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Northeast Ohio Regional Sewer District

Bid File No: RFQ-21922
Resolution No: 230-19
Next Generation Sequencing (NGS) Instrument

Life Technologies Corporation

Completed Non-Collusion Affidavit

REF: Life Technologies Corporation proposal in response to
Northeast Ohio Regional District Bid File No. RFQ-21922

NOTE: This Affidavit properly executed and containing all required information must accompany your Bid. **IF YOU FAIL TO COMPLY YOUR BID WILL NOT BE CONSIDERED.**

STATE OF ~~OHIO~~ California } **NON-COLLUSION AFFIDAVIT**
~~CUYAHOGA~~ El Dorado COUNTY} SS

Life Technologies, by Gigi S. Chapman, Contracts Specialist being first duly sworn deposes and says: to the best of her knowledge:

Individual only: That he is an individual doing business under the name of _____ at _____, in the City of _____, State of _____

Partnership only: That he is the duly authorized representative of a partnership dong business under the name of _____ _____ in the City of, _____ State of _____

Corporation only: That ~~he~~ a is the duly authorized, qualified and acting Contracts Specialist of Life Technologies Corporation, a corporation organized and existing under the laws of the State of Delaware and that ~~he~~ she, said partnership or said corporation, is filing herewith a bid to the Northeast Ohio Regional Sewer District in conformity with the foregoing specifications;

Individual only: Affiant further says that the following is a complete and accurate list of the names and addresses of all persons interested in said proposed contract:

_____

_____

_____

Affiant further says that he is represented by the following attorneys:

_____

and is also represented by the following resident agents in Cuyahoga County, Ohio_____

_____

REF: Life Technologies Corporation proposal in response to
Northeast Ohio Regional District Bid File No. RFQ-21922

Partnership only: Affiant further says that the following is a complete and accurate list of the names and addresses of the members of said partnership:

_____

_____

_____

Affiant further says that said partnership is represented by the following attorneys:

_____

_____

and is also represented by the following resident agents in Cuyahoga County, Ohio:_____

Corporation only: Affiant further says that the following is a complete and accurate list of the officers, directors and attorneys of said corporation:

President — Directors:

Vice President — Please see the attached continuation sheet for a complete list of officers and directors of Life Technologies Corporation

Secretary

Treasurer

Cleveland Manager or Agent — The Life Technologies Corporation sales representative for Northeast Ohio Regional Sewer District Bid File No 219-22 is: Marcus Lee, Tel.317 690 2213, Email: Marcus.Lee@thermofisher.com

Attorneys — Genoffir MacLeod, Vice President and General Counsel, LSG

Statutory Agent — Capital Corporate Services Inc., 4568 Mayfield Road, Suite 204, Cleveland, OH 44121

And the following officers are duly authorized to execute contracts on behalf of said corporation:

For Northern Ohio Regional Sewer District Bid File No. RFQ-21922, Affiant is an authorized signer of Life Technologies Corporation.

_____

_____

Affiant further says that the bid filed herewith is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that such bid is genuine and not collusive or sham; that said bidder has not, directly or indirectly, induced or solicited any other bidder to put in a false or sham bid and has not, directly or indirectly, colluded, conspired, connived or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price or said bidder or of any bid price or that of any other bidder, or to secure any advantage against Northeast Ohio Regional Sewer District or anyone interested in the proposed contract; that all statements contained in such bid are true; that said bidder has not, directly or indirectly, submitted his bid or any breakdown thereof or the contents thereof, or divulged information or data relative thereto, or paid or agreed to pay, directly or indirectly, any money, or other valuable consideration for assistance or aid rendered or to be rendered in procuring or attempting to procure the contract above referred to, to any corporation, partnership, company, association, organization, or to any member or agent thereof, or to any other individual, except to such person or persons as hereinabove disclosed to have a partnership or other financial

interest with said bidder in his general business; and further that said bidder will not pay or agree to pay, directly or indirectly, any money or other valuable consideration to any corporation, partnership, company, association, organization or to any member or agent thereof, or to any other individual, for aid or assistance in securing contract above referred to in the
event the same is awarded to Life Technologies Corporation

(name or individual, partnership or corporation)

Further affiant saith not.

(SIGN HERE) J Schapman

Sworn to before me and subscribed in my presence this 3rd day

of October,

A.D., 20 19.

