

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Acquisition of an Infrared Spectrometer for
Chemistry Teaching Labs and Student Research

Title

Thomas Junk and August A. Gallo

Name of Submitter
(Faculty or Staff Only)

UL Department of Chemistry

Organization

Title: Professor Date: 7/3/24
Name (Contact Person): Thomas Junk
Address: Department of Chemistry, P.O. Box 44270, University of Louisiana at Lafayette, 70504
Phone Number: 337-482-5683 Email: Thomas.junk@louisiana.edu
Department/College/Org: Department of Chemistry

ABSTRACT (250 words or less):

Funding is requested to purchase an infrared spectrometer for the Department of Chemistry. The budgeted instrument will address a shortfall in chemistry, which has arisen from the failure of an instrument due to age and high demand for infrared spectra generated by both teaching labs and student research. Over 400 students currently record infrared spectra of all compounds they prepare in our teaching labs as evidence for the successful completion of their experiments. This alone amounts to over 3,000 analyses per year. Undergraduate student research and walk-in's from other units create additional demand. All analyses currently are handled by a single existing instrument, which is being pushed to its limits due to excessive sample loads and is starting to show signs of degraded performance. This has created a bottleneck, delays in obtaining analyses, and undue wear of the existing unit. The budgeted infrared spectrometer, a Nicolet Summit X FTIR Spectrometer with associated software is rugged, easy to operate, and has an expected life of 15 years. It will benefit all students majoring in the sciences and many engineering majors.

3a. Purpose of grant and impact to student body as a whole

The proposed project consists of the acquisition of an infrared (IR) spectrometer. Briefly, such instruments operate by measuring the absorption of infrared light as a function of the wavelength for a chemical or test article, resulting in information concerning its nature and composition. This type of instrumentation is used by all students enrolled in Organic chemistry Labs I and II (CHEM 233 and 234), with an average of eight IR spectra required each semester for each student. With 180 students enrolled each semester and 50 students during summer, this amounts to over 3,000 experiments on account of these two labs alone. In addition, students enrolled in Inorganic Chemistry Lab (CHEM 252), Analytical Chemistry (CHEM 222) and Undergraduate Research (CHEM 362 and 462) also use the instrument frequently, as do walk-in's from other departments, notably other science units and chemical engineering. A single instrument is currently available to handle the demand of the entire chemistry program.

After over ten years of service, the main optical component of one IR spectrometer failed in 2023. The cost of its repair was determined to be unreasonable. The remaining instrument is currently being pushed to its limits by excessive sample loads and should be temporarily taken out of use for maintenance. A reduction of the sample loads is not feasible, due to a continuing very high demand for chemistry labs and the fact that infrared spectroscopy is the primary method for students to validate the outcome of their chemical experiments.

The teaching of spectroscopy, particularly IR, in chemistry begins at the sophomore level when students enrolled in analytical, inorganic and organic chemistry courses are introduced to the subject. Ultimately, all students enrolled in the sciences and most of those majoring in engineering will use infrared spectroscopy routinely throughout their academic careers, many of them throughout their professional careers as well. There has been a concerted effort to update the chemistry curriculum and instrument holdings of the chemistry department over the past 10-15 years to meet the demands of a hands-on curriculum. This has been largely successful, providing instrumentation that is up to date and provides adequate student training. However, the availability of a single infrared spectrometer constitutes a bottleneck. The impact of the proposed system is obvious. It will provide sufficient capacity to assure that students can complete their tasks in a timely fashion and assure that our program will not be stranded without any working units when the remaining instrument needs to be sent out for service.

Infrared spectroscopy enjoys widespread use due to the simplicity and inherent safety of its operation. Consequently, it is in widespread use in laboratories that support a range of professions including biology, geosciences, forensics, health care, safety, environmental monitoring, quality control and engineering. Experience in operating infrared spectrometers and interpreting their results benefits students with a wide range of majors, not only those majoring in chemistry.

3b. Projected lifetime of enhancement

With routine maintenance, the life expectancy of an infrared spectrometer is 5-10 years. After this time, several optical components typically need to be replaced, resulting in another 5 years of service. Instruments of this type typically become obsolete after 15 years.

