

Medical Ventilator Applications

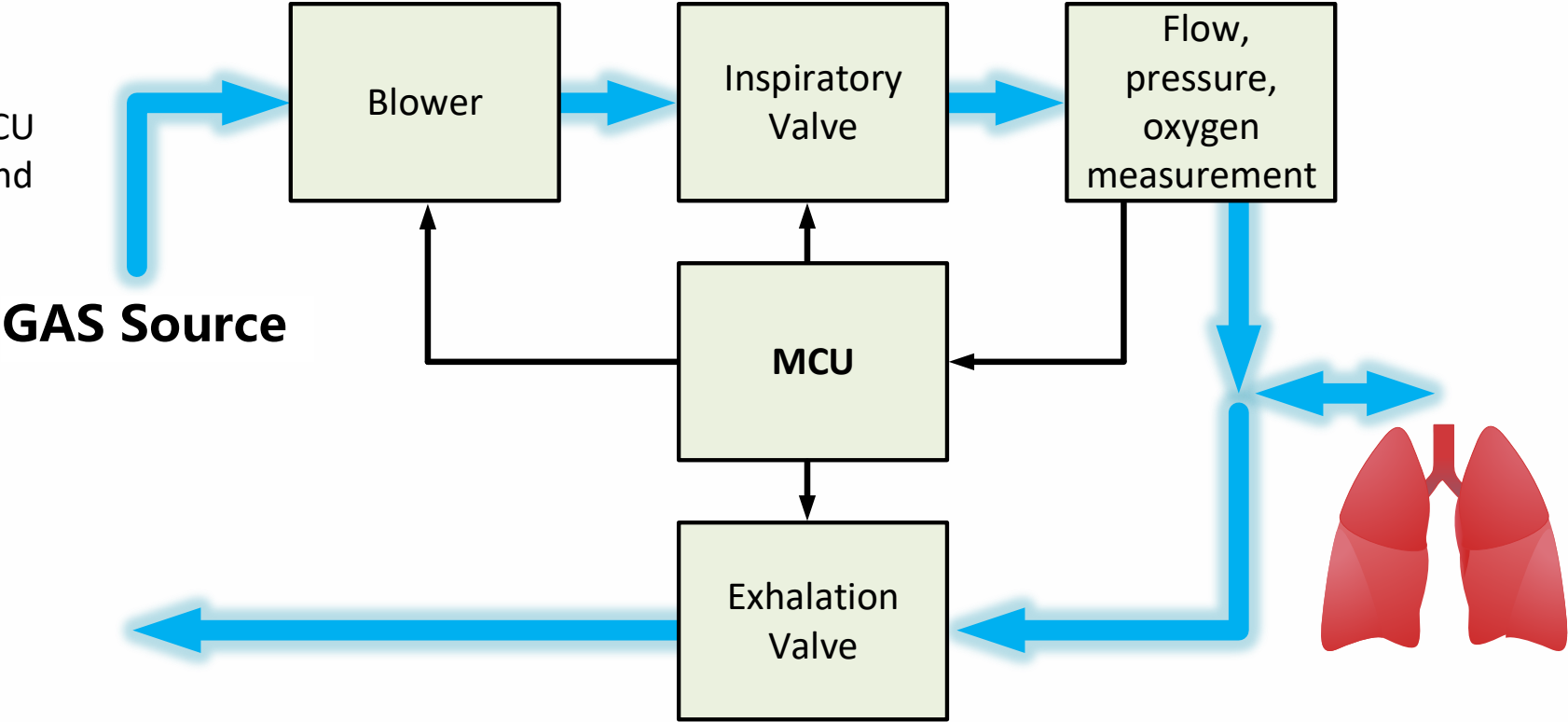
What is a Ventilator?