(Notary Public)

MONICA ARRIOLA KRAKOW
COMM. #2157036
NOTARY PUBLIC-CALIFORNIA
EL DORADO COUNTY
My Comm. Expires JULY 15, 2020

Ref:	**Northeast Ohio Regional Sewer District** **Bid File No. RFQ-21922**
Name of Bidder:	**Life Technologies Corporation**
Bidder's Address:	**5781 Van Allen Way, Carlsbad, CA 92008**
Date:	**October 3, 2019**

CONTINUATION SHEET – ATTACHMENT TO NON-COLLUSION AFFIDAVIT

OFFICERS AND DIRECTORS OF LIFE TECHNOLOGIES CORPORATION

Name:	**Sharon S. Briansky**	**Title:**	**Director**
Name:	**Anthony H. Smith**	**Title:**	**Treasurer**
Name:	**Genoffir MacLeod**	**Title:**	**Assistant Secretary**
Name:	**James E. Bruni**	**Title:**	**Assistant Secretary**
Name:	**Maura A. Spelllman**	**Title:**	**Assistant Treasurer**
Name:	**Michael K. Michaud**	**Title:**	**Assistant Secretary**
Name:	**Sharon S. Briansky**	**Title:**	**President**
Name:	**Sharon S. Briansky**	**Title:**	**Secretary**
Name:	**Mark P. Stevenson**	**Title:**	**Executive Vice President**

– END OF ATTACHMENT –

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Northeast Ohio Regional Sewer District

Bid File No: RFQ-21922
Resolution No: 230-19
Next Generation Sequencing (NGS) Instrument

Life Technologies Corporation

Company Reference Form

COMPANY REFERENCE FORM

The apparent two low bidders shall provide to the District the following documents via email to Dominic Perri at perrid@neorsd.org within seventy-two hours (72) after bid opening, excluding weekends and District holidays. Failure to submit such documents within the 72-hour timeframe described above shall be a basis for rejection of the bid

It is **MANDATORY** that this attachment is fully completed and returned with the bid, per sections **SGC-(5)/(2)**

COMPANY NAME	NAME OF COMPANY CONTACT	COMPANY PHONE NUMBER	DATE PROJECT BEGAN (i.e 2/21/08)	DATE PROJECT COMPLETED (i.e 2/21/08)	DOLLAR AMOUNT OF CONTRACT	LIST: NGS INSTRUMENT OF SIMILAR MAKE & MODEL AS TO NEORSD'S REQUIREMENT
Eli Lilly and Company	Tim Holzer	317.277.6369	5/8/2016	5/24/2016	$100000	Ion GeneStudio S5
Abbott Diagnostics	Carolyn Stroebel	224-668-0125	4/8/2019	4/24/2019	$90000	Ion GeneStudio S5
SoftCell Bio	Frank Spangler	415-763-8235	9/29/2017	10/15/2017	$57500	Ion GeneStudio S5
MP Biomedicals	Victoria Wu	949-269-5107	9/21/2019	Ongoing	$58000	Ion GeneStudio S5
NIH-NIDDK	Vicky Ossowski	602-440-6590	8/15/2019	9/2/2019	$65000	Ion GeneStudio S5
Capstone Diagnostics	Richard Roth	678-515-4524	11/2/2017	11/22/2017	$55000	Ion GeneStudio S5

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Next Generation Sequencing (NGS) Instrument

Life Technologies Corporation

Manufacturer's Literature

Ion GeneStudio S5 series

Speed and throughput flexibility across a broad range of NGS applications



Chip type	Number of reads	Read length (output*)	Ion GeneStudio™ S5 System	Ion GeneStudio™ S5 Plus System	Ion GeneStudio™ S5 Prime System
			Turnaround time (sequencing run** plus analysis time)		
Ion 510™ Chip	2–3 million	200 bp (0.3–0.5 Gb)	4.5 hr	3 hr	3 hr
		400 bp (0.6–1 Gb)	10.5 hr	5 hr	5 hr
Ion 520™ Chip	4–6 million	200 bp (0.6–1 Gb)	7.5 hr	3.5 hr	3 hr
		400 bp (1.2–2 Gb)	12 hr	5.5 hr	5.5 hr
	3–4 million	600 bp (0.5–1.5 Gb)	12 hr	5.5 hr	5.5 hr
Ion 530™ Chip	15–20 million	200 bp (3–4 Gb)	10.5 hr	5 hr	4 hr
		400 bp (6–8 Gb)	21.5 hr	8 hr	6.5 hr
	9–12 million	600 bp (1.5–4.5 Gb)	21 hr	8 hr	7 hr
Ion 540™ Chip	60–80 million	200 bp (10–15 Gb)	19 hr	10 hr	6.5 hr
		200 bp (20–30 Gb) 2 runs in 1 day	NA	20 hr	10 hr†
Ion 550™ Chip	100–130 million	200 bp (20–25 Gb)	NA	11.5 hr	8.5 hr
		200 bp (40–50 Gb) 2 runs in 1 day	NA	NA	12 hr†

* Expected output with >99% aligned or measured accuracy. Output dependent on read length and application.
** Sequencing run times are between 2.5 and 4 hr.
† Analysis of first run occurs concurrently with the second sequencing run.