3c. Person(s) responsible for:

i. Implementation

Dr. Thomas Junk will procure the budgeted infrared spectrometer and deploy it.

ii. Installation

Installation will consist of simply connecting the instrument to a computer via USB port and powering it up. Dr. Gallo will do this.

iii. Maintenance

Routine maintenance for infrared spectrometers consists of the regular replacement of a cartridge containing a drying agent, which keeps the optics of the system dry and has to be replaced every 6 to 12 months. Drs. Junk and Gallo will take turns in doing this.

iv. Operation

The instrument can be operated safely by anyone after approximately 20 minutes of training. The budgeted unit is designed to primarily be student operated. Due to the inherently safe nature of infrared spectrometers, very limited supervision is required for its operation.

v. Training (with qualifications)

All instructors who teach organic labs currently devote one lab session to training students in the operation of an IR spectrometer. All chemistry faculty is qualified to train students in the operation of instruction grade IR spectrometers.

Budget Proposal

1.	Equipment	\$	21,712.62
2.	Software	\$	428.01
3.	Supplies	\$	0.00
4.	Maintenance	\$	0.00
5.	Personnel	\$	0.00
6.	Other	\$	200.00
TOTAL:		\$	22,340.63

d. Budget Narrative:

Equipment covers one Nicolet Summit X FTIR Spectrometer (\$12,632.50), Transmission Accessory Kit (\$312.48), ATR Diamond Crystal sample holder (\$4126.88), ATR Optical Base (\$2,270.75), a 27" monitor (\$670.00), a Dell Optiplex computer with pre-installed operating system (\$1,700.00, pre-installed software is included in price) software. A power cord is included for the nominal charge of \$0.01

Software covers a Wiley IR spectral library (\$200). The Nicolet Summit English Language Kit reflects instrument operating software, included for the nominal charge of \$0.01.

Other covers shipping charges (\$200.00).

The quoted system cost of \$22,340.63 reflects an academic discount of \$9,400.40.

Previous funded STEP projects

August Gallo has previously authored the following funded STEP proposals:

- Smart Classrooms in Chemistry, T. Junk and A. Gallo, \$30,000, Awarded 2012.
- Purchase of an Attenuated Total Reflectance (ATR) Tool for Chemistry to Conduct Infrared Spectroscopy on Solids, T. Junk and A. Gallo, \$5,602.50, Awarded 2016.
- Organic Chemistry Laboratory Equipment Grant, R. Simon and A. Gallo, \$3666.50, awarded in May 2016.
- Acquisition of a Polarimeter for Chemistry Laboratories, A. Gallo and W. Xu, \$540.00, awarded January 2017.
- Digital Thermometers Grant Proposal, R. Simon and A. Gallo, \$1850.00, awarded May 2018.
- Stirring Hotplates for Chemistry, T. Junk, A. A. Gallo and R. L. Simon, \$8,450, awarded 2023.
- Purchase of Melting Point Instruments for Chemistry Laboratories, A. A. Gallo, \$18,750, awarded 2024.

Thomas Junk has previously authored the following funded STEP proposals:

- Smart Classrooms in Chemistry, T. Junk and A. Gallo, \$30,000, awarded 2012.
- Laptop Computers for Chemistry Lectures, T. Junk, \$3,285, awarded 2013.
- Raman Spectroscopy in Chemistry Labs, T. Junk, \$10,655, awarded 2015.
- Purchase of an Attenuated Total Reflectance (ATR) Tool for Chemistry to Conduct Infrared Spectroscopy on Solids, T. Junk and A. Gallo, \$5,602.50, awarded 2016.
- ChemDraw Chemical Structure Drawing Software for Student Use and Training, T. Junk, \$4,460, awarded 2017.
- Chemical Reactions with Light: UV Lamps for Photochemical Experiments in Organic Chemistry Labs, T. Junk and R. Simon, \$2,100.00, awarded January 2018.
- Stirring Hotplates for Chemistry, T. Junk, A. A. Gallo and R. L. Simon, \$8,450, awarded 2023

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	1
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

This quotation contains time bound promotional offerings that require order placement by the expiration date shown above. These time bound promotional offerings may not be repeated or extended beyond the expiration date.