- Ventilators are designed to help patients who cannot breathe effectively or are unable to breathe by themselves. It is a medical device that consists of a pump or blower that can move breathable air in and out of the lungs.
- Depending on the way it delivers the breathable air into patients' lungs, ventilators can be divided into two types: non-invasive and invasive.
 - Non-invasive ventilators deliver air into a patient's lungs through a face mask that covers the patient's nose and mouth.
 - Invasive types deliver air into a patient's lungs by an endotracheal tube that goes through the patient's nose or mouth into their windpipe.

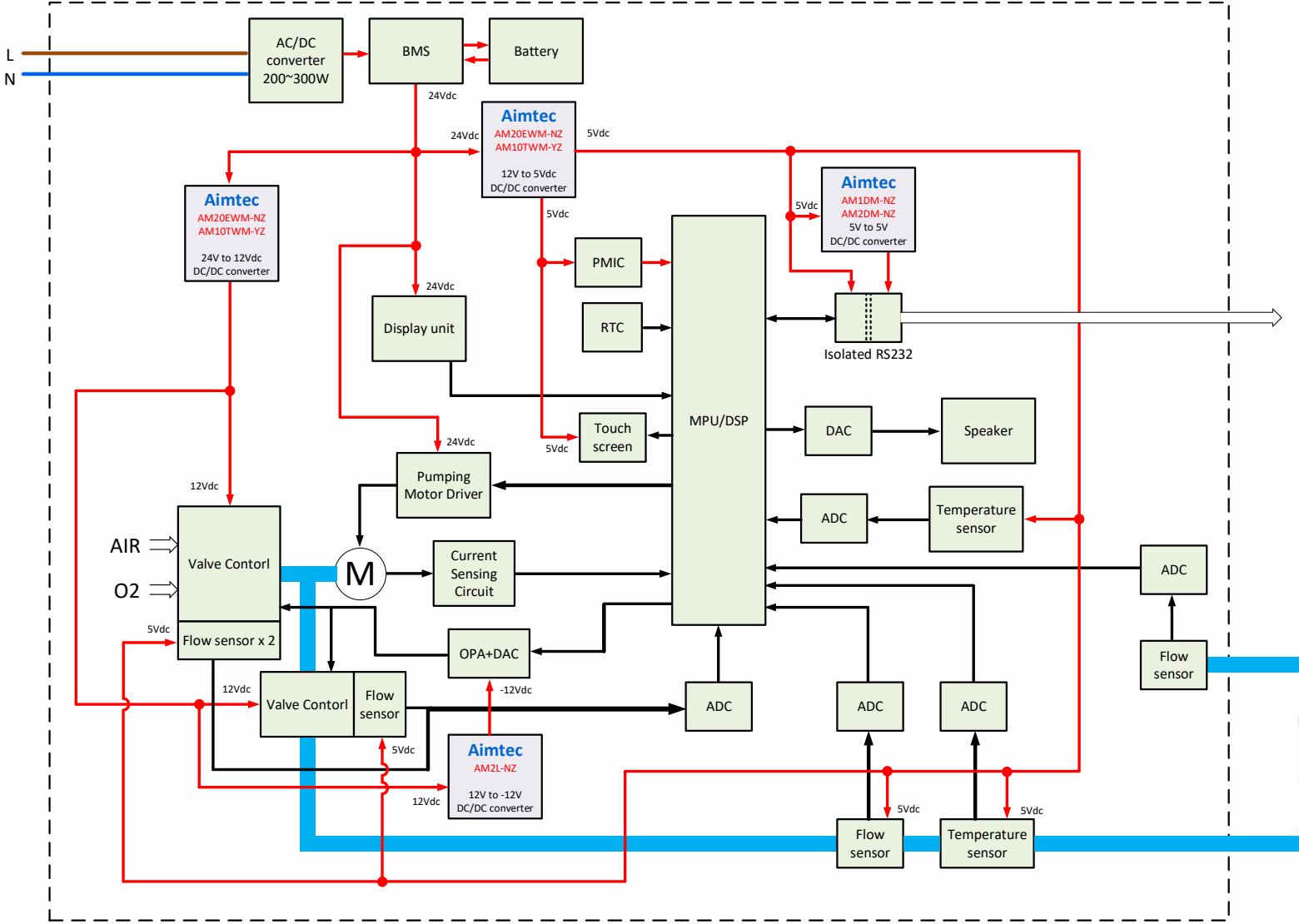


How does a ventilator work?

