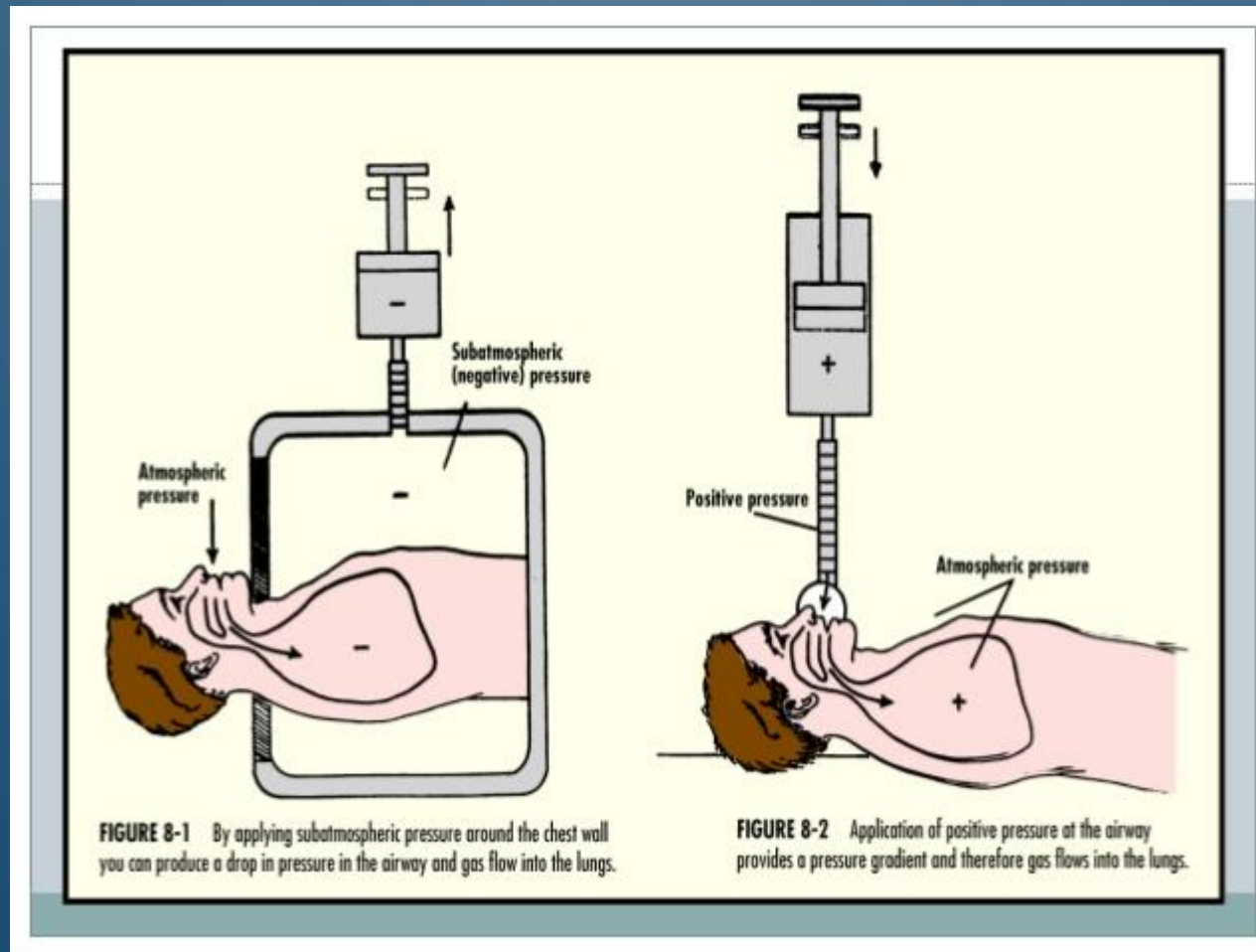


A decorative graphic on the left side of the slide, consisting of a network of light blue lines and small circles, resembling a circuit board or a neural network, extending vertically from the top to the bottom.