Customer Info:

Customer Name: AUGUST GALLO
Company Name: University of Louisiana at Lafayette
Address: 300 E St Mary Blvd
Lafayette Louisiana 70503
United States

Phone: 3372123215
Email: gallo@louisiana.edu

Sales Contact Info:

Contact Name: King Chambers
Phone: (501) 765-2985
Email: king.chambers@thermofisher.com

Summit X

Item	Description	Unit Price	Qty	Unit Discount	Total Price
1.1	912A1139 NICOLET SUMMIT X FTIR SPECTROMETER Nicolet Summit FTIR Spectrometer ~ LightDrive Optical Engine technology ~ Single-point source with non-migrating hotspot (10-year warranty) ~ Interferometer with KBr/Ge coated beamsplitter and dynamic alignment, 7800-350 cm-1 (10-year warranty) ~ Solid-state, temperature controlled diode laser (10-year warranty) ~ High-Performance - Deuterated Triglycine Sulfate (DTGS) detector ~ Integrated LightBar for visual feedback on pass/fail results ~ Desiccated optical compartment sealed in a Al alloy chassis ~ Integrated heat and humidity electronic sensors to protect the bench from potential damage due to extreme environments ~ Auto-align energy optimization ~ Factory verified specifications, including: ~ 1 minute signal to noise of better than 35,000:1 ~ 0.6 cm-1 standard resolution ~ System Performance Verification (SPV) kit to automatically monitor system status including: ~ Hardware Diagnostics ~ Performance Verification based on ASTM E1421 ~ Internal 1.5 MIL (38 micron) NIST traceable polystyrene (supplied with certificate) ~ OMNIC Paradigm Desktop Software includes these standard features: ~ Dashboard/Home screen for quick access of recent work ~ Visual, drag and drop workflow creator with example templates ~ Live displays of data collection and spectral data preview ~ Connectivity to OMNIC Anywhere cloud-based application	\$16,300.00	1	\$3,667.50	\$12,632.50

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	2
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

Item	Description	Unit Price	Qty	Unit Discount	Total Price
	<ul style="list-style-type: none"> ~ Smart Background features cuts analysis time by 50% ~ ATR Crystal Clean Detection provides visual indication of crystal cleanliness ~ Advanced instrument health information tracking (optional) ~ Software updates available for download online ~ Flexible, one-click library creation ~ Pre-defined reporting templates exportable to Microsoft Office Suite ~ Multi-component search functionality ~ Includes Pharmacopeia workflows (Ph. Eur., USP, JP, CP) ~ Full spectral processing and analysis tools (baseline correction, spectral math, peak area, peak height, etc...) ~ Qcheck correlation for QA/QC data analysis ~ TQ EZ for quantification method development and prediction (Measure Only, Similarity Match, Beer's Law, and CLS) ~ Automated workflow creator based on user behavior ~ Includes over 5,000 library spectra of a variety of materials ~ Free upgrades included for the first 12-months ~ Includes one copy of Paradigm workstation software ~ OMNIC Paradigm Touchscreen Software includes these standard features: <ul style="list-style-type: none"> ~ Multi-point, ultra-responsive software interface ~ Simplified visual layout for streamlined application analysis ~ Push-button simplicity to run dedicated workflows and analyses ~ Spectral viewer with basic processing tools (i.e. peak area) 				
1.2	699-138000 KIT SUMMIT ENGLISH LANGUAGE Nicolet Summit English Language Kit	\$0.01	1	\$0.00	\$0.01
1.3	840-319200 SUMMIT TRANSMISSION ID1 ACCY id1 Transmission Accessory for the Nicolet Summit ~ Holds a wide variety of transmission accessories ~ Fits gas cells and cuvettes up to 10 cm	\$336.00	1	\$23.52	\$312.48
1.4	869-168800 ATR ID7/ITX AR-COATED DIAMOND CRYSTAL AR Diamond Crystal Plate for Smart iTX/id7/Everest ATR ~ Single Reflection Diamond Crystal Plate - High Throughput ~ Spectral range with KBr/DTGS optics: 7,800 - 400 cm-1 ~ Best overall performance monolithic diamond crystal ~ Includes a 5-year parts-only warranty	\$5,325.00	1	\$1,198.13	\$4,126.88
1.5	869-189500 EVEREST ATR OPTICAL BASE-SUMMIT Everest ATR Optical Base for Nicolet Summit ~ Crystal plate not included - must select at least one ~ High pressure tower with two tips plus volatiles cover	\$2,930.00	1	\$659.25	\$2,270.75