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	Ion GeneStudio S5 System	Ion GeneStudio S5 Plus System	Ion GeneStudio S5 Prime System
Compatible chips	Ion 510, 520, 530, and 540 Chips	Ion 510, 520, 530, 540, and 550 Chips	
Dimensions (W x D x H)	54.2 x 80.6 x 50.9 cm		
Weight	63.5 kg		
Power	100–240 VAC, 50/60 Hz, 6.5–14.5 A	100–240 VAC, 50/60 Hz, 6.5–14.5 A	100–240 VAC, 50/60 Hz, 6.5–14.5 A
Instrument clearance	Top = 30.5 cm (12.0 in.) Front = 30.5 cm (12.0 in.) Left = 10.0 cm (4.0 in.) Right = 30.5 cm (12.0 in.) Back = 30.5 cm (12.0 in.)		
Working environment	• Temperature: 20–30°C (68–86°F) • Humidity: 40–60%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr	• Temperature: 20–30°C (68–86°F) • Humidity: 40–60%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr	• Temperature: 20–30°C (68–86°F) • Humidity: 40–80%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr (instrument) and 1100 W: 3,752 BTU/hr
Other connections	1 GigE Ethernet; 2 x USB 2.0; RJ45-type connector		
Server storage	~12 TB	~24 TB	~25 TB
Server dimensions (W x D x H) and weight	NA	NA	30.5 x 70.9 x 44.4 cm, 41.8 kg
Software	Alignment and variant calling with Torrent Suite Software; compatibility with laboratory information management systems as well as native integration with Ion Reporter™ Software (cloud and local server)		

Ordering information

Product	Cat. No.
Ion GeneStudio S5 series	
Ion GeneStudio S5 System	A38194
Ion GeneStudio S5 Plus System	A38195
Ion GeneStudio S5 Prime System	A38196
Instruments for sample prep automation	
Ion Chef System	4484177
Ion OneTouch 2 System	4474779

Find out more at **thermofisher.com/genestudio**

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Introducing the Ion GeneStudio S5 series for next-generation sequencing



Same simple workflow, same flexibility.
Now faster and more scalable than ever.

The Ion GeneStudio™ S5 series is a new line of benchtop next-generation sequencing (NGS) systems that enable you to efficiently run small and large projects across multiple research applications, with the simplest sample-to-data NGS workflow and superior speed. With flexibility powered by the ability to choose from five Ion Torrent™ chips, these systems offer the opportunity to conduct wide-ranging experiments on a single platform.

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Sequence fast



Ion GeneStudio S5 System
Turnaround time: 19 hr*

and faster



Ion GeneStudio S5 Plus System
Turnaround time: 10 hr*

and faster



Ion GeneStudio S5 Prime System
Turnaround time: 6.5 hr*

Throughput scalability and application flexibility—on the same platform. Choose the system configuration that best fits your budget and turnaround time needs.

* Sequencing and analysis time based on Ion 540 Chip.



Focus Application

Ion Torrent™ sequencing chips—the key to system versatility

How can a single instrument scale so easily to accommodate multiple applications, throughputs, and data outputs? The answer is in the chip.

Just consider the number of samples you need to run and the desired data output that is optimal for your application.

Then simply select a sequencing chip that fits your throughput or application needs. This versatility enables you to run both small and large-scale projects without the need to change platforms.

"In my institute, many customers come to me for speed, and flexibility for different gene panels, tailored to disease areas of interest. This is the most elegant workflow on the market today, and I can now offer a range of applications and deliver the data in the fastest turnaround time in the market, at costs that are competitive."

- Morten Dunoe
Lab Manager, Molecular Genetic Laboratory,
Rigshospitalet,
Copenhagen University Hospital, Denmark

	Ion 510™ Chip	Ion 520™ Chip	Ion 530™ Chip	Ion 540™ Chip	Ion 550™ Chip
Max. output (reads)	3 M	6 M	20 M	80 M	130 M
Targeted DNA sequencing ** e.g., Ion Torrent™ Oncomine™ Focus Assay	•	•	•	•	•
Small genome sequencing† e.g., Bacterial typing using Ion Xpress™ Plus Fragment Library Kit		•	•		
16S metagenomics sequencing†† e.g., Ion 16S™ Metagenomics Kit		•	•		
Exome sequencing e.g., Ion AmpliSeq™ Exome Panel				•	•
Targeted RNA sequencing e.g., Ion AmpliSeq™ made-to-order RNA panels	•	•	•	•	•
miRNA/small RNA profiling e.g., Ion Total RNA-Seq v2 Kit	•	•	•		
Targeted transcriptome sequencing e.g., Ion AmpliSeq™ Transcriptome Human Gene Expression Kit				•	•
Whole transcriptome sequencing e.g., Ion Total RNA-Seq v2 Kit				•	•
Low-pass whole genome sequencing (PGS) e.g., Ion ReproSeq™ PGS Kit	•	•	•		

Five Ion Torrent™ sequencing chips achieve 2–130 M reads per run (or 2–260 M reads per day) to enable a broad range of sequencing applications.