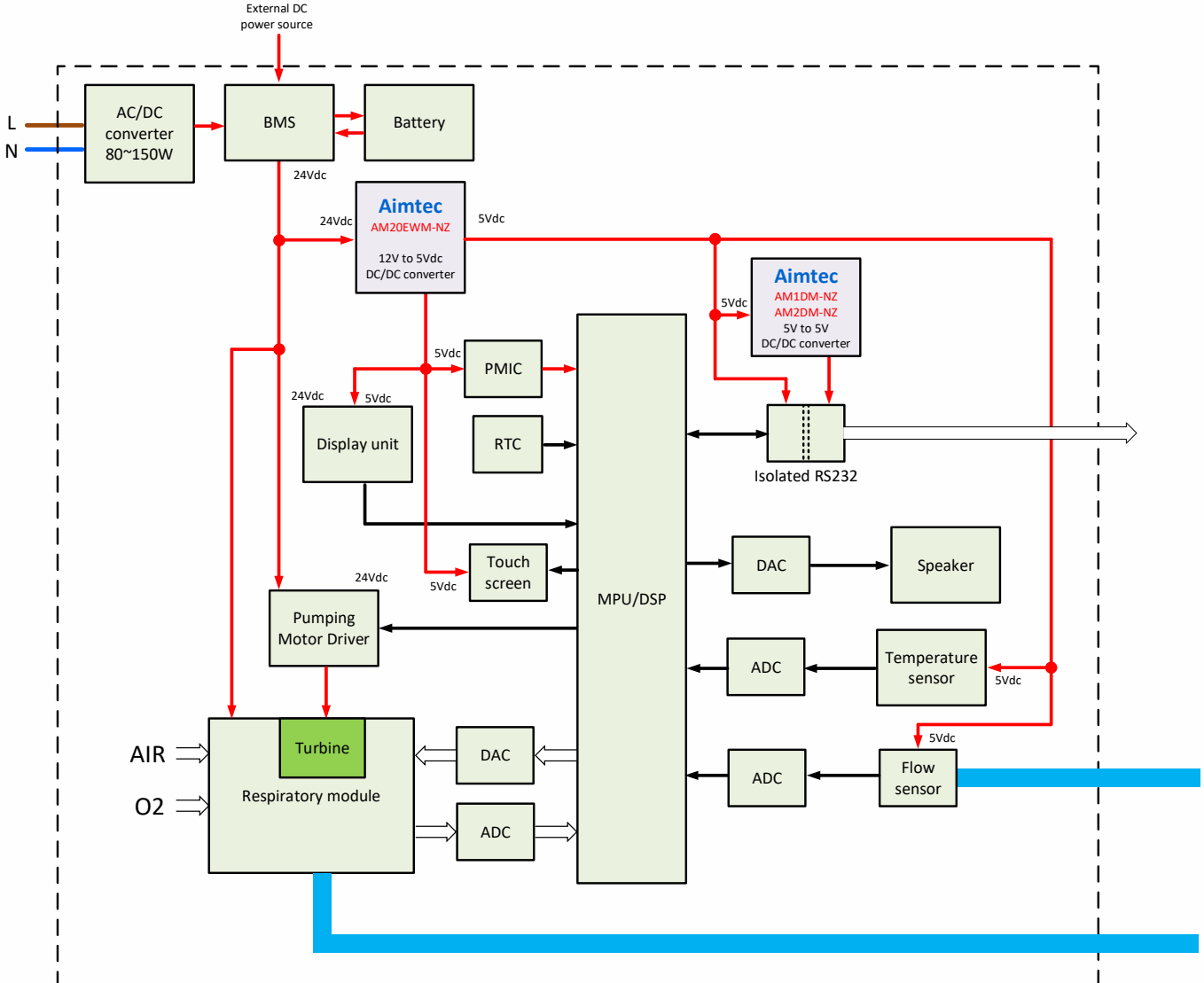
- Modern ventilators are usually computerized equipment consisting of a blower and several sensors and valves.
- The blower pushes the air from the gas source through the inspiratory valve and multiple sensors, and eventually into the patient's lungs. At the same time, the MCU monitors the reading form the sensors and controls the blower's speed and valve opening to achieve the desired pressure, flow rate and oxygen level.