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	3
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

Item	Description	Unit Price	Qty	Unit Discount	Total Price
	~ Automatic accessory recognition ~ Includes a 5-year parts-only warranty				
1.6	LCD-27B 27-INCH FLAT MONITOR Monitor with large 27-inch viewing size ~ Full HD 1920 x 1080 resolution at 60Hz ~ LED backlit ~ 300 cd/m2 brightness (typical)	\$670.00	1	\$0.00	\$670.00
1.7	085-703800 CORD/PWR NAM 2.5M 10A NM5- Power Cord North American 120v, 3 Conductor	\$0.01	1	\$0.00	\$0.01
1.8	912A1224 BASIC-DELL OPTIPLEX CI5-WIN11PRO (or model with similar capabilities) Includes: Basic Workstation Dell OptiPlex Mini Tower Chassis Intel Core i5-12500 Processor 6 Cores 3.3GHz 8GB RAM, DDR5 Non-ECC 512GB Solid State Hard Drive Keyboard and Mouse 8X DVD+/-RW, Data Only, Audio Ports: Line-In, Line-Out, Integrated Audio and Internal Speaker 7 USB Ports, Four Front, 3 Rear 3 Display Ports 4 Expansion Slots: Full Height PCIe x4, x16 Chassis intrusion switch RoHS Compliant Lead Free Chassis and Motherboard Dell 3 Year Economy Support Plan	\$1,700.00	1	\$0.00	\$1,700.00
1.11	834-119000 SIGMA-ALDRICH LIBRARY OF ATR-IR SPECTRA Wiley (Sigma-Aldrich) ATR-IR Spectra Library ~ Deresolved DVD Format (19,503 spectra)	\$4,280.00	1	\$3,852.00	\$428.00

Quote Subtotal: \$31,541.02

Promotions / Discounts: - \$9,400.40

Quote total less discounts: \$22,140.63

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	4
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

Shipping:	\$200.00
Quotation Totals:	\$22,340.63

Sales tax exemption/resale certificates or direct pay permits must be provided with the order documents, if applicable. If valid sales tax exemption documentation is not provided, buyer shall pay all applicable federal, state and local taxes in addition to the price stated on this quotation.

Standard System Warranty:

The Nicolet Summit is user installed. Service installation and/or on-site warranty options are available at time of purchase.

The Nicolet Summit includes a one year, return to Factory warranty. The warranty period is 12 months from the date of shipment. If service installation is purchased, the warranty period is 12 months from the date of service installation or 14 months from the date of shipment, whichever is less. The system also includes warranties on the following parts:

Parts Only Warranty applies to: Interferometer (10-years), laser (10-years), source (10-years).

Items marked with an asterisk (*) on the face of the quotation are not Thermo Fisher Scientific products. Thermo Fisher Scientific is not responsible for the installation, operation or warranty of these products. Manufacturers may provide their own warranties.

