup>3</sup>	62.95 <sup>3</sup>	45.9 <sup>3</sup>	24.82g <sup>3</sup>
Mouthpiece	63.5 <sup>3</sup>	77.5 <sup>3</sup>	24.0 <sup>3</sup>	—
Aerogen Ultra with mouthpiece	170.0 <sup>3</sup>	90.0 <sup>3</sup>	45.9 <sup>3</sup>	33.54g <sup>3</sup>
Aerogen Ultra with adult mask	—	—	—	54.50g <sup>3</sup>
Aerogen Ultra with paediatric mask	—	—	—	54.46g <sup>3</sup>



# / Aerogen® Continuous Nebulisation Tube Set\*

- The recommended syringe pump software setting with the Aerogen syringe is typically the "BD Plastipak" setting<sup>1</sup>
- Non-standard luer connectors eliminate the risk of misconnection
- Drop-by-drop continuous nebulisation<sup>1</sup>
- The tubing priming volume is maximum 3.65mL<sup>1</sup>
- Recommended input rate of medication into the Aerogen Solo nebuliser during continuous nebulisation is up to a maximum of 12mL/hr<sup>1</sup>
- For continuous use, the life of the Aerogen Solo nebuliser and the Continuous Nebulisation Tube Set have been qualified for use for a maximum of 7 days<sup>1</sup>
- If the syringe needs to be replaced during use (even when empty), turn off the syringe pump and disconnect the nebuliser end of the tube set first. Failure to do this may result in primed medication in the tube flowing into the nebuliser reservoir<sup>1</sup>



\*The device(s) are intended to administer medicines to the body. These devices do not contain Phthalates which are classified as CMRs (Carcinogenic, mutagenic or toxic for reproduction) in accordance with Article 59 of REGULATION (EC) No 1272/2008.

\*\*As per your departmental guidelines.

1. Aerogen Solo Instruction Manual 2. Aerogen USB Controller System Instruction Manual 3. Aerogen, data on file.