

## AM02 - Texas A&amp;M University

P.O. Date: 5/4/2016

## Purchase Order

Purchase Order Number

AM02-16-P019347

SHOW THIS NUMBER ON ALL  
PACKAGES, INVOICES AND  
SHIPPING PAPERS.V  
E  
N  
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O  
RVendor Number: 00040409  
LaVision Inc  
  
211 W Michigan Ave Ste 100  
Ypsilanti, MI 48197INVOICING VENDOR SHALL SUBMIT AN ITEMIZED INVOICE SHOWING  
PURCHASE ORDER NUMBER. IF YOUR INVOICE IS NOT PROCESSED AS  
INSTRUCTED, PAYMENT MAY BE DELAYED.S  
H  
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T  
OMECHANICAL ENGINEERING DEPT.  
Attn: Contact Mary Rodriguez at 979-845-1505; Email:  
maryrod@tamu.edu  
ENGINEERING/PHYSICS BLDG.  
101  
3123 TAMU  
COLLEGE STATION, TX 778433123  
US  
Email: meen-accountspayable@tamu.edu  
Phone: (979) 845-6347B  
I  
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T  
OATTN: FMO Accounts Payable  
750 Agronomy Road - Suite 3101  
6000 TAMU  
Attn: Email invoices to invoices@tamu.edu  
Attn: Do not mail invoice if sending via email  
College Station, TX 778436000  
USA  
Email: invoices@tamu.edu  
Phone: (979) 845-8362**Please login to Buy A&M to retrieve attachments associated with the  
Purchase Order.**

Solicitation (Bid) No.:

Payment Terms: Net 30  
Shipping Terms: F.O.B., Destination  
Freight Terms: Freight Allowed  
Delivery Calendar Day(s) A.R.O.: 0Item # 1  
Class-Item 450-551102052  
High Speed IRO - 2-stage intensified relay optics for high speed cameras, 25 mm diameter image intensifier, photocathode S20 Phosphor P46, 1:1  
lens coupling (for larger format sensors), 10 ns minimum gate time, 200 kHz max. repetition rate

| Quantity | Unit Price   | UOM | Discount % | Total Discount<br>Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|------------------------|----------|------------|---------|--------------|
| 1.00     | \$ 72,630.00 | EA  | 19.45 %    | -\$ 14,127.9876        |          | \$ 0.00    | \$ 0.00 | \$ 58,502.01 |

LN/FY/Account Code  
1/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG--  
L--Dollar Amount  
\$ 58,502.01Item # 2  
Class-Item 450-551102054  
High Speed IRO - 2-stage intensified relay optics for HSS cameras, 25 mm diameter image intensifier, photocathode S25 Phosphor P46, 1:1 lens  
coupling (for larger format sensors), 10 ns minimum gate time, 200 kHz max. repetition rate

| Quantity | Unit Price   | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 1.00     | \$ 72,630.00 | EA  | 19.45 %    | -\$ 14,127.9876     |          | \$ 0.00    | \$ 0.00 | \$ 58,502.01 |

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| <u>LN/FY/Account Code</u><br>2/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG--<br>L-- | <u>Dollar Amount</u><br>\$ 58,502.01 |
|--|--------------------------------------|

Item # 3  
Class-Item 450-55

1008856  
HSS Camera Adapter for HS IRO - for HSS X/Z cameras with built-in mechanical shutter

| Quantity | Unit Price | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost |
|----------|------------|-----|------------|---------------------|----------|------------|---------|------------|
| 2.00     | \$ 390.00  | EA  | 19.45 %    | -\$ 151.7256        |          | \$ 0.00    | \$ 0.00 | \$ 628.27  |

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| <u>LN/FY/Account Code</u><br>3/16/02-URES-BLANK-230268-20161-5752-----N-AA-RG--L-- | <u>Dollar Amount</u><br>\$ 628.27 |
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Item # 4  
Class-Item 450-55

1108093  
Programmable Timing Unit (PTU-X); External - 16 fast sequencer controlled output lines, 16 software controlled I/O lines, 2 input channels (cyclic trigger and image recording sequence start), 2 output analogue lines (0 - 10 V), 10 ns time resolution, jitter less than 50 psec, variable trigger delay for phase-resolved measurements, trigger delays based on time OR phase angle (for rotating machinery), USB-2 device.