** Assumes up to 275 bp insert size. Optimal chip selection based on the size of the panel.
† Assumes 600 bp sequencing only.
†† Assumes 400 bp sequencing only.

Simple, rapid NGS workflow with less than 45 minutes of hands-on time

Together with Ion AmpliSeq™ technology for target selection and the Ion Chef™ System for automated library and template preparation, the Ion GeneStudio S5 series helps you streamline your targeted NGS workflow, so you can focus on finding meaningful answers to your research questions.



Prepare
- Automated Ion AmpliSeq library prep, template prep, and chip loading using Ion Chef System

Sequence
- Ion GeneStudio S5 series

Analyze
- Torrent Suite™ Software
- Ion Reporter™ Software

Ion Torrent™ technology has been referenced in over 4,000 publications to date. Now you can drive your research forward using this highly cited technology with the latest innovations in leading-edge benchtop NGS.

Ion GeneStudio S5 series specifications

Chip type	Number of reads	Read length (output*)	Ion GeneStudio™ S5 System	Ion GeneStudio™ S5 Plus System	Ion GeneStudio™ S5 Prime System
			Turnaround time (sequencing run** plus analysis time)		
Ion 510 Chip	2–3 million	200 bp (0.3–0.5 Gb)	4.5 hr	3 hr	3 hr
		400 bp (0.6–1 Gb)	10.5 hr	5 hr	5 hr
Ion 520 Chip	4–6 million	200 bp (0.6–1 Gb)	7.5 hr	3.5 hr	3 hr
		400 bp (1.2–2 Gb)	12 hr	5.5 hr	5.5 hr
	3–4 million	600 bp (0.5–1.5 Gb)	12 hr	5.5 hr	5.5 hr
Ion 530 Chip	15–20 million	200 bp (3–4 Gb)	10.5 hr	5 hr	4 hr
		400 bp (6–8 Gb)	21.5 hr	8 hr	6.5 hr
	9–12 million	600 bp (1.5–4.5 Gb)	21 hr	8 hr	7 hr
Ion 540 Chip	60–80 million	200 bp (10–15 Gb)	19 hr	10 hr	6.5 hr
		200 bp (20–30 Gb) 2 runs in 1 day	NA	20 hr	10 hr†
Ion 550 Chip	100–130 million	200 bp (20–25 Gb)	NA	11.5 hr	8.5 hr
		200 bp (40–50 Gb) 2 runs in 1 day	NA	NA	12 hr†

* Expected output with >99% aligned or measured accuracy. Output dependent on read length and application.
** Sequencing run times are between 2.5 and 4 hr.
† Analysis of first run occurs concurrently with the second sequencing run.

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	Ion GeneStudio S5 System	Ion GeneStudio S5 Plus System	Ion GeneStudio S5 Prime System
Compatible chips	Ion 510, 520, 530, and 540 Chips	Ion 510, 520, 530, 540, and 550 Chips	
Dimensions (W x D x H)	54.2 x 80.6 x 50.9 cm		
Weight	63.5 kg		
Power	100–240 VAC, 50/60 Hz, 6.5–14.5 A	100–240 VAC, 50/60 Hz, 6.5–14.5 A	100–240 VAC, 50/60 Hz, 6.5–14.5 A
Instrument clearance	Top = 30.5 cm (12.0 in.) Left = 10.0 cm (4.0 in.) Right = 30.5 cm (12.0 in.) Front = 30.5 cm (12.0 in.) Back = 30.5 cm (12.0 in.)		
Working environment	• Temperature: 20–30°C (68–86°F) • Humidity: 40–60%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr	• Temperature: 20–30°C (68–86°F) • Humidity: 40–60%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr	• Temperature: 20–30°C (68–86°F) • Humidity: 40–60%, noncondensing • Altitude: Up to 2,000 m (6,500 ft) above sea level • Thermal output at typical power draw of 1,200 W: 4,094 BTU/hr (instrument) and 1100 W: 3,752 BTU/hr
Other connections	1 GigE Ethernet; 2 x USB 2.0; RJ45-type connector		
Server storage	~12 TB	~24 TB	~25 TB
Server dimensions (W x D x H) and weight	NA	NA	30.5 x 70.9 x 44.4 cm, 41.8 kg
Software	Alignment and variant calling with Torrent Suite Software; compatibility with laboratory information management systems as well as native integration with Ion Reporter Software (cloud and local server)		

Ordering information

Product	Cat. No.
Ion GeneStudio S5 series	
Ion GeneStudio S5 System	A38194
Ion GeneStudio S5 Plus System	A38195
Ion GeneStudio S5 Prime System	A38196
Instruments for sample prep automation	
Ion Chef System	4484177
Ion OneTouch 2 System	4474779



Choose your next-generation sequencing system at
thermofisher.com/genestudio

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ion torrent
by life technologies™

The Ion OneTouch™ 2 System

Fast, automated template prep for Ion semiconductor sequencing

The Ion OneTouch™ 2 System simplifies the workflows for the Ion Proton™ and Ion PGM™ Systems by providing an automated solution for scalable and reproducible template preparation.



