

## Noblis Field-Portable DNA Sequencing Solution

Noblis has developed a field-Portable DNA sequencing solution producing rapid actionable genomics insights for national defense, homeland security and public health applications. The Noblis field-portable solution reduces the reliance on facilities-based sample processing and the need for a full-scale high-performance computing infrastructure, diminishing the turnaround time from sample collection to actionable insight.

### Features:

- **Provides complete end-to-end sample analysis in less than 3.5 hours (versus facilities-based sample analysis in about 24 hours)**
  - Allows the user to view DNA sequencing results in real time to monitor quality and progress
  - Displays results in a user-friendly table to easily identify samples
- **Housed in a compact, field portable kit weighing 50 lbs., with exterior dimensions of 32.58 (l)x 18.4 (w)x 11.02 (h) in.**
- **Capable of miniaturized sample DNA extraction, amplification and automated library preparation**
- **Powered by pre-computed databases generated by Noblis subject matter experts**
  - Pre-loaded onto the deployable laptop to accelerate field classification of samples
  - Enables analysis without an internet connection
  - No limit on the number of reference genomes, e.g. antimicrobial resistance databases, select agents, pathogens



## Technical Specifications:

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### WI-FI/ETHERNET INDEPENDENT

- In-field database access
- Offline access to analysis algorithms
- Realtime result output

### THROUGHPUT

- Sample preparation: 110 minutes
- Library preparation: 45 minutes
- Sequencing: 9 minutes
- Base calling: 8 minutes
- Classification/Answer: 1 minute

### OTHER SUPPLIES AND REAGENTS

- Pipettes (P2-P1000) and pipette tips
- Microcentrifuge tubes: 0.2 mL and 2 mL
- Nuclease free water (DEPC)
- Phosphate Buffered Saline (PBS)
- 96%-100% ethanol

### COMMODITY LAPTOP

- Windows 10, Processor – 8th generation Intel Core i7-8850H 6 core processor with vPro
- 128 GB Ram
- 4 TB hard drive

### LINE POWER INDEPENDENT

- Two 54,000 mAh batteries
- Powers the complete system
- 14 hour battery life

### PORTABLE LAB EQUIPMENT

- Bento Lab includes:
  - Centrifuge of max speed: 13,500 rpm
  - PCR thermocycler of temperature range 12° C to 105° C
- Qubit 4 Fluorometer
- Vortexer
- Reagents/kits (room temperature storage)

### DNA EXTRACTION KIT

- Qubit DNA quantification kit
- Oxford Nanopore sequencing kit

### ABOUT NOBLIS

Noblis has developed in-house tools that enable advanced bioinformatics analysis in a variety of domains. Backed by a team of subject matter experts, Noblis can leverage our tools along with open source applications to quickly solve a variety of complex problems.

- Learn more at [noblis.org/platforms-tools-services](http://noblis.org/platforms-tools-services)
- Contact our team at [bioportal@noblis.org](mailto:bioportal@noblis.org)

Learn more about this system and our research including a video demo:

<http://noblis.org/portable-dna-sequencing/>