| Quantity | Unit Price  | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|-------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 2.00     | \$ 9,550.00 | EA  | 19.45 %    | -\$ 3,715.332       |          | \$ 0.00    | \$ 0.00 | \$ 15,384.67 |

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| <u>LN/FY/Account Code</u><br>4/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG--<br>L-- | <u>Dollar Amount</u><br>\$ 15,384.67 |
|--|--------------------------------------|

Item # 5  
Class-Item 450-55

1108100  
PTU-X HS Upgrade - for all high frame rate camera and high repetition rate laser systems, supports time-based and cycle-based image recording

| Quantity | Unit Price  | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost  |
|----------|-------------|-----|------------|---------------------|----------|------------|---------|-------------|
| 2.00     | \$ 3,900.00 | EA  | 19.45 %    | -\$ 1,517.256       |          | \$ 0.00    | \$ 0.00 | \$ 6,282.74 |

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| <u>LN/FY/Account Code</u><br>5/16/02-URES-BLANK-230268-20161-5752-----N-AA-RG--L-- | <u>Dollar Amount</u><br>\$ 6,282.74 |
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Item # 6  
Class-Item 450-55

1105210  
DaVis 8 Software package (hardware support and data processing license) - 64-bit, parallelized software for image acquisition and data processing, control of all system hardware components for synchronized data acquisition for internally and externally triggered events, parameter scan image acquisition , phase-locked image acquisition with automatic scan of user-defined phase range, open macro programming language with source code provided for more than 100 image and vector processing functions, functions for:

image arithmetic, image transformation (mirror, rotate, apply image correction), geometric and adaptive image masking, copying and reorganizing data with a date set or project, linear and non-linear image filtering, shift and rotation correction (to remove vibration effects), subtraction of running average image over time, profile and time plot generation, image/vector field stitching, and unlimited user definability of new image and vector field processing functions. data organization. Windows 7 (64-bit) operation system required (for system hardware support).

| Quantity | Unit Price  | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost  |
|----------|-------------|-----|------------|---------------------|----------|------------|---------|-------------|
| 1.00     | \$ 5,400.00 | EA  | 19.45 %    | -\$ 1,050.408       |          | \$ 0.00    | \$ 0.00 | \$ 4,349.59 |

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| <u>LN/FY/Account Code</u>                                | <u>Dollar Amount</u> |
| 6/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG-- | \$ 4,349.59          |
| L--  |                      |

Item # 7  
Class-Item 450-55

1105011

2D PIV and PTV Software package - sophisticated multi-pass cross-correlation processing with deformed window correlation and sub-pixel window off-set, Adaptive PIV with automatic local adjustment of interrogation spot size, shape, and orientation based on local velocity gradients, GPU processing compatible for extreme parallelization, 2-D Lagrangian PTV algorithms, fixed and automatic image masking, robust regional median filters and universal outlier detection post-processing, POD, Matlab and Tecplot readers, computation of all relevant vector and scalar field statics for two-component velocity fields. Includes PIV uncertainty quantification for instantaneous velocity fields using the Correlation Statistics method. Provides error estimation for calculated data

| Quantity | Unit Price   | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 1.00     | \$ 13,500.00 | EA  | 19.45 %    | -\$ 2,626.02        |          | \$ 0.00    | \$ 0.00 | \$ 10,873.98 |

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| <u>LN/FY/Account Code</u>                                | <u>Dollar Amount</u> |
| 7/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG-- | \$ 10,873.98         |
| L--  |                      |

Item # 8  
Class-Item 450-55

1105012

Stereo PIV Software Upgrade - includes patented SELF-CALIBRATION for correction of calibration errors do to misalignment of the calibration plate and laser sheet, support for experiments which do not allow for in-situ calibration, quantification of laser light sheet thickness and overlap between two laser pulses, multiple image overlay to assist field of view overlap for multiple cameras, calculation of all relevant vector and scalar statics for all three velocity components. Includes PIV uncertainty quantification for instantaneous velocity fields using the Correlation Statistics method. Provides error estimation for calculated data

| Quantity | Unit Price   | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 1.00     | \$ 13,000.00 | EA  | 19.45 %    | -\$ 2,528.76        |          | \$ 0.00    | \$ 0.00 | \$ 10,471.24 |

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| <u>LN/FY/Account Code</u>                                | <u>Dollar Amount</u> |
| 8/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG-- | \$ 10,471.24         |
| L--  |                      |

