**4. Bill of materials**

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| --- | --- | --- | --- | --- | --- | --- |
| **Designator** | **Component** | **Number** | **Cost per unit (USD)** | **Total cost (USD)** | **Source of Materials** | **Material type** |
| Fixed End Cap | Custom | 1 | $11.98\* | $11.98 | 3D Printed on Form2 | Standard Black Resin |
| Flanged End Cap | Custom | 1 | $12.62\* | $12.62 | 3D Printed on Form2 | Standard Black Resin |
| Acrylic Window | Custom | 1 | $0.50 | $0.50 | Laser Cut on BossLaser | Non-specific |
| Acrylic Test Cap | Custom | 1 | $0.50 | $0.50 | Laser Cut on BossLaser | Non-specific |
| End cap O-Ring | AS568-236 S70 Duro O-Ring | 1 | $0.56 | $0.56 | OringStore | Silicone |
| Lid | Custom | 1 | $11.43\* | $11.43 | 3D Printed on Form2 | Standard Black Resin |
| Threaded inserts | Heat-sink threaded inserts (#4-40) | 4 | $0.19 | $0.77 | McMaster | Brass |
| Lid bolts | #6-32 x 1” Phillips Pan Head Machine Screws | 4 | $0.05 | $0.20 | AlbanyCountyFasteners | Stainless Steel |
| Lid nuts | #6-32 Nylon Insert Hex Lock Nuts | 4 | $0.04 | $0.16 | AlbanyCountyFasteners | Stainless Steel |
| PVC Pipe | 3” ID Schedule 40 PVC pipe, 4.25” long | 1 | $0.55 | $0.55 | HomeDepot | Non-specific |
| Motor Sleeve Left | Custom | 1 | $1.24\* | $1.24 | 3D Printed on Form2 | Standard Black Resin |
| Motor Sleeve Right | Custom | 1 | $1.24\* | $1.24 | 3D Printed on Form2 | Standard Black Resin |
| Motor Sleeve Screws | #4-40 x1/2” Phillips Pan Head Machine Screws | 8 | $0.03 | $0.24 | AlbanyCountyFasteners | Stainless Steel |
| Pumps | Peristaltic pumps-100 series 4mm Shaft; No Motor, 4 Rollers, 3mm Tubing Dia., Silicone Tubing | 2 | $9.92 | $19.84 | Williamson | Other |
| Pump Screws | #4-40 x 1” Phillips Pan Head Machine Screws | 4 | $0.05 | $0.20 | AlbanyCountyFasteners | Stainless Steel |
| Preservative Motor | 99:1 Metal Gearmotor 25Dx69L mm LP 12V with 48 CPR Encoder | 1 | $34.95 | $34.95 | Pololu | Other |
| Sample Motor | 34:1 Metal Gearmotor 25Dx69L mm LP 12V with 48 CPR Encoder | 1 | $34.95 | $34.95 | Pololu | Other |
| Motor shaft X-Rings | AS568-007 Buna-N 70 Durometer X-Rings | 2 | $0.07 | $0.14 | OringStore | Nitrile |
| Preservative Syringe | 10mL Luer Lock Dispensing Syringe | 1 | $0.82 | $0.82 | Grainger | Other |
| Filter | Sterivex™ filter 0.22um, luer lock (SVGVL10RC) | 1 | $10.79 | $10.79 | MilleporeSigma | Other |
| 1/16” Tubing | 1/16” ID x 3/16” OD x 1/16” Wall Tubing, 2.75” long | 1 | $0.19 | $0.19 | USPlastics | Other |
| 1/8 " Tubing | 1/8" ID x 1/4" OD x 1/16" Wall Tubing” 3" long | 1 | $0.23 | $0.23 | USPlastics | Other |
| Barbed Reducer | Straight Connector, 1/8" to 1/16" Barbed Reducer | 1 | $0.53 | $0.53 | Qosina | Other |
| Barbed Elbow | 1/8" Barb Elbow Connector | 1 | $0.50 | $0.50 | Qosina | Other |
| Barbed Tee | 1/8" Barb T Connector | 1 | $0.50 | $0.50 | Qosina | Other |
| Check Valve | Male-Female Luer Lock Check Valve, 2.9psi CP | 2 | $1.50 | $3.00 | Qosina | Other |
| Filter Barb | Male Luer Lock to 1/8" Barb Connector | 1 | $0.26 | $0.26 | Qosina | Other |
| Syringe Barb | Female Luer Lock to 1/16" Barb Connector | 1 | $0.21 | $0.21 | Qosina | Other |
| Straight connector | Straight Connector, 1/8" Barb | 1 | $0.00 | $0.00 | Williamson | Other |
| 1/8" Clamp | Securing Clamp for 1/8" tubing | 8 | $0.25 | $1.97 | Qosina | Other |
| Sample Cartridge Cover | Custom | 1 | $6.51\* | $6.51 | 3D Printed on Form2 | Standard Black Resin |
| Sample Cartridge | Custom | 1 | $7.11\* | $7.11 | 3D Printed on Form2 | Standard Black Resin |
| Sample Cartridge Bolt | #6-32 x 1.25" Phillips Pan Head Machine Screws | 1 | $0.06 | $0.06 | AlbanyCountyFasteners | Stainless Steel |
| Sample Cartridge Wingnut | #6-32 Wingnut | 1 | $0.21 | $0.21 | AlbanyCountyFasteners | Stainless Steel |
| Housing Magnets | 1/8" Diameter x 1/16" Thick Magnet (D063CN52) | 8 | $0.56 | $4.48 | AmazingMagnets | Other |
| Circuit Housing | Custom | 1 | $4.26\* | $4.26 | 3D Printed on Form2 | Standard Black Resin |