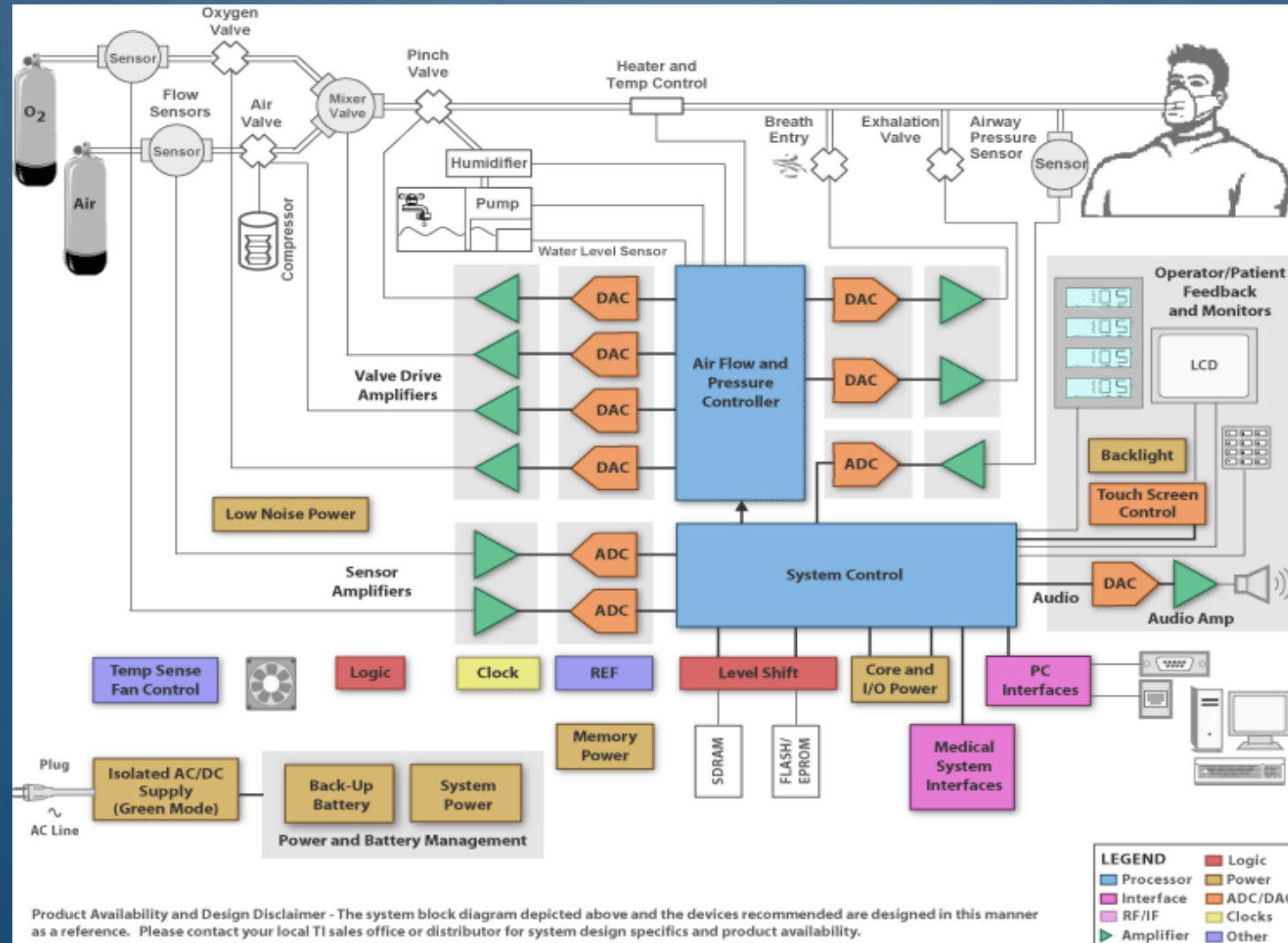
AUT VENTILATOR PROJECT

NEGATIVE PRESSURE VENTILATOR

POSITIVE PRESSURE VENTILATION



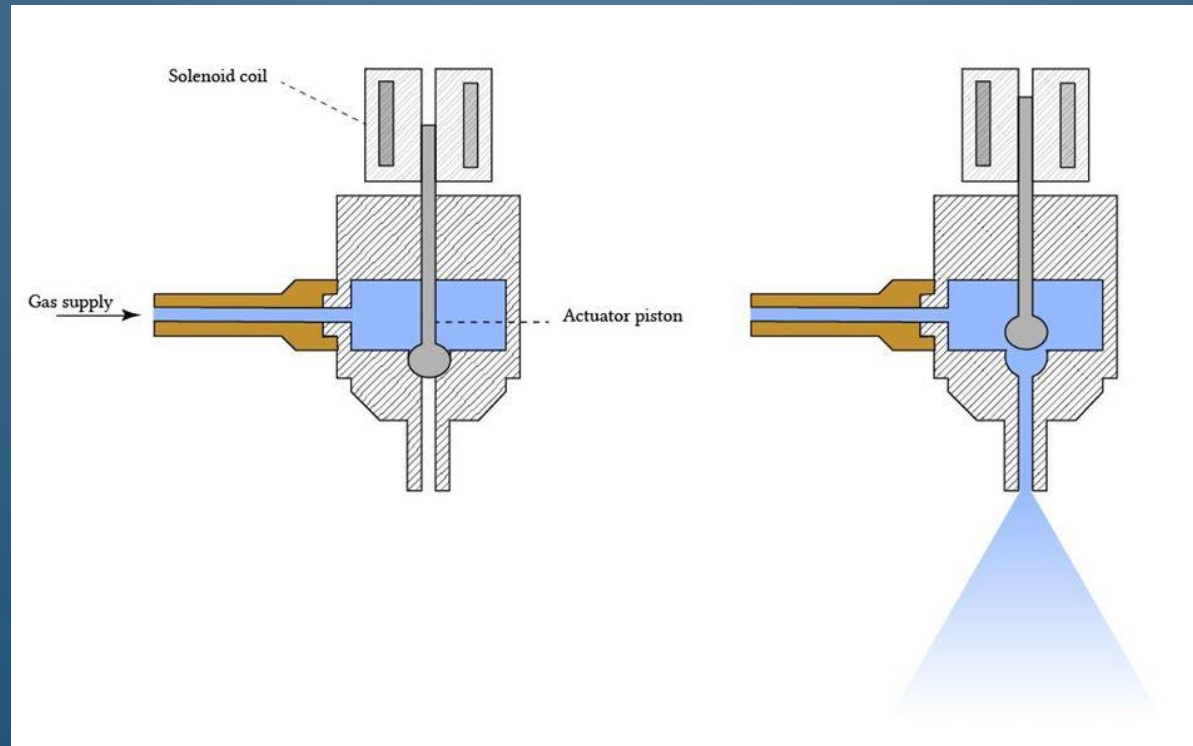
BLOCK DIAGRAM:



CONTROL OF GAS DELIVERY:

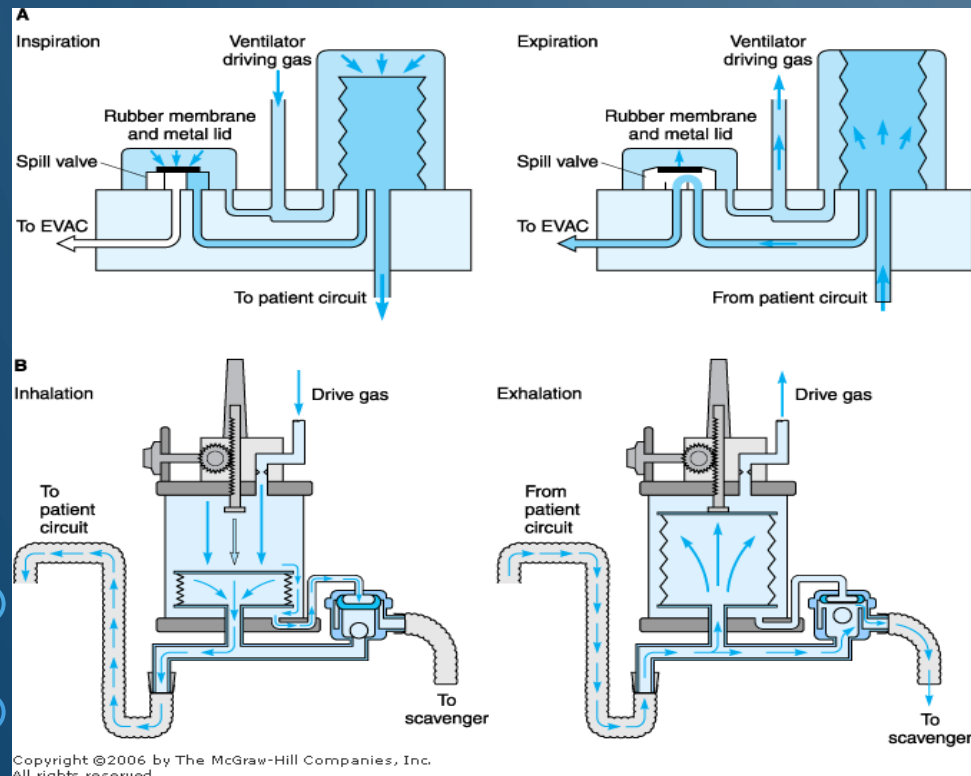
- Gas blender
- Gas accumulator
- Inspiratory flow regulator
- Humidification equipment
- Patient circuit
- Expiratory pressure regulator (i.e PEEP valve)