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	5
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

Options / Recommendations

Item	Description	Unit Price	Qty	Unit Discount	Total Price
1.9	701-056851	\$2,089.00	1	\$0.00	\$2,089.00

Depot Extended Warranty - Summit Series

UNITY LAB SERVICES DEPOT PLAN

~ FTIR

Plan Features:

- ~ Corrective Maintenance repairs at our Depot Repair Facility
- ~ Priority status for technical support inquiries with a targeted immediate response time. A certified service engineer will conduct diagnosis and corrective maintenance procedures using the latest digital remote support tools
- ~ One (1) scheduled Preventive Maintenance service at our depot Repair Facility
- ~ Instrument Requalification (RQ) in conjunction with a scheduled corrective maintenance with a purchase of an add-on Operational Qualification (OQ)
- ~ Premium subscription to Unity Lab Services Online Knowledge Base
- ~ 10% discount on parts, accessories, and consumables during the effective period of the contract (ask for the discount when contacting your local Thermo Fisher Scientific parts ordering department)
- ~ Computers that were purchased from Thermo Fisher Scientific and required for the operation of the analytical system
- ~ Software and firmware updates upon request and in conjunction with a scheduled Preventive Maintenance or Corrective Maintenance visit (updates are defined as changes of the existing software version that are intended to improve its performance)
- ~ 10% discount off list price for training classes purchased during the contract validity period. May not be available in all locations or used in conjunction with any other discounts or promotions (please check availability with your local Thermo Fisher sales representative or customer service team)

Coverage Exclusions:

- ~ Background checks, drug-testing, or on-site trainings required by customers will be subject to additional charges
- ~ Applications and method development support
- ~ Computers and/or software not provided and/or installed with the system by Thermo Fisher Scientific
- ~ Computer hardware, operating system, and layered application software upgrades
- ~ Computer replacement in order to accommodate an upgrade to a newer version of the operating system
- ~ Instrument control software version upgrades
- ~ External power equipment e.g. UPS (uninterruptable power supply), power conditioner, or isolation transformer
- ~ Operator training
- ~ Complete system replacement
- ~ Buy-in parts and engineering specials
- ~ Consumable items and wearable parts such as cassettes, diskettes, external cables, gas cells, gaskets, grease, ink, light bulbs o-rings, ribbons temperature controllers and paper.

Sales Quotation

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	6
Lead Time	Payment Terms	Freight Terms	Expiration Date
	NET 30 DAYS UPON INVOICE DATE	Origin - Prepay And Add	June 28, 2024
Company Name		Customer Name	
University of Louisiana at Lafayette		AUGUST GALLO	
* See end pages of quote for PO Submission details			

Thermo Electron North America LLC
5225 Verona Road
Madison WI 53711

1400 Northpoint Parkway
West Palm Beach FL 33407

Item	Description	Unit Price	Qty	Unit Discount	Total Price
	~ Unless covered by a specific contract option, third party accessories, GC ovens, auto samplers, mapping stages, all Raman lasers, 960 Raman lasers iS50 ATR Module, iS50 Beam splitter Exchanger and sampling accessories (including Spectra-tech and Smart Accessories) ATR crystals. Validation Service Notes: When ValPro or Val-Q validation services are purchased as part of the INSTRUMENT SERVICE PLAN, the appropriate validation software package is required. If validation software is not currently installed on the system please contact your local Service Call Center to purchase the appropriate validation software package.				
1.10	701-061443 Factory Warranty PM - Nicolet Summit X	\$2,430.00	1	\$0.00	\$2,430.00
	• Annual standard Preventive Maintenance visit and a standard Preventive Maintenance Kit				

Options Total: \$4,519.00

EXTENDED WARRANTIES:

Extended Warranty is available at discounted prices when purchased at the time of instrument. 20% off for 1 additional year (2 years total), 25% off for 2 years (3 years total), 30% off for 3 years (4 years total), 30% off for 4 years (5 years total).

701-056851 Depot Extended Warranty - Summit Series

Additional Years	List Price	Promo Price when purchased with Instrument (s)	Savings
1	\$2,089.00	\$1,671.20	\$417.80
2	\$4,178.00	\$3,133.50	\$1,044.50
3	\$6,267.00	\$4,386.90	\$1,880.10
4	\$8,356.00	\$5,849.20	\$2,506.80

Purchase Order - Submission Details

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	7
Lead Time	Payment Terms		Expiration Date
	NET 30 DAYS UPON INVOICE DATE		June 28, 2024
Inco Terms 1	Inco Terms 2	Shipping Method	
Origin - Prepay And Add	PREPAY AND ADD	Fed Ex Ground	
See below			

Thermo Electron North America LLC
 5225 Verona Road
 Madison WI 53711

1400 Northpoint Parkway
 West Palm Beach FL 33407

To place your order and expedite shipment, please 1) sign and date the last page of this document; and 2) fax or e-mail it along with your Purchase Order to one of the addresses below.