The Ion OneTouch™ 2 System:

- Automates template preparation workflows in a single system
- Enables parallel processing of multiple samples per day through modular design
- Provides scalable template preparation for all Ion semiconductor sequencing chips
- Supports up to 400 bases on the Ion PGM™ System and up to 200 bases on the Ion Proton™ System
- Supports multiplexed samples
- Fits easily on any benchtop with its small instrument footprint

System components

The Ion OneTouch™ 2 System comprises two modules: the Ion OneTouch™ 2 Instrument and the Ion OneTouch™ ES (enrichment system).

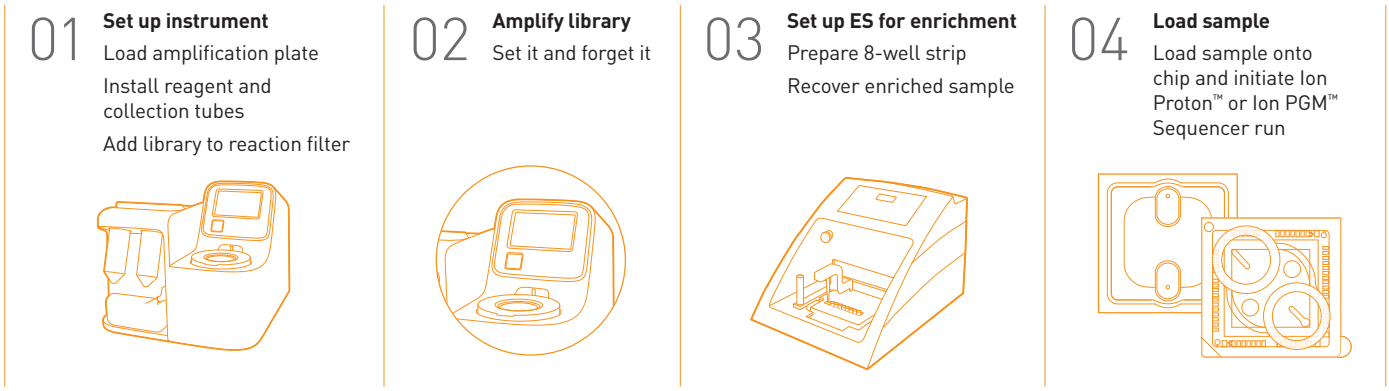
At the heart of the Ion OneTouch™ 2 Instrument are three breakthrough technologies that enable automated delivery of templated Ion Sphere™ particles. The first is the reaction filter that creates millions of microreactors in which clonal amplification occurs. The second is the fully integrated thermal cycler and disposable path amplification plate system that enables robust thermal cycling of the microreactors. The third is the integrated centrifuge, which recovers the templated Ion Sphere™ particles. Combined, these technologies deliver massively parallel clonal amplification and recovery with walk-away operation—all in a small benchtop footprint.

The Ion OneTouch™ ES employs proven magnetic bead technology to isolate template-positive Ion Sphere™ particles that can be loaded directly onto the Ion semiconductor chip—delivering automated, highly reproducible enrichment with every run.

Automated workflow

The Ion OneTouch™ 2 System automates multiple manual steps to provide template preparation, including enrichment, with only minutes of hands-on time, allowing preparation of multiple samples per day and significant time savings.

Figure 1. Ion OneTouch™ 2 System workflow.



For both the Ion OneTouch™ 2 Instrument and the Ion OneTouch™ ES, instrument setup, sample preparation, and run initiation steps are simplified for maximum efficiency and throughput (Figure 1).

Modular design

The modular design of the Ion OneTouch™ 2 System enables parallel template processing with sample sequencing on the Ion Proton™ Sequencer or Ion PGM™ Sequencer. This attribute reduces the time from sample to sequence to a single day and enables processing of two samples per day. The combination of Ion semiconductor sequencing and the Ion OneTouch™ 2 System maximizes the speed of each experiment and minimizes the overall time to completion for each project. The modular design also allows quality control of Ion Sphere™ particles to maximize experimental control and the success rate of your experiment.

System components

The Ion OneTouch™ 2 Instrument is scalable and supports all Ion semiconductor sequencing chips. This flexibility enables automated preparation and fast sequencing for maximum flexibility in project type and size.