INSPIRATORY FLOW REGULATOR:

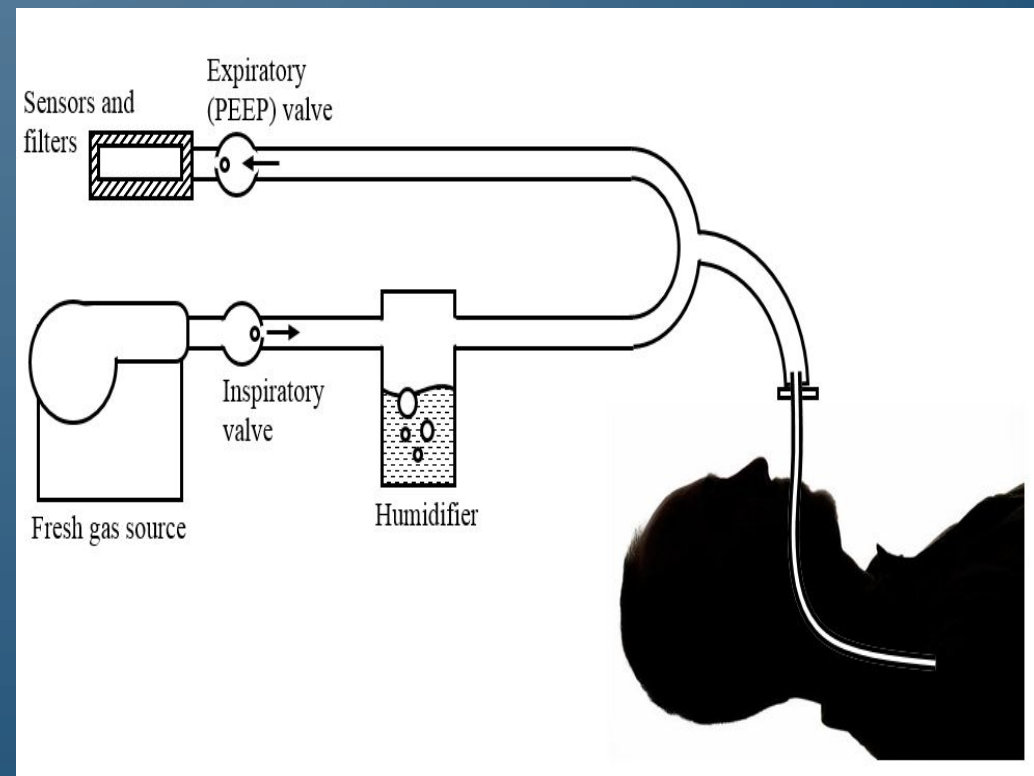


INTERNAL CIRCUITS:

DOUBLE CIRCUIT:

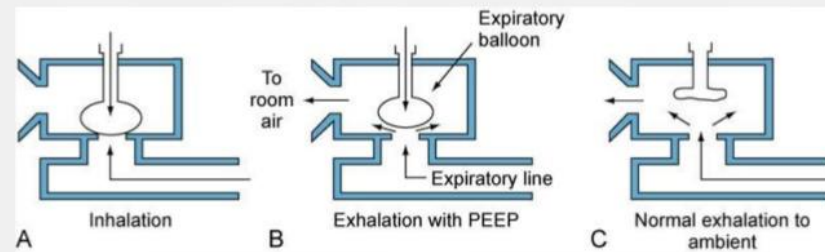


SINGLE CIRCUIT:



EXPIRATORY PRESSURE REGULATOR:

Diaphragm Expiratory Valve (Cont.)