| Circuit Housing Faceplate | Custom | 1 | $4.53\* | $4.53 | 3D Printed on Form2 | Standard Black Resin |
| Armature screws | #6-32 x 1.25" Flat Head Machine Screws | 2 | $0.05 | $0.10 | AlbanyCountyFasteners | Stainless Steel |
| Circuit Housing Screws | #4-40 3/4" Phillips Pan Head Machine Screws | 2 | $0.04 | $0.08 | AlbanyCountyFasteners | Stainless Steel |
| Circuit Board/Battery Cover Screw | #4-40 1/4" Phillips Pan Head Machine Screws | 3 | $0.03 | $0.09 | AlbanyCountyFasteners | Stainless Steel |
| IR Receiver | TSOP38238, 38.0kHz, 45m | 1 | $1.12 | $1.12 | Jameco | Other |
| OLED | 0.96 Inch Blue Yellow I2C OLED Display | 1 | $3.38 | $3.38 | AliExpress | Other |
| Reed Switch | 59050-010 | 1 | $1.18 | $1.18 | Digi-Key | Other |
| Microcontroller | Teensy 3.5 | 1 | $24.25 | $24.25 | PJRC | Other |
| microSD Card | 1gb microSD card, Class 4 | 1 | $4.95 | $4.95 | Sparkfun | Other |
| Coin Cell Holder | CR2032 Coin Cell Battery Holder | 1 | $0.07 | $0.07 | AliExpress | Other |
| Coin Cell | CR2032 Battery | 1 | $0.95 | $0.95 | Adafruit | Other |
| MOSFET | Power N-Channel MOSFET (IRLB8721) | 2 | $0.79 | $1.58 | Jameco | Other |
| Diode | 1N4004-TP Diode | 2 | $0.12 | $0.24 | Digi-Key | Other |
| 1K Resistor | Resistor 1K 1/4W 1% AXIAL | 2 | $0.10 | $0.20 | Digi-Key | Other |
| 390K Resistor | Resistor 390K 1/4W 1% AXIAL | 1 | $0.10 | $0.10 | Digi-Key | Other |
| 100K Resistor | Resistor 100K 1/4W 1% AXIAL | 1 | $0.10 | $0.10 | Digi-Key | Other |
| 3.3K Resistor | Resistor 3.3K 1/4W 5% AXIAL | 1 | $0.10 | $0.10 | Digi-Key | Other |
| Red Wire | 26 AWG Red Wire” 4" long | 1 | $0.05 | $0.05 | AllElectronics | Other |
| Battery Molex Connector | Molex 3 Position Connector Housing, 0022013037 | 1 | $0.19 | $0.19 | Digi-Key | Other |
| 3-Pin Molex Connector | Molex 3 Position Connector Header, 0022232031 | 1 | $0.24 | $0.24 | Digi-Key | Other |
| Motor Molex Connector | Molex 6 Position Connector Housing, 0022013067 | 2 | $0.29 | $0.58 | Digi-Key | Other |
| 6-Pin Molex Connector | Molex 6 Position Connector Header, 0022232061 | 2 | $0.43 | $0.86 | Digi-Key | Other |
| Crimp | Molex Connector 22-30AWG Crimp, 0008650816 | 15 | $0.29 | $4.35 | Digi-Key | Other |
| Circuit Board | Custom | 1 | $0.49 | $0.49 | SeeedStudio | FR-4 |
| Battery Housing | Custom | 1 | $10.13\* | $10.13 | 3D Printed on Form2 | Standard Black Resin |
| Battery Housing Cover | Custom | 1 | $1.66\* | $1.66 | 3D Printed on Form2 | Standard Black Resin |
| Battery Cover Screws | #4-40 1/4" Phillips Pan Head Machine Screws | 2 | $0.03 | $0.06 | AlbanyCountyFasteners | Stainless Steel |
| Armature to Lid Screws | #6-32 1/4" Phillips Pan Head Machine Screws | 2 | $0.04 | $0.08 | AlbanyCountyFasteners | Stainless Steel |
| 1/4” Heatshrink | 1/4" Heatshrink” 1" long | 1 | $0.02 | $0.02 | AllElectronics | Other |
| 1/16" Heatshrink | 1/16" Heatshrink” 1" long | 1 | $0.01 | $0.01 | AllElectronics | Other |
| Header Pins | 24 Position Header Pin 2.54mm, 0022284240 | 1 | $0.82 | $0.82 | Digi-Key | Other |
| Batteries | AA Rechargeable NiMH | 8 | $4.17 | $33.35 | BatteryJunction | Other |
| IR Remote | Mini Remote Control, 21 Buttons, 38KHz NEC code output, 940nm IR LED | 1 | $4.95 | $4.95 | Adafruit | Other |
| Magnet | Any Standard Magnet | 1 | $0.75 | $0.75 | AmazingMagnets | Other |
| Preservative\*\* | DNAGard (62001-046) 100mL | 1 | $240 | $240 | Biomatrica | Other |
| Solder | 24 AWG Lead-Free Wire Solder | 1 | $21.97 | $21.97 | Digi-Key | Other |
| Epoxy | E-90FL 2-Part Epoxy | 1 | $14.38 | $14.38 | Zoro | Other |
| Lubricant | Multi-Purpose Synthetic Grease | 1 | $4.69 | $4.69 | Walmart | Other |

\* The cost of 3D printed items was based on the cost of Formlabs standard black resin and the volume required

\*\*The preservative identified here, DNAGard is no longer in production. However other preservatives can be substituted in the SASe that similarly allow ambient condition preservation of DNA such as Zymo Research DNA/RNA Shield (R1100-250)