To place an order via Ariba, please use Ariba Vendor Number AN01000155661.

Please note-all Purchase Orders must show the vendor name of Thermo Electron North America LLC

Thermo Electron North America LLC
 5225 Verona Road
 Madison WI 53711

or

Thermo Electron North America LLC
 1400 Northpoint Parkway
 West Palm Beach FL 33407

Complete System Orders:

Fax: 412-200-6542

e-mail: usmadorderprocessing@thermofisher.com

Parts or Service Orders:

Fax: 877-680-2565

e-mail: USMAD.ServiceOE.PO@thermofisher.com

Notes:

- Items marked with an asterisk (*) on the face of the quotation are non-Thermo Electron North America LLC products.
- Prices, warranty, installation and service on the items quoted herein are available only in the United States and may not be otherwise assigned.
- Tax exemption certificates or direct pay permits must be provided with the order documents, if applicable. If tax exemption documentation is not provided, buyer shall pay federal, state and local taxes in addition to the price stated on this quotation.
- Buyer shall not export or re-export technical data or products supplied by Thermo Electron North America LLC in violation of applicable export regulation. Buyer who exports products purchased hereunder assumes all responsibility for obtaining required export documentation, authorization, and payment of all applicable fees.
- All prices are quoted in USD

Purchase Order - Submission Details

Quote Number	Version	Quotation Date	Page
CPQ-00688032	1.00	June 27, 2024	8
Lead Time	Payment Terms		Expiration Date
	NET 30 DAYS UPON INVOICE DATE		June 28, 2024
Inco Terms 1	Inco Terms 2	Shipping Method	
Origin - Prepay And Add	PREPAY AND ADD	Fed Ex Ground	
See below			

Thermo Electron North America LLC
 5225 Verona Road
 Madison WI 53711

1400 Northpoint Parkway
 West Palm Beach FL 33407

TERMS AND CONDITIONS OF SALE FOR PRODUCTS AND SERVICES

This quotation, and Seller's Terms and Conditions of Sale for Products and Services (which are hereby incorporated by reference into this quotation and any resulting contract), set out the terms on which Seller is offering to sell the product(s) and/or service(s) listed in this quotation. By issuing a purchase order or otherwise ordering or accepting product(s) and/or services, Buyer expressly confirms that it agrees to be bound by and agrees to the terms of this quotation and the Terms and Conditions of Sale for Products and Services to the exclusion of all other terms not expressly agreed to in writing by an authorized representative of Seller, and that the purchase and sale transaction between Buyer and Seller is governed by this quotation and Terms and Conditions of Sale for Products and Services. Any new or different provisions contained in any document issued by Buyer in response to this offer are expressly rejected. Seller's Terms and Conditions of Sale for Products and Services can be found on the Thermo Fisher Scientific website at www.thermofisher.com/terms-tena and will be sent to Buyer via mail or e-mail upon request. The Terms and Conditions of Sale for Products and Services are subject to change by Seller, from time to time.

As an Authorized representative of the Buyer, your signature below creates an agreement to buy the products and services listed herein and your acceptance of the Seller's Standard Terms and Conditions of Sale included herein as the sole and exclusive terms for your purchase.

BUYER

SELLER

By: _____	By: _____
Print Name: _____	Print Name: _____
Print Title: _____	Print Title: _____
Date: _____	Date: _____

_____ Initial here to indicate Buyer's agreement to automatically apply Seller's Standard Terms and Conditions of Sale for Products and Services to all future orders of Products and Services from Seller, whether or not the Agreement is referenced on Seller's quote or Buyer's Purchase Orders, for _____ (write # of years) from later date of the parties' signature, or until either party provides written notice that this Agreement is terminated.