MONITORING:

1. Gas concentration
2. Flow : Hot wire anemometry ,Differential pressure flow sensor , ultrasonic flow sensor
3. Pressure
4. volume

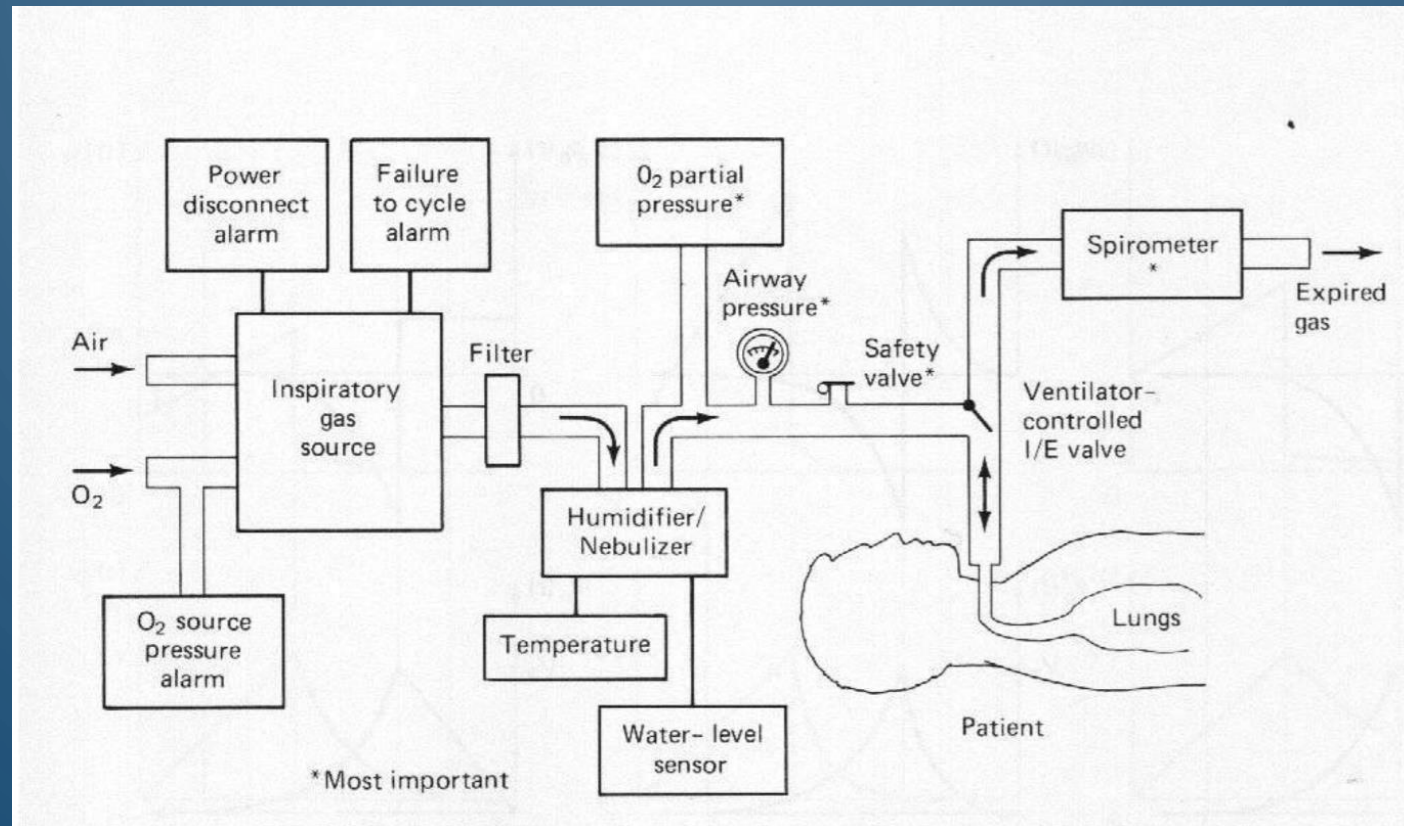
POWER SOURCES:

- Mains power:240 volts
 - Battery backup:20 minutes
- 
- 
- 

CYCLING MECHANISMS:

- Flow cycling
- Pressure cycling
- Volume cycling
- Time cycling

DIAGRAM:



SAFETY FACTORS:

Alarms:

1. Input : power supply and air / oxygen source
2. Control : incorrect settings of control variables
3. Output : incorrect outputs from the Ventilator to the patient

Infection control:

1. Inspiratory filters
2. Expiratory filters

COVID-19 PATIENTS:

- Patients will most commonly be experiencing acute respiratory distress (ARDs), they may or may not be spontaneously breathing and they are likely ventilator dependent.
- The lungs of patients requiring mechanical ventilation due to COVID-19 are so inflamed that oxygen is not able to reach the small air sacs (alveoli) when a patient breathes, and the mechanical ventilator acts to force oxygen under pressure to these small air passages.