The Ion OneTouch™ 2 Instrument also supports processing of multiplexed libraries, reducing the time and cost of template preparation for both DNA- and RNA-based applications.

Ion OneTouch™ 2 System specifications

System	Ion OneTouch™ 2 System (Cat. No. 4474779) includes: • Ion OneTouch™ 2 Instrument • Ion OneTouch™ ES
Dimensions and weight	• Ion OneTouch™ 2 Instrument: (12 in x 16 in x 14 in, 23 lb; 30 cm x 41 cm x 36 cm, 10.4 kg) • Ion OneTouch™ ES: (9.5 in x 12.5 in x 11 in, 12 lb; 24 cm x 32 cm x 28 cm, 5.4 kg)
System run time	• 5 hours total time for PGM™ Sequencer template preparation—minutes of hands-on time • 8 hours total time for Ion Proton™ Sequencer template preparation—minutes of hands-on time
Throughput	Supports template preparation for Ion 314™, Ion 316™, Ion 318™, Ion PI™, and Ion PII™ Chips*
Library types	Supports template preparation with a broad range of libraries used for various applications: • Genomic DNA (fragment and mate-paired) • Amplicon • RNA (cDNA)
Operating environment	Temperature: 15–25°C; humidity: 20–80%, noncondensing
Consumables	Please visit lifetechnologies.com/ionproducts for ordering information.
Power requirements	110/220 V (US/international)
Multiplexing	Up to 384 barcoded libraries for DNA- or RNA-based applications

For Research Use Only. Not for use in diagnostic procedures.

*The content provided herein may relate to products that have not been officially released and is subject to change without notice.

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Northeast Ohio Regional Sewer District

Bid File No: RFQ-21922
Resolution No: 230-19
Next Generation Sequencing (NGS) Instrument

Life Technologies Corporation

Site Requirements – Electrical

Electrical requirements

WARNING! For safety, the power outlet used for powering the instrument must be accessible at all times. See “Instrument clearances“ on page 7 for information about the space needed between the wall and the instrument. In case of emergency, you must be able to immediately disconnect the main power supply to all the equipment. Allow adequate space between the wall and the equipment so that the power cords can be disconnected in case of emergency.

WARNING! Par souci de sécurité, la prise de courant alimentant l’instrument doit être accessible à tout moment. En cas d’urgence, il doit être possible de débrancher immédiatement l’alimentation principale de l’ensemble des équipements. Laisser suffisamment d’espace entre le mur et les équipements afin de pouvoir débrancher les câbles d’alimentation sans encombre, en cas d’urgence.

- Electric receptacle required: 2-prong with ground pin
- Mains AC line voltage tolerances must be up to ± 10% percent of nominal voltage

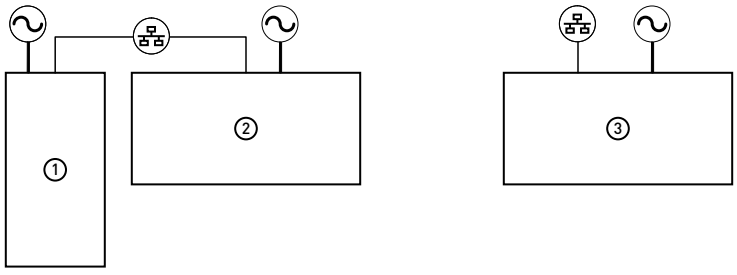
Component	Input voltage (VAC)	Frequency (Hz)	Rated Current (A)[1]
Ion GeneStudio S5 Sequencer	100-240	50/60	14.0
Ion GeneStudio S5 Plus Sequencer	100-240	50/60	14.0
Ion GeneStudio S5 Prime Sequencer	100-240	50/60	14.0
Torrent Server[2]	90-265	50/60	12
Ion Chef™ Instrument	100-240	50/60	12
Ion OneTouch™ 2 Instrument	100-240	50/60	5.5
Ion OneTouch™ ES Instrument	99-132/198-264	50/60	0.5

[1] Based on rated current at minimum input voltage.

[2] Minimum Efficiency: 65% (Energy Star Qualified); 85% Efficient Power Supply.

Electrical requirements for the Ion GeneStudio S5 System and Torrent Server

Use an approved UL Listed detachable power supply cord to connect the sequencer to the wall. Route power cords away from the workspace to avoid accidental disconnection.



