



BULAMU®



Features



The Bulamu Medical Ventilator is designed for use in high dependency units and emergency/transport in ambulances for adults and pediatric patients not less than 5kgs



Intuitive User Interface displaying set parameters, measured values and waveforms for pressure, volume and flow as well as system alarms to alert the user of any failures



The Alarm System warns the user and allows for risk mitigation with the following alarms;

- Patient APNEA
- Power Failure
- Low/High Pressure, Tidal Volume or Oxygen



The ventilator has a backup battery activated automatically that can be used for up to 4 hours under normal cycling conditions and charged with a solar backup power system



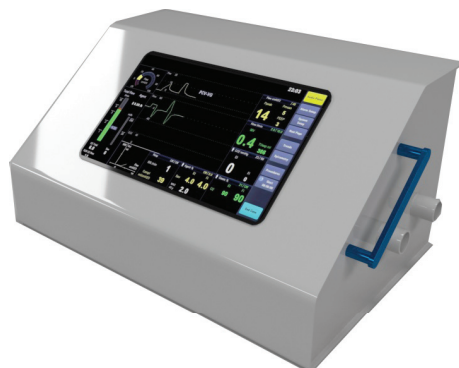
The Ventilator is made from locally sourced materials available on the Ugandan Market and this has allowed for its affordability and scalability



A Low Cost ICU and Emergency Medical Ventilator for COVID-19 and Beyond...



Technical Data



Settable Ventilator Parameters

PARAMETER	FUNCTION	SPECIFICATION
Tidal Volume	Total volume of gas exchanged with the patient in each respiratory cycle in milli-liters (ml)	250-800ml
PEEP	Regulates Positive pressure at the end of respiration	5 to 20cm H ₂ O (Increments of 1cm H ₂ O)
FiO ₂	Fraction of Oxygen inspired by the patient	21% to 100%
Respiratory Rate	Number of breaths per minute	10 - 30 bpm
I:E Ratio	Ration of inspiratory Time to Expiratory Time	1:1 to 1:4, Default 1:2



Physical Characteristics

PARAMETER	SPECIFICATION
Overall Dimensions (LxWxH)	402mm x 220mm x 200mm 450mm x270mm x 1200mm (with stand)
Weight	4 - 6.5 Kgs 8 - 10.5 Kgs (with stand & battery pack)
Pneumatic System	Pipe outer diameter: 22mm Air Flow Resistance: 1.5 cm H ₂ O at 60LPM gas flow
Air Supply System	50 Psi Oxygen; 50 Psi Medical Air 21%-100% Oxygen Blended in 10% steps 1 Bar Inlet Valve controlled
Electrical & Electronics System	Input Power: 240 VAC (AC-DC Adaptor needed 12VDC) Power Consumption: 210 Watts Backup Power: 4Hrs. Battery Backup (50 AH)
Installation/Portability	Floor Standing Mount/Free Standing
Display	10inch LCD Touch-screen Display
Degree of Protection	IP22

Standards

The Bulamu Medical Ventilator Design was based on the UK regulation of Rapidly Manufactured Ventilator System (RMVS) Document RMVS001 as issued by the Medicines and Healthcare Regulatory Agency of the UK.



ISO 80601-2-12: 2011- Ed.1.0	Electromedical Equipment. Part 2-12: Particular Requirements for Basic Safety and Essential Performance of Critical Care Ventilators
ISO 14971: 2007 - Ed. 1.0	Medical Devices - Risk Management Application to Medical Devices.
ISO 15001 : 2003- Ed 1.0	Anesthetic and respiratory equipment. Oxygen compatibility.
IEC 62304: 2015 - Ed 1.1	Medical Device Software - Software Life Cycle Processes



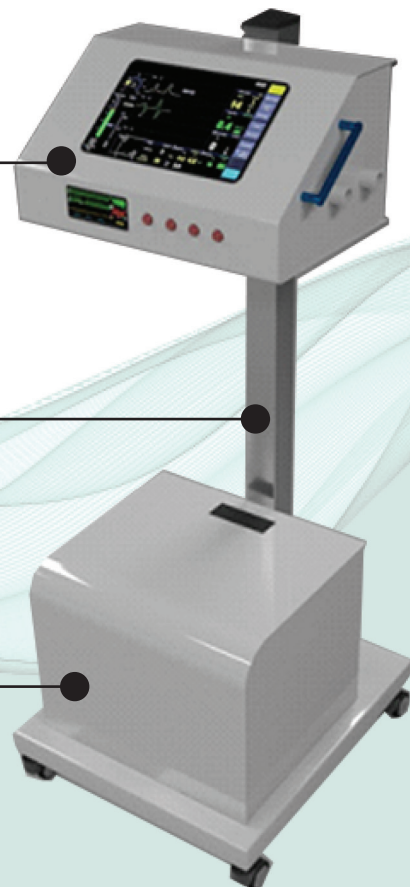
Medical Ventilator



Adjustable Stand



Backup Battery





Bulamu is a project developed by Makerere University and the Ministry of Science, Technology & Innovation through ResilientAfrica Network and Kiira Motors Corporation respectively. The project is financed by the Government of the Republic of Uganda through the Research and Innovation Fund.

The goal of the project is to develop a low cost medical ventilator to address the respiratory needs of critical patients during the COVID-19 Pandemic and beyond.

Made in Uganda, For Africa



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