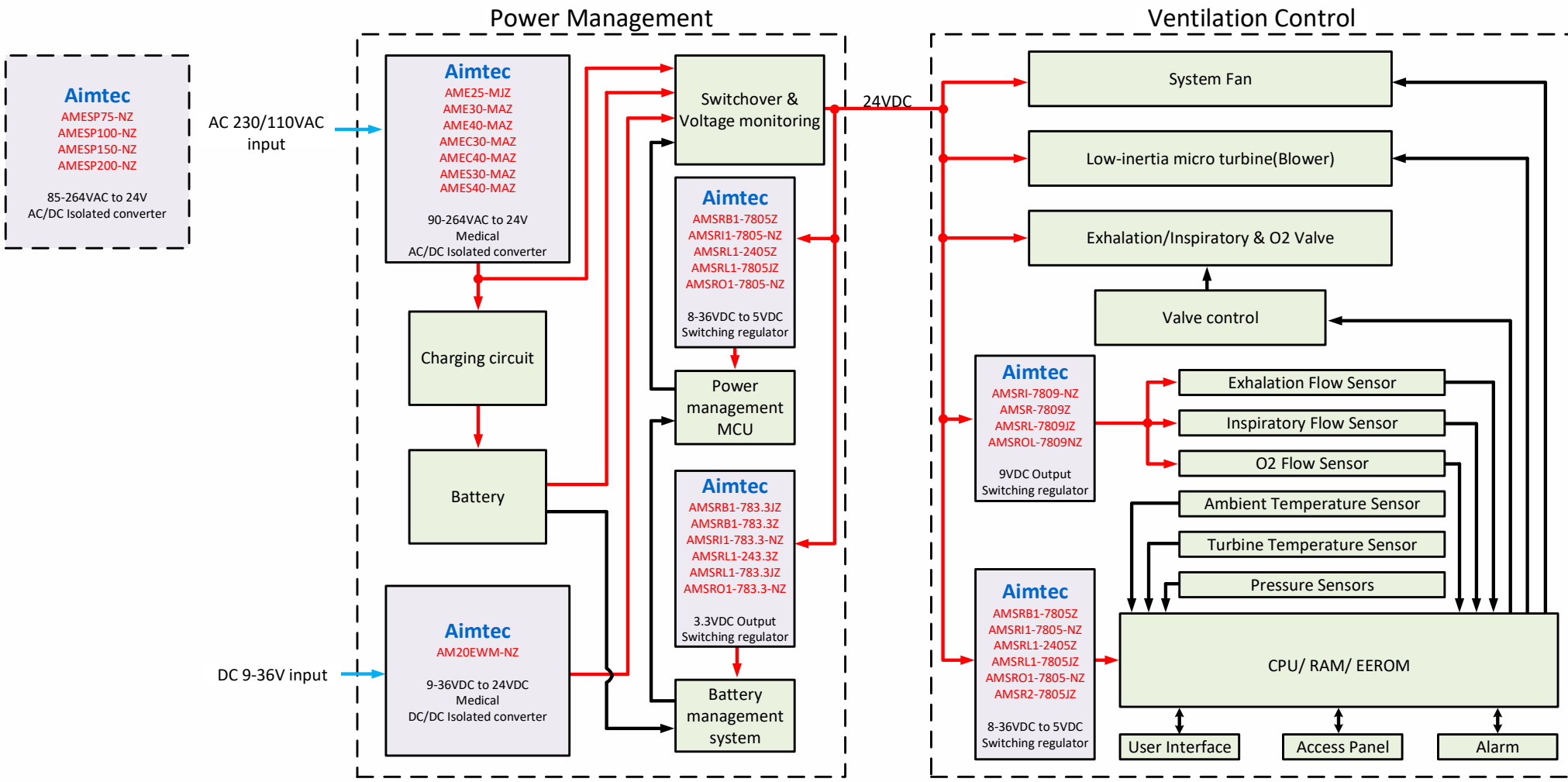
Block Diagram – Intensive care ventilator