① Torrent Server
② Ion GeneStudio S5 Prime Sequencer
③ Ion GeneStudio S5 Sequencer or Ion GeneStudio S5 Plus Sequencer

Power cords are provided with the instrument. If not suitable for installation in your region, ensure any power cord you do use is:

- Maximum 10 ft (3 m) in length
- Grounding type
- Compatible with the power supply receptacles used to connect to main power
- Suitable for the rating of the instrument and mains power supply
- Compliant with local safety requirements (for example, UL Listed for North America, JIS approved for Japan, HAR or agency certified for Europe)

Electrical requirements for the Ion OneTouch™ Instrument

- Use the external power supply provided with the instrument.
- Facility to supply via building code compliant 15A circuit.
- Use an approved UL Listed detachable power supply cord, as supplied, to connect the system to the wall.

Electrical protective devices

We recommend several protective devices to protect the system in environments with large voltage and power fluctuations.

Device	Description
Power line regulator	We recommend the use of a 1.5-kVA power line regulator in areas where the supplied power fluctuates in excess of ± 10% of the normal voltage. Power fluctuations can adversely affect the function of the instrument and computer. **Note:** A power line regulator monitors the input current and adjusts the power supplied to the instrument or computer. It does not protect against a power surge or failure.
Uninterruptible power supply (UPS)	We recommend the use of a 1.5-kVA uninterruptible power supply (UPS), especially in areas prone to power failure. Power failures and other events that abruptly terminate the function of the instrument and computer can corrupt data and possibly damage the system. ⚠ **WARNING! PHYSICAL INJURY HAZARD.** Do not attempt to lift the UPS unit without assistance of at least two people. Improper lifting can cause painful and permanent back injury. Refer to the UPS manufacturer user guide for more information. ⚠ **WARNING! RISQUE DE BLESSURES CORPORELLES.** Ne pas essayer de soulever l'onduleur sans l'aide d'au moins deux personnes. En soulevant incorrectement l'appareil, l'opérateur risque de se blesser au dos de façon permanente. Voir le guide de l'utilisateur du fabricant de l'onduleur pour plus d'informations. **IMPORTANT!** UPSs provide power for a limited time. They are meant to delay the effects of a power outage, not to serve as replacement power sources. In the event of a power loss, power off the instrument and computer unless you expect to regain power within the battery life of the UPS.
Surge protector	We recommend the use of a 10-kVA surge protector (line conditioner) in areas with frequent electrical storms or near devices that are electrically noisy, such as refrigerators, air conditioners, or centrifuges. Short-duration, high-voltage power fluctuations can abruptly terminate the function of, and thereby damage the components of, the computer and the instrument. **Note:** A dedicated line and ground between the instrument, computer, and the building's main electrical service can also prevent problems caused by power fluctuations.

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Northeast Ohio Regional Sewer District

Bid File No: RFQ-21922
Resolution No: 230-19
Next Generation Sequencing (NGS) Instrument

Life Technologies Corporation

Warranties – Products & Instrument Services

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WARRANTIES – PRODUCTS AND INSTRUMENT SERVICES

Some of our products and services are subject to additional software licenses, limited use label licenses or other written contract terms that you will not find here ("Supplementary Terms"). You will find any Supplementary Terms that apply to your purchase in our quotation to you, on thermofisher.com, or in literature that accompanies the product.

Note: Life Technologies Corporation is referred to herein as "we" "us" or "our" and Customer is referred to as "you" and your".

PRODUCTS

1. Warranties - Products

1.1 Limited Warranties for Consumables and General Labware. Unless a different warranty is included in applicable Supplementary Terms or product literature or on the relevant thermofisher.com product pages, we warrant that each consumable and item of general labware will meet its specifications in our published catalogs or associated Supplementary Terms. This warranty lasts from the time we ship the consumable or item of general labware until the earlier of: (a) the consumable's or item of general labware's expiry or "use by" date; and (b) its specified number of uses. If we do not specify the expiry date, the number of uses, or a different warranty period, the warranty will last for twelve (12) months from the date we ship the product.

1.2 Limited Warranties for Instruments. Unless a different warranty is included in applicable Supplementary Terms, or in the applicable quotation, we warrant that instruments will be free of defects in materials and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for twelve (12) months from the date we ship the instrument to you, or in the case of instruments that require installation by our personnel, twelve (12) months from installation, but in no event longer than fifteen (15) months from the date we ship the instrument to you.

1.3 Limited Warranty for Spare Parts. We also warrant that spare parts you purchase from us and that we install, or are installed by a company we have certified as an authorized installer, will be free of defects in materials and workmanship for three (3) months from the date we deliver them, or, if longer, the original warranty period of the instrument in which the part is installed. We do not provide warranties for parts that you do not purchase from us or that we do not install. These parts are provided "as is".