Item # 9  
Class-Item 450-55

1105055

Tomographic PIV Software - upgrade from DaVis with 2-D and Stereo PIV licenses. Includes image pre-processing filters, Volume Self-Calibration, 3-D image volume reconstruction (MLOS, MnLOS, MTE, Fast MART, and multi-pass MART algorithms), volume correlation, and 3-D vector post-processing algorithms to glean instantaneous 3-component velocity measurements throughout a finite measurements volume. Supports images from up to 8 cameras.

| Quantity | Unit Price   | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 1.00     | \$ 36,855.00 | EA  | 19.45 %    | -\$ 7,169.0346      |          | \$ 0.00    | \$ 0.00 | \$ 29,685.97 |

LN/FY/Account Code9/16/02-URES-BLANK-230268-20161-8424----842401-N-AA-RG--  
L--Dollar Amount

\$ 29,685.97

Item # 10

Class-Item 450-55

1105209, 1105111, 1105112, 1105155

DaVis 8 Software package (data processing license) - 64-bit, parallelized software, open macro programming language with source code provided for more than 100 image and vector processing functions, functions for: image arithmetic, image transformation (mirror, rotate, apply image correction), geometric and adaptive image masking, copying and reorganizing data with a date set or project, linear and non-linear image filtering, shift and rotation correction (to remove vibration effects), subtraction of running average image over time, profile and time plot generation, image/vector field stitching, and unlimited user definability of new image and vector field processing functions.data organization. Windows 7 (64-bit) operation system required (for system hardware support). Includes 2-D PIV, Stereo PIV, and Tomo PIV processing packages

| Quantity | Unit Price   | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost   |
|----------|--------------|-----|------------|---------------------|----------|------------|---------|--------------|
| 2.00     | \$ 15,215.00 | EA  | 19.45 %    | -\$ 5,919.2436      |          | \$ 0.00    | \$ 0.00 | \$ 24,510.76 |

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L--Dollar Amount

\$ 24,510.76

Item # 11

Class-Item 450-55

1108176

Scheimpflug Camera Lens Adapter (Series 3) - for F-mount camera lenses, 20° Scheimpflug tilt angle, full 360 degree adjustability about the axis of the camera (to achieve the proper Scheimpflug angle for compound viewing angles), image center preserving, rotation and tile locking mechanisms

| Quantity | Unit Price  | UOM | Discount % | Total Discount Amt. | Tax Rate | Tax Amount | Freight | Total Cost  |
|----------|-------------|-----|------------|---------------------|----------|------------|---------|-------------|
| 2.00     | \$ 3,510.00 | EA  | 19.45 %    | -\$ 1,365.5304      |          | \$ 0.00    | \$ 0.00 | \$ 5,654.47 |

LN/FY/Account Code

11/16/02-URES-BLANK-230268-20161-5752-----N-AA-RG--L--

Dollar Amount

\$ 5,654.47

|          |               |
|----------|---------------|
| TAX:     | \$ 0.00       |
| FREIGHT: | \$ 0.00       |
| TOTAL:   | \$ 224,845.71 |

ANY EXCEPTIONS TO PRICING OR DESCRIPTION CONTAINED HEREIN MUST BE APPROVED BY THE TEXAS A&M UNIVERSITY AGENCY PROCUREMENT OFFICE PRIOR TO SHIPPING.

The State of Texas is Exempt from all Federal Excise Taxes.  
State and City Sales Tax Exemption Certificate: The A&M System claims an exemption from taxes under Chapter 20, Title 122A Revised Civil Statutes of Texas for purchase of tangible personal property described in this order, purchased from Vendor listed above as this property is being secured for the exclusive use of the State of Texas.

The Terms and Conditions of the State shall prevail.

FAILURE TO DELIVER: If the Vendor fails to deliver these supplies by the promised delivery date or a reasonable time thereafter, without giving acceptable reasons for delay, or if supplies are rejected for failure to meet specifications, the State reserves the right to purchase specified supplies and equipment elsewhere, and charge the increase in price and cost of handling to the Vendor. No substitution or cancellations permitted without prior approval of The Texas A&M University System.

STATE OF TEXAS AND THE TEXAS A&M UNIVERSITY SYSTEM TERMS AND CONDITIONS APPLY.

APPROVED

|         |                  |
|---------|------------------|
| By:     | Angel Constancio |
| Email:  | agc@tamu.edu     |
| Phone#: | (979) 845-3847   |

BUYER