Block Diagram – Portable ventilator



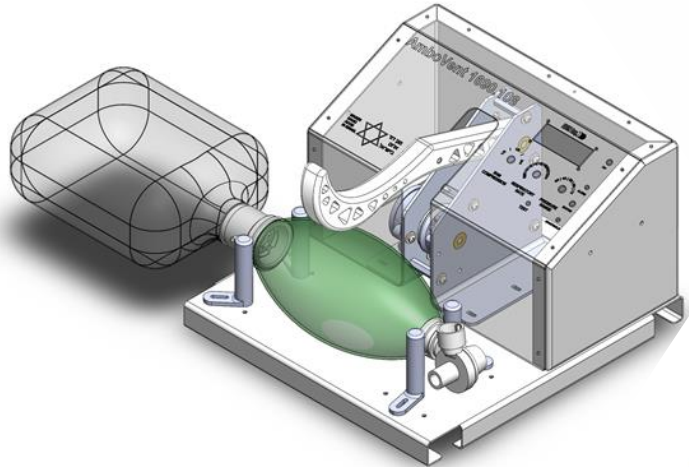
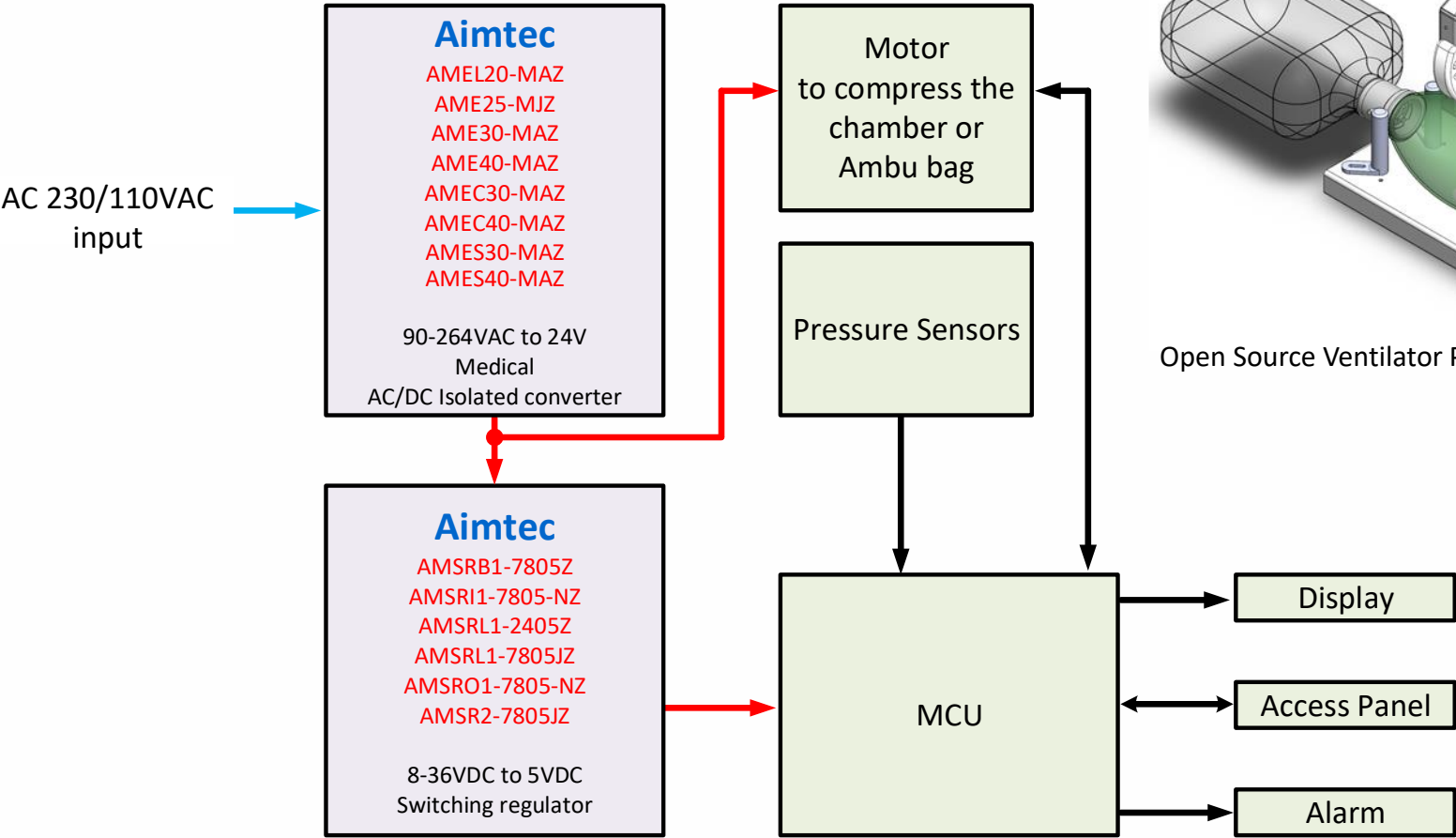
Block Diagram – Mechanical ventilator



