

Parts List for the DIY CO2 Incubator

Stuff any respectable DIY person probably has lying around:

- Arduino Uno and 5V/1A power supply
- 12V/5A power supply (In this build we used an old laptop charger)
- Resistors: 1k Ω (x2) & 4.7k Ω (x1)
- Electrolytic Capacitors (100uF (x1))
- Heat Shrink or electrical tape
- Solder
- Cable Ties
- Breadboard
- 12V DC Fan (easy to find in a dead computer)
- Heat Sinks (easy to find in a dead computer on the CPU or in old amplifiers) – The exact shape/size will depend on your incubator size and geometry. Lots of possible heatsinks can be found online: <http://www.ebay.com/sch/Heatsinks-/66946/i.html>

Electronic Components:

- TIP120 or TIP121 (x1)
<http://www.adafruit.com/products/976>
- 4-digit Segmented Display with I2C backpack
<http://www.adafruit.com/categories/103>
- 5V SPDT Relay (5A, 250VAC, 30VDC) (x2)
<https://www.sparkfun.com/products/100>
- 12V Heating Pads (x3)
<https://www.sparkfun.com/products/11289> (or aliexpress, lots of options)
- DS18B20 One Wire Digital Temp Sensors (x2, or as many as you like, can be daisy chained on single Arduino Pin)
<https://www.sparkfun.com/products/245>
- 2.1mm DC Barrel Adaptor for breadboard
<https://www.sparkfun.com/products/10288>
- 0-20% CO2 Sensor (x1)
<http://www.co2meter.com/collections/co2-sensors/products/sprintir-100-percent-co2-sensor>

Hardware:

- A box. Or whatever container you want to build your incubator in.
- CO2 Regulator (x1)
<http://www.aliexpress.com/item/HAKIN-Dual-Gauge-CO2-Gas-Regulator-Double-Gauge-Carbon-Dioxide-Regulator-Homebrew-CO2-Cylinders-Pressure-Regulator/1902026512.html>
- CO2 Tank Adaptor (x1): If you are going to use SodaStream or Paintball CO2 tanks. The exact adaptor will depend on your regulator fitting so you'll need to shop around for the right one. There is a market for these already so won't be hard to find. Check forums and websites associated with the beer-brewing or home aquarium communities. These are usually ~\$25 and can be found online.
- Air/Gas 12V Solenoid (x1)
<http://www.aliexpress.com/item/New-DC-12V-Electric-Solenoid-Valve-1-4-for-Air-Water-Gas-Diesel/749759229.html>
- Barbed brass fittings 1/4" thread to 1/8" barb (x2)
<http://www.aliexpress.com/item/5-New-Brass-Fitting-Coupler-1-4-Hose-Barb-x-1-8-Male-NPT-Fuel/32226342652.html>
- Pneumatic Tubing (lots – 5m or so, handy to have extra around)
http://www.aliexpress.com/wholesale?catId=100004742&initiative_id=AS_20141117001647&SearchText=pneumatic+tubing
- Syringe Filters (0.22um)
<http://www.amazon.com/Sterile-Syringe-diameter-Individually-Packaged/dp/B005T45FZM>
- Kapton Tape
<http://www.amazon.com/Mil-Kapton-Tape-Polyimide-yds/dp/B006ZFNB2I>
- Aluminum Foil Tape
<http://www.homedepot.com/p/Nashua-Tape-1-89-in-x-50-yd-322-Multi-Purpose-HVAC-Foil-Tape-1207792/100030120>