1.4 Exclusions. In addition to our exclusion for third party products as set out in Section 8.7 of these Terms, our warranties do not apply to (a) normal wear and tear; (b) accident, disaster or event of force majeure; (c) your misuse, fault or negligence; (d) causes external to the products such as, but not limited to, power failure or electrical power surges; (e); instruments sold to you as 'used' products; (f) installation, removal, use, maintenance, storage, or handling in an improper, inadequate, or unapproved manner by you or any third party (including the carrier), such as, but not limited to, failure to follow our instructions or operating guidelines, or protocols, operation outside of stated environmental or use specifications, or operation or contact with unapproved software, materials, chemicals or other products; or (g) products manufactured in accordance with specifications you gave us. ADDITIONALLY, ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN US WITHOUT OUR PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS WE HAVE NOT SUPPLIED, WILL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS.

If we determine that products for which you requested warranty services are not covered by the warranty, or if we provide repair services or replacement parts that are not covered by this warranty, you will pay or reimburse us for all costs of investigating and responding to such request at our then prevailing time and materials rates.

1.5 Limitations.

(A) OUR WARRANTIES EXTEND ONLY TO YOU, THE ORIGINAL PURCHASER AND YOU CANNOT TRANSFER THEM. OUR OBLIGATION TO REPAIR OR REPLACE A PRODUCT IS YOUR SOLE REMEDY.

(B) EXCEPT AS OTHERWISE STATED, WE DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, WITH RESPECT TO THE PRODUCTS, INCLUDING WITHOUT LIMITATION ALL IMPLIED WARRANTIES

a. OF MERCHANTABILITY;

b. OF FITNESS FOR ANY PARTICULAR PURPOSE; AND/ OR

c. THAT THE PRODUCTS ARE ERROR-FREE OR WILL ACCOMPLISH ANY PARTICULAR RESULT.

1.6 Remedies. During the applicable warranty period only, for products not meeting our warranty, we agree, in our sole discretion, to repair or replace the non-conforming product and/or provide additional parts as reasonably necessary to comply with our warranty obligations, but you must first promptly notify us in writing when you discover any defect or non- conformance, and include in the notice clear details of your warranty claim. After our review, assuming we authorize the product return, we will provide you with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions that you must follow. For valid product warranty claims timely made in accordance with this Agreement, you must return the non-conforming products to us, unless we agree otherwise, and we will prepay the shipping costs. For instruments only, we may choose to provide you with new or refurbished replacement parts. All replaced parts will become our property. We will ship your repaired or replacement products according to our delivery terms.

1.7 Third Party Products. We do not support or make any warranties about products manufactured or supplied by third parties that you purchase through any of our sales channels. When you buy a third party product, we will let you know that this purchase is governed by the third-party's own contract terms. You must look directly to the relevant third-party manufacturer for product support, warranties, and to make warranty claims. We agree, however, to assign to you any warranty rights we may receive from the original manufacturer or third party supplier, to the extent the original manufacturer or third party supplier allows.

INSTRUMENT SERVICES

(A) Limited Warranty for Instrument Services.

A.1. Limited Warranty. We warrant that the Instrument Services we provide to you will be in accordance with the generally accepted standards prevailing in the Instrument Service industry. You must make any claim for breach of this warranty within 90 days of the date the Instrument Services were performed and prior to any unauthorized repair, change, or modification has been made to any part of the instrument.

A.2. Exclusions. Our warranties do not apply to (i) your neglect, carelessness, or misuse, such as but not limited to, connecting the instrument to electrical services or other utilities not in accordance with the installation requirements for the instrument, using incompatible solvents or samples with the instrument, operating the instrument not in conformance with our instructions or specifications, or your improper or inadequate maintenance of the instrument; (ii) installation of software or use in combination with software or products that we did not supply or authorize; (iii) modification, repair, service transfer to another location of the instrument that you or your employees, agents or an unauthorized contractor made; (iv) intrusive activity, including without limitation computer viruses, hackers or other unauthorized interactions with instrument or software that detrimentally affects normal operations; from acts of nature or accident; or (v) any defects or damage that we did not cause. ADDITIONALLY, ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN US WITHOUT OUR PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS WE HAVE NOT SUPPLIED, WILL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THESE INSTRUMENT SERVICES AND THE AFFECTED PRODUCTS.

A.3. Remedies. During the applicable warranty period only, for services not meeting our warranty, we agree, at our option to: (i) re-perform the defective Instrument Services, or (ii) refund to you the fee you paid to us for the defective Instrument Services, if applicable. This section states our entirely liability for a valid warranty claim under this Agreement.

A.4. Limitations. OUR WARRANTIES EXTEND ONLY TO YOU, THE ORIGINAL PURCHASER, AND YOU CANNOT TRANSFER THEM. WITH RESPECT TO INSTRUMENT SERVICES, EXCEPT AS EXPRESSLY STATED, WE DISCLAIM ALL OTHER WARRANTIES OF ANY KIND, WHETHER OR EXPRESS OR IMPLIED, ORAL OR WRITTEN, INCLUDING BUT NOT LIMITED TO WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.