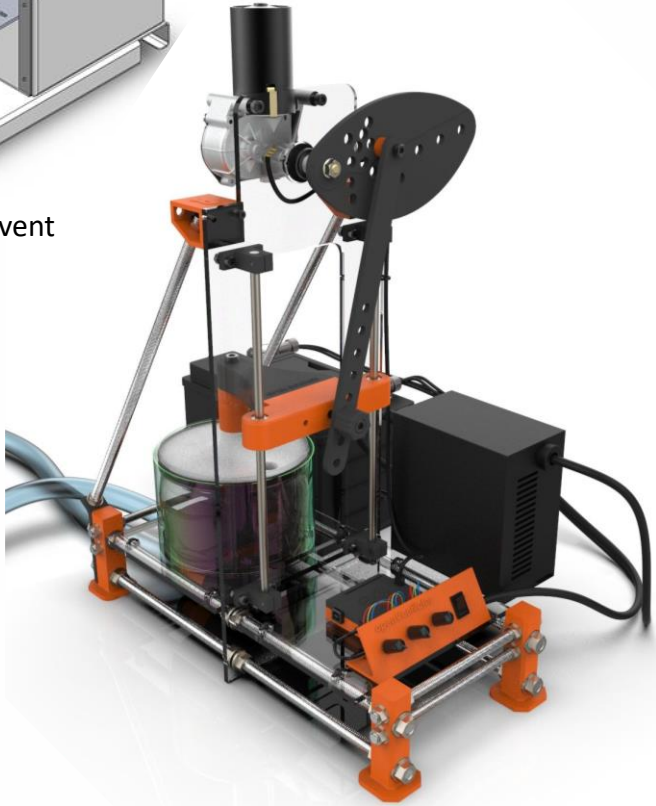
Medtronic Ventilator



Block Diagram – Emergency Ventilation System



Open Source Ventilator Project - Ambovent



Open Source Ventilator Project - OpenVentilator (PopSolutions)

Aimtec Solution – Medical AC/DC Converters



AMEL20-MAZ



AMEC40-MAZ



AME40-MAZ



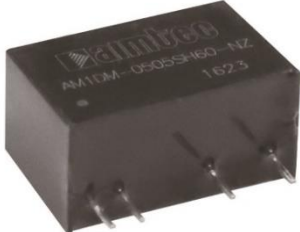
AMES30-MAZ

Series	Power (W)	Input (VAC/Hz)	Single Output (VDC)	Dual Output (VDC)	Operating Temperature (°C)	Isolation (VAC)	Dimensions	Features	Means of Protection	Safety
AMEL20-MAZ	20	90-264/47-440	3.3, 5, 12, 15, 24	±3.3/5, ±3.3/12, ±3.3/15, 3.3/24, ±5, ±5/12, ±5/15, 5/24, ±12, ±12/15, 12/24, 15/24	-40 to +70	4k	2.22x 1.21"	OLP, CSP, OVP	2 X MOOP	CE, UL
AME25-MJZ	25	85-264/47-440	5, 12, 15, 18, 24	-	-40 to +70	4k	2.75x 1.89"	OCP, CSP, OVP	2 X MOPP	Meet CE
AME30-MAZ	30	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	3.56x 2.48"	OCP, CSP, OVP	2 X MOOP	CE, UL
AME40-MAZ	40	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	3.56x 2.48"	OCP, CSP, OVP	2 X MOOP	CE, UL
AMEC30-MAZ	30	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	4.92x 2.56"	OCP, CSP, OVP	2 X MOOP	CE, UL
AMEC40-MAZ	40	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	4.92x 2.56"	OCP, CSP, OVP	2 X MOOP	CE, UL
AMES30-MAZ	30	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	4.92x 2.56"	OCP, CSP, OVP	2 X MOOP	CE, UL
AMES40-MAZ	40	90-264/47-440	3.3, 5, 12, 15, 24	±5, ±12, ±15, ±24	-40 to + 85	4k	4.92x 2.56"	OCP, CSP, OVP	2 X MOOP	CE, UL

Aimtec Solution – Medical DC/DC Converters



AM2L-SH60-NZ



AM1&2DM-NZ



AM6TW-SH60-NZ



AM20EWM-NZ

Series	Power(W)	Input(VDC)	Single Output (VDC)	Dual Output (VDC)	Operating Temperature (°C)	Isolation (VAC)	Dimensions	Features	Means of Protection	Safety
AM1DM-NZ	1	3-26	3.3, 5, 12, 24	±5, ±9, ±12, ±15	-40 to +85	4.2k	SIP7	MSP	2 X MOOP	CE, UL
AM2DM-NZ	2	5-26	5, 12, 24	±5, ±9, ±12, ±15	-40 to +85	4.2k	SIP7	MSP	2 X MOOP	CE, UL
AM2L-SH60-NZ	2	5, 12, 24	5, 15	-	-40 to + 85	6k VDC	SMD	MSP/CSP	-	CE
AM6TW-SH60-NZ	6	9-36, 18-75	5, 6, 9, 12, 15, 24	-	-40 to + 85	6k VDC	DIP24	CSP	2 X MOOP	Meet CE
AM10TWM-YZ	10	9-36, 18-75	3.3, 5, 12, 15	±5, ±12, ±15	-40 to +100	5k	0.79 x 1.24"	CSP	-	Meet CE
AM20EWM-NZ	20	9-36, 18-75	3.3, 5, 12, 15, 24	-	-40 to + 85	5k	2" x 1"	OLP, CSP, OVP	2 X MOPP	Meet CE